SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

ITEM: 3.19
(ID # 11677)
MEETING DATE:
Tuesday, April 07, 2020

FROM: FACILITIES MANAGEMENT AND RIVERSIDE COUNTY LIBRARY SYSTEM:

SUBJECT: FACILITIES MANAGEMENT (FM) AND RIVERSIDE COUNTY LIBRARY SYSTEM: Riverside County Library System - French Valley Library - Adoption of Mitigated Negative Declaration, Mitigation Monitoring Reporting Program for Environmental Assessment Number EA202003I, and Approval of Cultural Resources Monitoring Agreement with the Soboba Band of Luiseno Indians and Cultural Resources Treatment and Tribal Monitoring Agreement with Pechanga Band of Luiseno Indians, District 3. [$60,000 - County Library Fund - 100%] (FM Staff to File Notice of Determination)

RECOMMENDED MOTION: That the Board of Supervisors:

1. Adopt the Mitigated Negative Declaration (MND) and the Mitigation Monitoring and Reporting Program (MMRP) for Environmental Assessment Number 202003I, based on the findings incorporated in the Initial Study and the conclusion that the French Valley Library Project will not have a significant effect on the environment with implementation of the mitigation measures contained therein, and the MND reflects the Board's independent judgment and analysis;

2. Approve the French Valley Library Project;

ACTION:Policy

Rose Salgado, Director of Facilities Management 3/12/2020

Suzanne Holland, Director of EDA 3/17/2020

MINUTES OF THE BOARD OF SUPERVISORS

On motion of Supervisor Spiegel, seconded by Supervisor Perez and duly carried by unanimous vote, IT WAS ORDERED that the above matter is approved as recommended.

Ayes:	Jeffries, Spiegel, Washington, Perez and Hewitt
Nays:	None
Absent:	None
Date:	April 7, 2020
xc:	FM

Kecia R. Harper
Clerk of the Board
By: _____
Deputy

RECOMMENDED MOTION: That the Board of Supervisors:

3. Approve the Cultural Resources Monitoring Agreement between the County of Riverside (County) and the Soboba Band of Luiseno Indians (Soboba Band) for a not-to-exceed amount of $30,000, associated with construction of the Project and as part of the requirements of the MMRP, and authorize the Chairman of the Board (Chairman) to execute the agreement on behalf of the County;

4. Approve the Cultural Resources Treatment and Tribal Monitoring Agreement between the County and the Pechanga Band of Luiseno Indians (Pechanga Band) for a not-to-exceed amount of $30,000, associated with construction of the Project and as part of the requirements of the MMRP, and authorize the Chairman to execute the agreement on behalf of the County; and

5. Authorize the Director of Facilities Management, or designee, to administer the Tribal Monitoring Agreements with the Soboba Band and Pechanga Band, in accordance with their terms and applicable Board policies.

FINANCIAL DATA	Current Fiscal Year:	Next Fiscal Year:	Total Cost:	Ongoing Cost
COST	$ 60,000	$ 0	$ 60,000	$ 0
NET COUNTY COST	$ 0	$ 0	$ 0	$ 0
SOURCE OF FUNDS: County Library Fund – 100% (previously approved budget)			**Budget Adjustment:** No **For Fiscal Year:** 2019/20	

C.E.O. RECOMMENDATION: Approve.

BACKGROUND:
Summary

Through the Economic Development's (ED) Community and Cultural Services Division, ED manages the Riverside County Library System (RCLS) including thirty-six library facilities throughout Riverside County and two book mobiles. In the most recent fiscal year, RCLS logged over 3.7 million visitors to these facilities. After a review of library operations, it was determined that in order to meet increased visitor demand and to provide efficient library facilities, additional library facilities are needed in French Valley, Menifee, and Desert Hot Springs.

FM's Real Estate Division assisted RCLS in the establishment of a Public Private Partnership (P3) to engage a real estate developer to plan, design, entitle, and construct these new facilities on County owned land and to complete the three County Libraries. The County will then lease back the facility from the developer over a 30 year term. The new French Valley Library will

consist of approximately 25,000 square feet and will be located on the north east corner of Winchester Road and Skyview Road in the County unincorporated area.

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000-21177) and State CEQA Guidelines Section 15063, FM prepared an Initial Study/MND which was circulated to the public from December 16, 2019 to January 4, 2020. The County is required to adopt a reporting and monitoring plan for the measures identified in the Initial Study/MND to mitigate or avoid significant effects on the environment. The Initial Study/MND demonstrated that the project would not have any significant impacts on the environment with the implementation of the mitigation measures identified in the Initial Study/MND and MMRP. The County will consider any comments received during the review period prior to adoption of the Initial Study/MND. The Notice of Determination will be filed by FM staff with the County Clerk within five days of Board approval.

On May 30, 2019, and in accordance with Assembly Bill 52, tribes were notified about the Project. Two tribes requested consultation which took place on July 17, and September 17, 2019. Formal consultation with these Tribes concluded on December 11 and December 13, 2019. No other Tribes requested consultation within the 30-day notification period.

Mitigation Measures were developed in coordination with the Tribes to address concerns related to the accidental discovery of cultural resources. Compliance with these mitigation measures will provide a redundancy mechanism to ensure that potential impacts from inadvertent discoveries of archeological resources do not occur and remain less than significant. The attached Monitoring Agreements in the not to exceed amount of $30,000 each, will compensate the Soboba Band and Pechanga Band for the ongoing tribal monitoring during all grading, groundbreaking, excavation, and ground disturbing activities performed in conjunction with the project development.

Construction of the Project is anticipated to occur in March of 2020.

Impact on Residents and Businesses

The French Valley Library will provide enhanced programs and services that will better serve the growing regions of the County and will have a positive impact on both residents and local businesses.

Additional Fiscal Information

The Board previously approved the costs associated with the CEQA studies for French Valley Library on July 23, 2019 (Item 3.24). This Board action will have no financial impact to the Project.

Attachments:

- Initial Study/Mitigated Negative Declaration
- Notice of Determination
- Cultural Resources Monitoring Agreement with the Soboba Band of Luiseno Indians
- Cultural Resources Treatment and Tribal Monitoring Agreement with the Pechanga Band of Luiseno Indians

RF:HM:VC:SP:MS;mg FM05190009924 11677-14043
S:\Project Management Office\FORM 11'S\Form 11's_In Process\11677 -14043_D3 - 009924 - RCLS French Vly Library - Adopt MND, MMRP, & Tribal Monitoring Agmts_033120.doc

Steven Atkeson 3/27/2020 Gregory P. Priamos, Director County Counsel 3/13/2020

WHEN DOCUMENT IS FULLY EXECUTED RETURN
CLERK'S COPY
to Riverside County Clerk of the Board, Stop 1010
Post Office Box 1147, Riverside, Ca 92502-1147
Thank you.

CULTURAL RESOURCES TREATMENT AND TRIBAL MONITORING AGREEMENT
(Pre-Excavation Agreement)

FRENCH VALLEY LIBRARY

I. PARTIES

The PARTIES to this Agreement are (1) The Pechanga Band of Luiseño Indians, a federally recognized Indian tribe ("PECHANGA TRIBE") and (2) Riverside County Facilities Management ("AGENCY").

All notices to the PARTIES shall be given at the addresses below:

Pechanga Band of Luiseño Indians
Gary DuBois, Director
Pechanga Cultural Resources
P.O. Box 2183
Temecula, CA 92593
Telephone: (951) 770-6300

General Counsel for the Pechanga Band
Michele Fahley, Deputy General Counsel
Pechanga Office of the General Counsel
P.O. Box 1477
Temecula, CA 92593
Telephone: (951) 770-6170
Facsimile: (951) 694-0733

Agency
Riverside County
Facilities Management
3403 10th Street, Suite 400
Riverside, Ca 92501
Telephone: (951) 955-4860

For Tribal Monitor scheduling and Tribal Monitor contact information, please refer to Addendum 2 (Monitoring Services Summary Sheet)

II. SUBJECT MATTER

This Agreement concerns a project known as the French Valley Library and more specifically defined as APN 480-160-021. The PECHANGA TRIBE will provide a copy of this Agreement to the Riverside County Medical Examiner's Office and the Riverside County, Facilities Management, Lead Agency for the Project, and agency responsible for environmental compliance of this Project ("Lead Agency").

III. PURPOSE

This Agreement formalizes procedures for the treatment of Native American human remains, grave goods, funerary objects, ceremonial items, and cultural items, in the event that any are found in conjunction with development of the Project. This Agreement also formalizes procedures for Tribal Monitoring during all grading, groundbreaking, excavation, and ground-disturbing activities performed in conjunction with the Project development, including archaeological testing, studies, surveys, and staging activities. This Agreement is entered into pursuant to the mitigation measures required under the California Environmental Quality Act, Cal. Public Resources Code Section 21000 et seq., as amended ("CEQA") and the conditions of approval for this Project. This Agreement is effective as of the date provided for in Section XVII.

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IV. CULTURAL AFFILIATION & TREATMENT OF CULTURAL RESOURCES

The PARTIES agree that the Project area consists of land which has been traced to and traditionally occupied by the PECHANGA TRIBE. Cultural resources, including ceremonial items and archaeological items, which may be found in conjunction with the development of this Project shall be treated as follows:

Treatment of all cultural items will reflect the religious beliefs, customs, and practices of the PECHANGA TRIBE. The AGENCY agrees to give all cultural items to the PECHANGA TRIBE for appropriate treatment, unless the AGENCY is otherwise ordered by a court or agency of competent jurisdiction. The AGENCY waives any and all claims to ownership of all cultural items in favor of the PECHANGA TRIBE. If temporary possession of cultural items by the AGENCY or its agents, subcontractors, or representatives is necessary (for example a Project archaeologist), said entity or individual shall not possess those items for longer than is reasonably necessary, except that all PARTIES agree that ceremonial and sacred items shall be immediately relinquished to the PECHANGA TRIBE for appropriate treatment.

V. DISCOVERY OF HUMAN REMAINS

A. Most Likely Descendant Determination

If Native American human remains are found during development of the Project, the PARTIES understand that the Native American Heritage Commission ("NAHC") will be notified and will make a determination of Most Likely Descendant ("MLD") pursuant to California Public Resources Code Section 5097.98. Neither PARTY guarantees that the PECHANGA TRIBE or one of its members will be named the MLD. However, given the location of the site and the history/prehistory of the area, the PARTIES' good faith belief is that Tribal Chairperson Mark Macarro of the PECHANGA TRIBE will be named the MLD.

Should the NAHC determine that a member of an Indian tribe other than the PECHANGA TRIBE is the MLD, the provisions of this Agreement relating to the treatment of such Native American human remains shall be null and void in their entirety, except that the provisions of Addendum 1 to this Agreement, which is fully severable, shall continue in full force and effect.

B. Coordination with County Medical Examiner's Office

The AGENCY shall immediately contact the Medical Examiner and the PECHANGA TRIBE in the event that any human remains are discovered during the development of the Project. The Medical Examiner shall ensure that notification is provided to the NAHC as required by California Public Resources Code Section 5097.98(a) and California Health & Safety Code Section 7050.5(c).

C. Treatment of Native American Human Remains

In the event that Native American human remains are found during development of the Project and the PECHANGA TRIBE or one of its members is determined to be the MLD by the NAHC, the following provisions shall apply.

The term "Native American human remains" encompasses more than human bones. The PECHANGA TRIBE'S traditions call for the burial of associated cultural resources with the deceased (grave goods and funerary objects), and the ceremonial burning of human remains, with funerary objects, grave goods and animals. Ashes and other remnants of these burning ceremonies,

as well as grave goods and funerary objects, associated with or buried with the Native American remains, are to be treated in the same manner as bones, bone fragments, and cremations.

The Medical Examiner shall immediately be notified, ground disturbing activities in that location shall cease, and the remains shall be left in the place where they were discovered until the Medical Examiner has had the opportunity to inspect the remains in place and make her determinations as required by State law, and until a final decision as to the treatment and disposition has been made pursuant to this Agreement and the State law.

The PECHANGA TRIBE shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery, and (2) make recommendations as to how the human remains and grave goods should be treated with appropriate dignity. The AGENCY shall discuss and confer with the PECHANGA TRIBE all reasonable options with regard to its preferences and recommendations for treatment. The PARTIES agree to discuss in good faith what constitutes "appropriate dignity," as that term is used in the applicable statutes and in the PECHANGA TRIBE'S customs and traditions.

The PECHANGA TRIBE shall complete its inspection and make its MLD recommendation within forty-eight (48) hours of receiving notification of the MLD determination from the NAHC. The PECHANGA TRIBE shall have the final determination as to the disposition and treatment of human remains and grave goods.

D. Non-Disclosure of Reburial Locations

Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code Section 6250 et seq. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r).

VI. SIGNIFICANT SITES IMPACTED BY PROJECT

If additional significant sites or sites not identified as significant in the Project environmental review process, but later determined to be significant, are located within the Project impact area, such sites will be subjected to further archaeological and cultural significance evaluation by the Riverside County Facilities Management, as Lead Agency, and the PECHANGA TRIBE to determine if additional mitigation measures are necessary to treat sites in a culturally appropriate manner consistent with CEQA requirements for mitigation of impacts to cultural resources.

VII. TRIBAL MONITORS

The description of work for Tribal Monitors is attached hereto as Addendum 1 and incorporated herein by reference. Addendum 1 specifies the development activities that Tribal Monitors will monitor, the geographical area over which this monitoring shall be conducted, the size of the monitoring crew, the powers of the monitoring crew, provisions for compensation of the Tribal Monitors, and other pertinent provisions.

VIII. SUCCESSORS AND ASSIGNS

This Agreement shall be binding upon and inure to the benefit of the heirs, successors, representatives, executors, administrators, and assigns of the parties, including subsequent land owners, developers, and subcontractors of the Project area, and any person or entity obligated to comply with environmental and cultural/archaeological protection laws applicable to the Project.

IX. STATUTORY COMPLIANCE

Nothing in this Agreement shall excuse the Lead Agency on this Project or the AGENCY from their obligations under any applicable state or federal laws or regulations, including but not limited to the CEQA, Public Resources Code Section 21000 et seq.; the National Historic Preservation Act, 16 U.S.C. Section 470 et seq.; California Public Resources Code Sections 5097.98, 5097.98(c), and 5097.99; California Health and Safety Code Section 7050.5(c); California Government Code Sections 6254, 65040.2, 65092, 65351, 65352, 65560, 65352.3, 65352.4, 65562.5; California Civil Code Section 815.3; the Native American Graves Protection and Repatriation Act, 25 U.S.C. Section 3001 et seq.; the California Native American Graves Protection and Repatriation Act of 2001, California Health and Safety Code Section 8010 et seq.; the American Indian Religious Freedom Act, 16 U.S.C. Section 1996, et seq., and the First Amendment to the United States Constitution. Nothing in this Agreement is intended to make any of the above-referenced laws applicable where such laws would otherwise be inapplicable.

X. INDEMNITY

The PECHANGA TRIBE in no way indemnifies nor guarantees the Lead Agency or the AGENCY in any of their legal obligations.

XI. SEVERABILITY

Should any part of this Agreement be found by any court or agency of competent jurisdiction to be to any extent invalid or unenforceable, the remainder of this Agreement shall not be affected thereby and shall be valid and enforceable to the fullest extent permitted by law.

XII. CONFIDENTIALITY

The AGENCY agrees to keep confidential and shall not disclose the following, unless required by law or a court of competent jurisdiction any items discussed in Section V(D). The AGENCY shall ensure that all of its officers, directors, agents, employees and contractors agree to keep confidential the above items and to fully comply with this section as though each of them had signed this Agreement. The PARTIES agree that any remedy at law for a breach of this section would be inadequate and such breach shall result in irreparable harm to the PECHANGA TRIBE, who shall be entitled to obtain injunctive relief for a breach of this section, in addition to any other remedies available to it at law.

XIII. LIMITATION ON SCOPE

This Agreement is unique to this Project only and does not set a precedent for other projects.

XVI. AUTHORITY TO EXECUTE

Each of the persons executing this Agreement expressly warrants that he or she is authorized to do so on behalf of the entity for which he or she is executing this Agreement. Each PARTY to this

Agreement represents and warrants that this Agreement is executed voluntarily, with full knowledge of its significance.

XVII. COUNTERPARTS

This Agreement may be signed in two or more counterparts and will be effective when all PARTIES and signatories have affixed their signatures to two or more of the counterparts and said counterparts have been delivered to all PARTIES, at which time the counterparts together will be deemed one original document.

Date:	_____	Date:	APR 0 7 2020
Tribe:	PECHANGA BAND OF LUISEÑO INDIANS	Agency:	RIVERSIDE COUNTY FACILITIES MANAGEMENT
By:	Mark Macarro	By:	~~Rose Salgado~~ V. MANUEL PEREZ
Its:	Tribal Chairman	Its:	~~Director Facilities Management~~ Chairman

FORM APPROVED COUNTY COUNSEL
BY: _____ 3/13/20
SYNTHIA M. GUNZEL DATE

ATTEST:
KECIA R. HARPER, Clerk
By _____
DEPUTY

ADDENDUM 1
TRIBAL MONITORING

French Valley Library

I. MONITORING SPECIFICATIONS

The French Valley Library project, defined in Section II of the Cultural Resources Treatment and Tribal Monitoring Agreement, shall consist of construction and operation of a new 25,0000 square-foot public library facility and onsite parking.

Given the nature and sensitivity of the archaeological sites and cultural resources that are or may be in the Project area, it is agreed that the PECHANGA TRIBE shall designate representatives to be retained as Tribal Monitors to monitor all grading, groundbreaking, excavation, and ground-disturbing activities performed in the Project area and in conjunction with the Project development, including archaeological testing, studies, surveys, and staging activities. Tribal Monitors will not monitor paleontological material. If necessary, archaeological observation shall consist of a qualified archaeologist, retained by the AGENCY, to be present during grading activities to identify and/or ascertain the significance of any subsurface cultural resources or to aid in the avoidance of sensitive areas.

II. DISCOVERY OF HUMAN REMAINS

In the event that human remains, as defined in Section V(C) of the Cultural Resources Treatment and Tribal Monitoring Agreement, incorporated herein by reference, are found during development of the Project, Tribal Monitors are empowered to temporarily halt and/or relocate grading or excavation activities pending further investigation by the Medical Examiner and the PECHANGA TRIBE, pursuant to California Health & Safety Code Section 7050.5. The Tribal Monitors are further empowered to temporarily halt and/or relocate grading or excavation activities, for short periods of time, to conduct further evaluation of the significance of discovered cultural items, including further controlled excavations pursuant to California Public Resources Code Section 21083.2(i). Surface or subsurface artifacts of significance may be collected and mapped during this controlled excavation.

III. PRE-GRADING CONFERENCE & PROJECT CREW SIZES

Regarding grading activities, a pre-grading conference shall be held by the AGENCY to clarify Tribal Monitoring specifications with the grading contractor and/or Project manager and the grading inspector of the jurisdiction in which the Project site is located. The PECHANGA TRIBE shall be invited to participate in this conference.

To determine Tribal Monitoring crew sizes, a written schedule of excavation, testing, grading, and ground-disturbing activities shall be submitted by the AGENCY to the PECHANGA TRIBE one week in advance of the commencement of these activities. If the AGENCY changes the written schedule of excavation with less than twenty-four (24) hours' notice, the PECHANGA TRIBE may impose a minimum half-day show-up charge. "Notice" must be given during normal business hours (*i.e.*, Monday-Friday from 8:00 a.m. to 5:00 p.m.). Notice provided outside of normal business hours may result in a minimum half-day charge.

The PARTIES to this Agreement anticipate the need for a Tribal Monitoring crew consisting of one (1) person. If the scope of work changes to require additional monitors (for example, if inadvertent discoveries of cultural resources are made or simultaneous grading in two or more geographic areas), the AGENCY agrees to come to a reasonable agreement with the PECHANGA TRIBE regarding compensation of more than one (1) monitor.

IV. COMPENSATION

The PECHANGA TRIBE shall hire the Tribal Monitoring crew for this Project and shall be responsible for coordinating their activities on this Project. The PECHANGA TRIBE recognizes that dangerous conditions can exist at the Project work site, particularly during grading operations, and agrees to assume responsibility for the safety of the Tribal Monitors while on the Project site. The PECHANGA TRIBE possesses liability insurance for its Monitors.

The AGENCY shall compensate the Tribal Monitors at the rate of $75.00 per hour, plus reimbursement for all reasonable and documented mileage expenses at the current Federal Travel Regulation mileage rate. The hourly rate of compensation shall be adjusted for inflation based on 2020 dollars. The adjustment, if any, shall be calculated at the beginning of the calendar year and will be in accordance with the United States Department of Labor, Bureau of Labor Statistics, Revised Consumer Price Index. A minimum half-day charge ("show up time") will be charged to the AGENCY for unannounced work stoppages of Tribal Monitors which are not due to actions of the PECHANGA TRIBE. The hourly rate will not be applicable to travel time to and from the Project site. A minimum two hour charge will be applied for the pre-grading conference and any other meetings conducted outside of regularly scheduled grading or construction hours.

Overtime rates of time and a half ($112.50 per hour) of the quoted rate apply for "after hours" and "weekend" work. "After hours work" is defined as services performed beyond an eight hour day from start of construction. "Weekend work" is defined as services performed between close of the eight-hour construction day on Friday and start of construction work Monday morning. Holiday rates of double time ($150 per hour) of the quoted rate apply for all holiday work. The hourly rate will not be applicable to travel time to and from the Project site.

The AGENCY agrees that the PECHANGA TRIBE may invoice the AGENCY for the Tribal Monitors' compensation on a monthly basis. The AGENCY also agrees to remit payment in full to the following address within thirty (30) days of receipt of the PECHANGA TRIBE's invoice:

Accounting Department
Pechanga Band of Luiseño Indians
Attn: Accounts Receivable
P.O. Box 1477
Temecula, CA 92593

All unpaid balances are subject to a monthly finance charge of 2% of the balance owed. If the AGENCY fails to remit payment, the PECHANGA TRIBE may pursue any necessary legal action, including collections, to recover the money owed.

V. MONITOR SERVICES SUMMARY SHEET

Please refer to Addendum 2 for pertinent contact information regarding monitor services.

ADDENDUM 2

MONITORING SERVICES SUMMARY SHEET

Project #:	Project Owner/Developer:		PO #:	Project Start Date:	Project End Date:
Hourly Rate:	**Overtime Rate:**	**Holiday Rate:**	**Mileage Rate:**	**Show Up: Y or N**	**Pre-grading Time:**
$75.00	$112.50	$150.00			

Project Manager Name:	Address:

E-mail:	Phone Number:

Accounts Payable Contact:	Address:

E-mail:	Phone Number:

Account #:	Name of Tribe:	Address:	Phone Number:
	Pechanga Band of Luiseno Indians	P.O. Box 1477 Temecula CA 92593	951-770-6000

Accounts Receivable Contact:	Address:	E-mail:	Phone Number:
Aide Fierro	P.O. Box 1477 Temecula, CA 92593	afierro@pechanga-nsn.gov	951-770-6111
Monitor Services Contact:	**Address:**	**E-mail:**	**Phone Number:**
Tina Thompson-Mendoza	P.O. Box 2183 Temecula, CA 92593	tmendoza@pechanga-nsn.gov	951-770-6302
If you can not reach Tina Thompson, please contact Ebru Ozdil at (951) 770-6313			

For Internal Use Only:

SOBOBA BAND OF LUISEÑO INDIANS
P.O. BOX 487, SAN JACINTO, CA 92581

CULTURAL RESOURCE MONITORING AGREEMENT

This CULTURAL RESOURCE MONITORING AGREEMENT ("Agreement") is made and entered into as of February 25, 2020, by and between SOBOBA BAND OF LUISEÑO INDIANS, a federally recognized Indian tribe ("Soboba Band") and Riverside County ("County") (Soboba Band and County are sometimes referred to individually as a "Party," and collectively as the "Parties").

RECITALS

A. Subject Matter: This Agreement concerns a Project located within the County of Riverside and on a site owned by County, commonly referred to as the French Valley Library Project (hereinafter referred to as the "Project") and as more particularly described in Attachment I to this Agreement. The County also shall be referred to herein as the "Lead Agency."

B. Purpose: The purpose of this Agreement is to formalize procedures for tribal monitoring of the Soboba Band of Luiseno Indians during Ground disturbing activities.

NOW, THEREFORE, the parties mutually agrees as follows:

1. **The description of work.** Description of work for monitors for the grading and ground disturbing operations at the Project site is provided in Attachment II to this Agreement and incorporated herein by this reference. Section I of Attachment II specifies the duties and responsibilities of the identified tribal monitoring crew and other specified parties. Section II of Attachment II identifies the geographical area over which the tribal monitoring crew shall oversee, and Sections III and IV of Attachment II specifies the direct compensation of the tribal monitoring crew by County.

2. **Limitation on Scope.** This Agreement is unique to the Project only and does not set a precedent for other projects.

3. **Counterparts.** This Agreement may be signed in two or more counterparts and shall be effective when all the Parties and signatories have affixed their signatures to two or more of the counterparts and the counterparts have been delivered to all Parties, at which time the counterparts together will be deemed one original document.

4. **Incorporation of Attachments.** Attachment I identifying the Project site, Attachment II setting forth the description of work for the monitors, and Attachment III regarding insurance requirements, are attached hereto and incorporated by this reference.

APR 07 2020 3.19

IN WITNESS WHEREOF, the parties hereto have caused their duly representatives to execute this Agreement.

Date: ~~February~~ April 7, 2020

SOBOBA BAND OF LUISEÑO INDIANS

By:

Isaiah Vivanco, Tribal Chairman
Soboba Band of Luiseño Indians

Date: ~~February~~ April 7, 2020

COUNTY

By: V. Manuel Perez
Chairman, Riverside County Board of Supervisors

ATTEST:
KECIA HARPER ~~HIEM~~
CLERK OF THE BOARD

By: _____
Deputy

Dated: APR 07 2020

APPROVED AS TO FORM:
GREGORY P. PRIAMOS, COUNTY COUNSEL

By: _____ Dated: 3-13-20
Synthia Gunzel
Chief Deputy County Counsel

ATTACHMENT I

Attachment II

NATIVE AMERICAN MONITORING OF GRADING AND GROUND DISTURBING ACTIVITIES

I. Specifications

Given the nature and sensitivity of the archaeological sites and cultural resources that are in or may be within the Project area, the Soboba Band of Luiseno Indians shall provide the tribal monitoring, consultation and facilitation for this project during the archeological investigations, and all ground disturbing activities for the Project. Tribal monitors will work in concert with the archaeologists hired by the County and project engineers. The Native American monitors or project archaeologists will be empowered to halt all earthmoving equipment in the immediate area of discovery when cultural items or features are identified until further evaluation can be made in determining their significance. It is understood that all surface and subsurface artifacts of significance shall be collected and mapped during this operation following standard archaeological practices.

After discovery of cultural items or features, discussions between the Tribal monitors and project archaeologist will take place to determine the significance of the situation and best course of action for avoidance, protection of resources or data recovery as applicable. Procedures followed with regard to handling of cultural items or features will follow the California Public Resources Code Section 5097.5 et. seq.

II. Project to be Monitored

Monitoring shall encompass the area known as the French Valley Library Project as indicated in Recital A and Attachment I of this Agreement, and shall be known as the Project area. It is agreed that monitoring shall be allowed for all archaeological studies, excavations, and groundbreaking activities occurring in conjunction with the development of the Project.

III. Project Crew Size

The parties to this Agreement project the need for a tribal monitoring crew initially consisting of one (1) person. If the scope of the work changes (e.g. inadvertent discoveries of cultural resources or simultaneous grading to require additional monitors, the County agrees to come to a reasonable agreement with the Soboba Band regarding compensation of the originally agreed upon crew (1) tribal monitors. The compensation rate shall be made directly from the County to the Soboba Band of Luiseno Indians.

IV. Compensation

The Soboba Band shall provide the tribal monitoring crew for this project and be responsible for coordinating the tribal monitors' activities on this Project. The Soboba Band recognizes that dangerous conditions may exist on the work site, particularly during grading operations, and agrees to assume responsibility for the safety of the tribal monitoring crew while the crew remains on the Project site. The Soboba Band possesses full coverage liability insurance for the tribal monitors as set forth in Attachment III

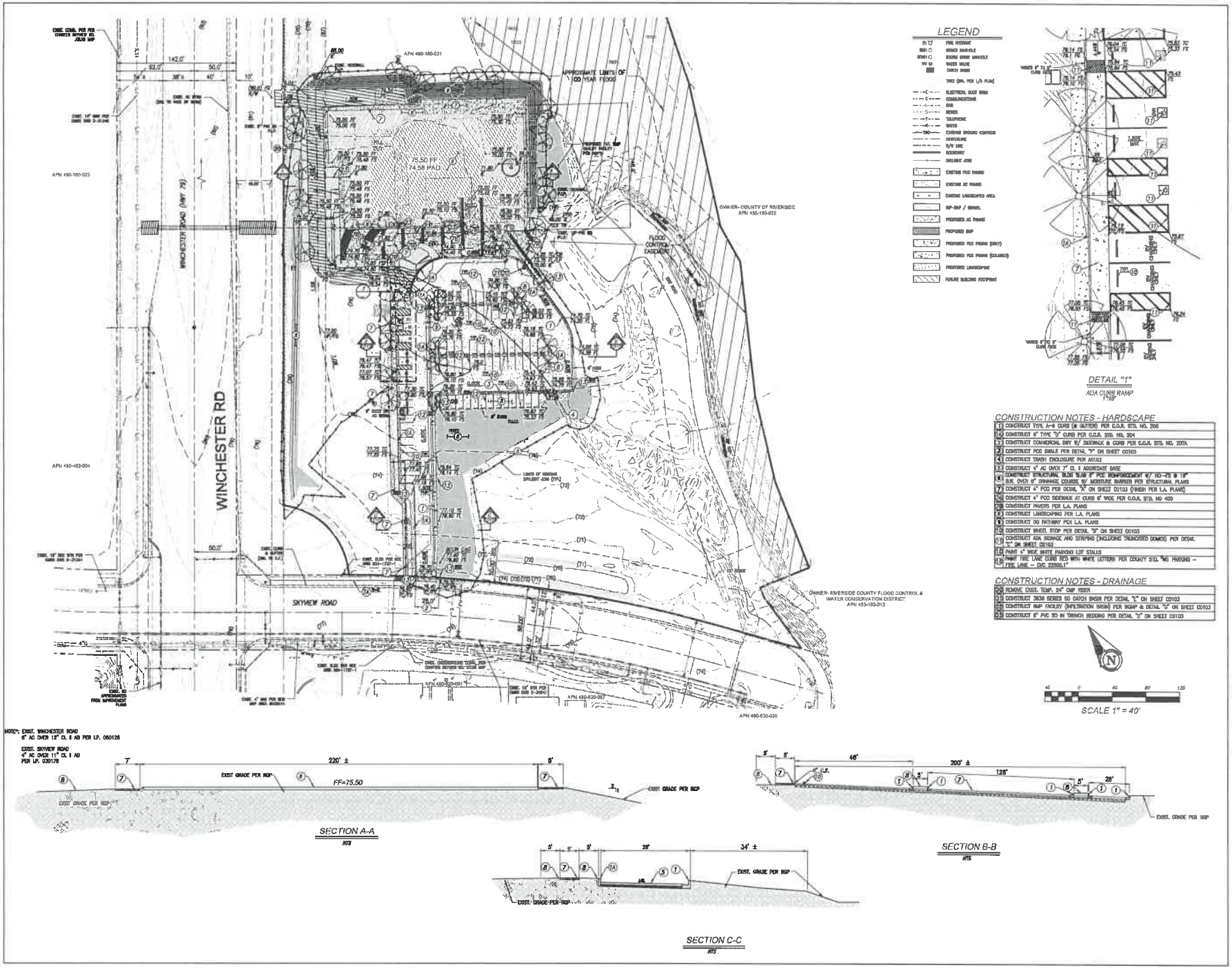
The County shall compensate the Soboba Band for a not-to-exceed fee of $30,000. The not-to-exceed total is based on the anticipated costs of one Soboba Tribal Monitor monitoring every day, beginning with the first week, throughout the excavation of undisturbed soil during construction. In the event that a significant archaeological discovery is encountered or the grading and excavation construction period is lengthened beyond 45 days, additional funding would likely be required to comply with the Mitigation Monitoring and Reporting Program and the California Environmental Quality Act. The amount of additional funding required to comply with the Mitigation Monitoring and Reporting Program and the California Environmental Quality Act would subsequently be sent to the County Board of Supervisors for approval as an amendment to this Agreement. The County shall compensate the Soboba Band at the rate of $75.00 per hour. The compensation rate shall include all mileage costs associated with travel to the project site. This compensation rate shall remain in effect for the duration of the monitoring period and will not be adjusted for inflation.

The County shall directly compensate the Soboba Band for invoices, which Soboba Band shall submit to the County on a monthly basis. The County agrees to remit payment within 30 business days of receiving invoices sent to the following address:

Facilities Management
3133 Mission Inn Avenue
Riverside, CA 92507

The hourly rate set forth above will not be applicable to travel time to and from the Project site. A minimum two (2) hour charge (show up time) will be applied for cancellation of scheduled grading, groundbreaking, excavation, and ground-disturbing activities without at least twelve (12) hours of advanced notification to tribal monitoring personnel. Overtime rates of time and a half ($90 per hour) of the quoted rate apply for "after hours" work. For purposes of this Agreement, "after hours work" is defined as onsite services performed beyond an eight hour day from start of construction and work hours generated beyond the normal 40 hour work week.

ATTACHMENT 1



LEGEND

- FIRE HYDRANT
- SEWER MANHOLE
- EXISTING STORM MANHOLE
- WATER VALVE
- CATCH BASIN
- TYPE (SEE PGE PLAN L/A PLAN)
- ELECTRICAL DUCT BANK
- COMMUNICATIONS
- GAS
- SEWER
- TELEPHONE
- WATER
- EXISTING CONTOUR
- CENTERLINE
- R/W LINE
- ROADWAY
- DAYLIGHT JOINT
- EXISTING PCC PAVING
- EXISTING AC PAVING
- EXISTING LANDSCAPED AREA
- RIP-RAP / GRAVEL
- PROPOSED AC PAVING
- PROPOSED RMP
- PROPOSED PCC PAVING (GREY)
- PROPOSED PCC PAVING (COLORED)
- PROPOSED LANDSCAPING
- FUTURE BUILDING FOOTPRINT

DETAIL "1"
ADA CURB RAMP
1"=10'

CONSTRUCTION NOTES - HARDSCAPE

1	CONSTRUCT TYPE A-6 CURB (& GUTTER) PER C.O.R. STD. NO. 200
2	CONSTRUCT 6" TYPE "D" CURB PER C.O.R. STD. NO. 204
3	CONSTRUCT COMMERCIAL DWY W/ SIDEWALK & CURB PER C.O.R. STD. NO. 207A
4	CONSTRUCT PCC SWALE PER DETAIL "F" ON SHEET C0103
5	CONSTRUCT TRASH ENCLOSURE PER A5103
6	CONSTRUCT 4" AC OVER 7" CL II AGGREGATE BASE
7	CONSTRUCT STRUCTURAL SLAB SLAB 8" PCC REINFORCED W/ #3 @ 18"
8	CONSTRUCT 4" PCC PER DETAIL "A" ON SHEET C0103 (FINISH PER L.A. PLANS)
9	CONSTRUCT 4" PCC SIDEWALK AT CURB 6' WIDE PER C.O.R. STD. NO 400
10	CONSTRUCT PAVERS PER L.A. PLANS
11	CONSTRUCT LANDSCAPING PER L.A. PLANS
12	CONSTRUCT DG PATHWAY PER L.A. PLANS
13	CONSTRUCT WHEEL STOP PER DETAIL "B" ON SHEET C0103
14	CONSTRUCT ADA SIGNAGE AND STRIPING (INCLUDING "REMOVABLE BOLLARDS") PER DETAIL "L" ON SHEET C0103
15	PAINT 4" WIDE WHITE PARKING LOT STALLS
16	PAINT FIRE LANE CURB RED WITH WHITE LETTERS PER COUNTY STD. "NO PARKING – FIRE LANE – OFC. 22500.1"

CONSTRUCTION NOTES - DRAINAGE

20	REMOVE EXIST. TEMP. 24" CMP RISER
21	CONSTRUCT 3838 SERIES SD CATCH BASIN PER DETAIL "L" ON SHEET C0103
22	CONSTRUCT BMP FACILITY (INFILTRATION BASIN) PER WQMP & DETAIL "J" ON SHEET C0103
23	CONSTRUCT 8" PVC SD W/ TRENCH BEDDING PER DETAIL "J" ON SHEET C0103

NOTE: EXIST. WINCHESTER ROAD
6" AC OVER 12" CL II AB PER LP. 050126

EXIST. SKYVIEW ROAD
4" AC OVER 11" CL II AB
PER LP. 030178

SECTION A-A
NTS

SECTION B-B
NTS

SECTION C-C
NTS

County of Riverside
French Valley Library
APN: 480-160-021
31526 Skyview Rd.
Winchester, 92596

CANNONDESIGN
2355 Main Street, Suite 220
Irvine, CA 92614
P: 949.250.1500

656 Fifth Ave, Suite A
San Diego, CA 92101
P: 619.398.0205

www.cannondesign.com

McCarthy Building Companies, Inc.
Contractor
20401 SW. Birch St.
Newport Beach, CA 92660
949.851.8383

CERT. NO. 53114

99% CD SUBMITTAL	14 FEB 2020
95% CD SUBMITTAL	17 DEC 2019
DESIGN DEVELOPMENT	18 NOV 2019
SCHEMATIC DESIGN	30 OCT 2019
Rev. Description	Date

Drawing Title:

PRECISE GRADING PLAN

Project No. 19810.00 Checked by:

C0102

Attachment III

INSURANCE REQUIREMENTS

SOBOBAN-01 CSRINIVAS1

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 2/26/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER License # 0757776 HUB International Insurance Services Inc. PO Box 5345 Riverside, CA 92517	CONTACT NAME: Karen Rosati PHONE (A/C, No, Ext): (951) 779-8543 FAX (A/C, No): (951) 231-2572 E-MAIL ADDRESS: Cal.CPU@Hubinternational.com
	INSURER(S) AFFORDING COVERAGE — NAIC #
	INSURER A : Hudson Insurance Company — 25054
INSURED Soboba Band of Luiseno Indians P.O. Box 487 San Jacinto, CA 92581	INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY PRO-JECT X LOC OTHER:	X	X	NAA0002418	7/1/2018	7/1/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 10,000,000 $ 10,000,000 $ 10,000,000 $ 10,000,000 $ 10,000,000 $ 10,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY SCHEDULED AUTOS X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY			NAA0002418	7/1/2018	7/1/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 10,000,000 $ $ $
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $						EACH OCCURRENCE AGGREGATE	$ $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		NAA0002418	7/1/2018	7/1/2021	PER STATUTE X OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 10,000,000 $ 10,000,000 $ 10,000,000
A	Misc E&O Prof Liab			NAA0002418	7/1/2018	7/1/2021	Each Occurrence/Agg	10,000,000
A	Misc Prof Liab E&O			NAA0002418	7/1/2018	7/1/2021	SIR	100,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Work Comp Coverage A: $10,000,000 Limit Per Person/Per Claim.

RE: French Valley Library, 31526 Skyview Road, Winchester, CA 92596, Construction & operation of two new County libraries in the City of Menifee & unincorporated French Valley.

County of Riverside is Additional Insured with regard to General Liability when required by written contract per the attached endorsement form ALA001 (Ed. 07/2016). Waiver of Subrogation with regard to General Liability applies when required by written contract per the attached endorsement form ALA001(Ed. 07/2016).

CERTIFICATE HOLDER

County of Riverside
3403 10th Street Suite 400
Riverside, CA 92501

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

SOVEREIGN NATION ALL LINES AGGREGATE INSURANCE POLICY

Various provisions in this policy restrict coverage. Read the entire policy carefully to determine your rights, duties, and what is and is not covered. Subject to its terms, conditions and exclusions, this policy is a commercial insurance policy and provides coverage only with respect to the conduct of your business.

Throughout this policy, the word "Hudson" refers to Hudson Insurance Company. Words and phrases that appear within quotation marks have, wherever they appear, the special meanings set forth in the Definitions.

Coverage is only provided under the Insuring Agreements contained in this policy for which a limit of liability is shown in the Declarations.

GENERAL PROVISIONS

The provisions listed in this section are applicable to your entire policy.

A. ASSURED

It is agreed that "Assured", wherever used in this policy, includes the entity listed in Item 1. of the Declarations (the "Named Assured") and:

1. Any official, trustee, "employee" or volunteer of the "Named Assured" while acting within the scope of his duties as such, and any person, organization, trustee or estate to whom the "Named Assured" is obligated by virtue of a legally binding contract or agreement to provide insurance such as is afforded by this policy, but only with respect to the business operations performed by or on behalf of the "Named Assured";

2. Any person while using an "automobile" owned or hired by the "Named Assured" and any person or organization legally responsible for the use thereof, provided the actual use of such owned or hired "automobile" is by the "Named Assured" or with his permission, any official, trustee or "employee" of the "Named Assured" provided the use of the owned or hired "automobile" is in connection with the business of the "Named Assured".

   However, with respect to any person or organization other than the "Named Assured", this policy does not apply:

   a. To any person or organization, or to any agent or employee thereof, operating an "automobile" sales agency, repair shop, service station, with respect to any accident arising out of the operation thereof;

except that this policy applies to the operations of the "Named Assured" that are exclusively engaged in providing "garage keeper's and valet parking services";

b. To any employee with respect to injury to or sickness, disease or death of another employee of the same employer injured in the course of such employment in an accident arising out of the maintenance or use of any "automobile" while being maintained or used in the business of such employer;

c. With respect to any hired "automobile", to the owner or a lessee thereof, other than the "Named Assured", nor to any agent or employee of such owner or lessee; and/or

d. With respect to any non-owned "automobile", except as excess insurance over any other valid or collectible insurance, to any official or employee if such "automobile" is owned by him or a member of the same household.

The first entity named in Item 1 of the Declarations, the Named Assured, will be the sole agent for, and will act on behalf of, all "Assureds", including any additional Named Assureds, with respect to all matters under this policy, including, but not limited to, giving notice of a claim, communications regarding coverage, the issuance of any endorsements, notice of cancellation or non-renewal, any notice regarding the payment or return of any premium for this policy and the maintenance of the "retained limit" for all "Assureds" under this policy.

B. TERRITORY This policy applies worldwide.

C. SERVICE ORGANIZATION

Service Organization: This policy is issued to the "Named Assured" on the express condition that the "Named Assured" undertakes to utilize, at all times, the services of Tribal First / Alliant Insurance Services, Inc. ("Service Organization") in supervising and adjusting claims within the "retained limit". The "Service Organization" shall perform the following duties:

1. Supervise "claims" in accordance with accepted industry standards once notice of a "loss", "claim" or "occurrence" has been made to the "Service Organization";

2. Comply with the notice and reporting requirements of "Hudson" under the terms of this policy;

3. Maintain accurate records of all reported "claims" and incidents with details of "loss" and "expense" payments;

4. Furnish loss prevention and consulting services, if required;

5. Recommend and implement controls and monitor loss prevention programs, if required; and

6. Furnish "claims" records on an approved form.

The acceptance of these services shall be a condition precedent to any liability which may attach to "Hudson" in accordance with the terms and conditions of this policy.

Any change in the Service Organization requires the prior written approval of "Hudson."

The Assured, either directly or through the Service Organization, will give the Company prompt notice:

a. of termination or modification of the contract with the above-named Service Organization(s); or
b. of any loss which has the potential to be 50% or more of the Retained Limit.

N. **SUBROGATION:** "Hudson" shall be subrogated to all rights which the "Assured" may have against any person or other entity in respect to any "claim" or payment made under this policy and the "Assured" shall do everything necessary to secure these rights and do nothing to impair them. The "Assured" shall execute any papers required by "Hudson" and shall cooperate with "Hudson" to secure "Hudson's" rights. In the event of any reimbursement obtained or recovery made by the "Assured" or "Hudson" on account of any liability, "loss" and/or "expense" covered by this policy, the net amount of such reimbursement or recovery, after deducting the actual cost of obtaining or making the same, shall be applied in the following order:

1. To the amount of "loss" and "expense" which exceeds the applicable limit of liability of this policy;
2. To reduce "Hudson's" liability, "loss" and "expense" until "Hudson" is fully reimbursed; and
3. To reduce the "Assured's" liability, "loss" and "expense".

O. **WAIVER OF SUBROGATION:** This policy shall not be invalidated if the "Assured", by written agreement, has waived or shall waive its right of recovery from any party for "loss" and/or "expense" covered hereunder; provided that any such waiver is made prior to the happening of the "occurrence" giving rise to such "loss" and/or "expense".

P. **ASSIGNMENT:** Assignment of interest under this policy by the "Assured" shall not bind "Hudson" unless and until "Hudson's" consent is endorsed hereon.

Q. **CHANGES:** By acceptance of this policy, the "Assured" agrees that it embodies all agreements existing between the "Assured" and "Hudson" or any of their agents relating to this policy. None of the provisions, conditions or other terms of this policy shall be waived or altered except by endorsement; nor shall notice to any agent or knowledge possessed by any agent or by any other person be held to effect a waiver or change in any part of this policy.

R. **FRAUDULENT CLAIMS:** If the "Assured" shall make any "claim" knowing the same to be false or fraudulent, as regards amount or otherwise, this policy shall become void and all "claims" hereunder shall be forfeited.

S. **ARBITRATION:** All disputes which may arise between "Hudson" and the "Assured" out of or in relation to this policy (including disputes as to its validity, construction or enforceability), or for its breach, shall be finally settled by arbitration based, insofar as possible, upon the rules and procedures of the American Arbitration Association, by which "Hudson" and the "Assured" agree to be bound. In addition to the rules governing such arbitration, the parties shall have at their disposal the broadest pre-trial discovery rights as are then available under the laws and judicial rules of the jurisdiction in which the arbitration is to be held, provided that any dispute between the parties relating to discovery shall be submitted to the arbitration panel for resolution.

Unless the parties consent in writing to a lesser number, the arbitration panel shall consist of three (3) arbitrators, the first to be appointed by "Hudson", the second to be appointed by the "Assured" and the third by the two (2) arbitrators so appointed.

The arbitration proceedings shall take place in New York, NY, provided that the arbitration panel may, for the convenience of the parties and without changing the status of the arbitration proceeding, take evidence outside New York, NY.

The award of the arbitration panel may be, alternatively or cumulatively, for monetary damages, an order requiring the performance of the obligations under this policy, or any other appropriate order or remedy. The award shall assign all costs of the arbitration to one or both parties. Any award rendered in the arbitration is hereby agreed by "Hudson" and the "Assured" as being in full and final settlement of the dispute to which it relates.

Original Negative Declaration/Notice of Determination was routed to County Clerks for posting on.

Date _____ Initial via FM

Notice of Determination

To:
☐ Office of Planning and Research
For U.S Mail: P.O. Box 3044, Sacramento, CA 95812-3044
Street Address: 1400 Tenth St., Sacramento, CA 95814

From:
Public Agency: Riverside County
Address: 3403 10th Street, 4th Floor, Riverside, CA 92501
Contact: Mike Sullivan
Phone: (951) 955-8009

☒ County Clerk
County of: Riverside County – (County Clerk Office)
Address: 2720 Gateway Drive, Riverside, CA 92507

Lead Agency (if different from above):
Address: _____
Contact: _____
Phone: _____

SUBJECT: Filing of Notice of Determination in Compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): _____

Project Title: Riverside County French Valley Library Project (Initial Study: RIVCO/CEQA 202003I)

Project Location: The proposed project site is located on the northeast corner of Highway 79 and Skyview Road in the unincorporated community of French Valley, on 2.9 acres of an existing 11.5-acre County-owned property. The project site is bordered by residential uses in all directions, French Valley Creek to the east, and vacant land adjacent to the northeast and northwest. The project is located within the Bachelor Mountain Quadrangle at Latitude 33° 36' 33" North and Longitude 117° 06' 28" West.

Project Description: The Riverside County Library System EDA Real Estate Division are entering into a Public Private Partnership to engage a real estate developer to plan, design, entitle, and construct a new library on County owned land and the County will then lease back the facility from the developer over a 30-year term. The new French Valley Library will consist of an approximately 25,000 square feet single-story building. The project site will be improved with a two-lane ingress/egress driveway along Skyview Road, on-site parking, dedicated landscaped areas, a garden walking path, and meandering sidewalk along Winchester Road to convey a park-like setting. Existing utilities (e.g., electricity, water, sewer, natural gas, telephone) are located underground along the adjacent Highway 79 and/or Skyview Road frontages and will be interconnected to the project site and library facility during finish grading of the site. The project would be constructed on vacant land and no existing structures would require demolition as part of the project. Construction is anticipated to start in the spring of 2020 and would be completed by the end of 2020.

This is to advise that the Riverside County Board of Supervisors approved the above project on
☒ Lead agency or ☐ Responsible Agency

3/24/20 (Date) and has made the following determinations regarding the above described project:

1. The project ☐ will ☒ will not have a significant effect on the environment.
2. ☐ An Environmental Impact Report and Addendum was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Mitigated Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures ☒were ☐ were not made a condition of the approval of the project.
4. A Mitigation reporting or monitoring plan ☒ was ☐ was not adopted for this project.
5. A statement of Overriding Considerations ☐was ☒ was not adopted for this project.
6. Findings ☐were ☒ were not made pursuant to the provisions of CEQA.

APR 07 2020 3.19

This is to certify that the Final Initial Study with comments and responses and record of project approval, and/or the Mitigated Negative Declaration, is available to the General Public at:

County of Riverside
Economic Development Agency
3403 10th Street, 4th Floor
Riverside, CA 92501

Signature: _____ Title: Senior Environmental Planner

Date: 2/11/20 Date received for filing at OPR: N/A

Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

INITIAL STUDY

FRENCH VALLEY LIBRARY PROJECT

UNINCORPORATED COMMUNITY OF FRENCH VALLEY

RIVERSIDE COUNTY, CALIFORNIA

LSA

January 2020

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INITIAL STUDY

FRENCH VALLEY LIBRARY PROJECT

UNINCORPORATED COMMUNITY OF FRENCH VALLEY

RIVERSIDE COUNTY, CALIFORNIA

Prepared for:

County of Riverside
Economic Development Agency
3403 Tenth Street, Suite 400
Riverside, California 92501
(951) 955-8009

Prepared by:

LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507
(951) 781-9310

LSA Project No. CFP1902.0

January 2020

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TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
BACM	Best Available Control Measure
Basin	South Coast Air Basin
BMP	Best Management Practice
CalEEMod	California Emission Estimator Model
CBC	California Building Code
CCR	California Code of Regulations
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CalGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
cf	cubic feet
cfs	cubic feet per second
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CWA	Federal Clean Water Act
dBA	A-weighted decibel
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EPA	(United States) Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	Greenhouse Gas
in/sec	inches per second
IS	Initial Study
L_{eq}	Equivalent Continuous Sound Level
LID	Low Impact Development
L_{max}	Maximum Noise Level
LOS	Level of Service
LST	Localized Significance Thresholds
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MS4	Municipal Separate Storm Sewer System

MT	Metric Ton
ND	Negative Declaration
NIOSH	National Institute for Occupational Safety and Health
NO_2	Nitrogen Dioxide
NOI	Notice of Intent
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
O_3	Ozone
$PM_{2.5}$	Fine Particulate Matter
PM_{10}	Coarse Particulate Matter
PRC	Public Resources Code
SDRWQCB	San Diego Regional Water Quality Control Board
SB	Senate Bill
SC	Standard Condition
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SOx	Oxides of Sulfur
SRA	Source Receptor Area
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TIA	Traffic Impact Analysis
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VdB	vibration decibels
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WQMP	Water Quality Management Plan

1.0 INTRODUCTION AND PURPOSE

1.1 INTRODUCTION

Section 1.0 of this Initial Study (IS) describes the purpose, environmental authorization, intended uses of the IS, documents incorporated by reference, and processes and procedures governing the preparation of the environmental document. Pursuant to Section 15367 of the *State of California Guidelines for Implementation of the California Environmental Quality Act* (*CEQA Guidelines*), the County of Riverside Economic Development Agency (County) is the Lead Agency under the California Environmental Quality Act (CEQA). The County has primary responsibility for compliance with CEQA and consideration of the French Valley Library Project (project or proposed project).

The Initial Study is organized as follows:

Section 1.0 *Introduction and Purpose* provides a discussion of the Initial Study's purpose, focus, legal requirements.

Section 2.0 *Project Description* provides a detailed description of the proposed project.

Section 3.0 *Environmental Checklist* includes a checklist and accompanying analyses of the project's effect on the environment. For each environmental issue, the analysis identifies the level of project's environmental impact.

Section 4.0 *References* details the references cited throughout the document.

Section 5.0 *Mitigation Monitoring and Reporting Program (MMRP)* is provided in accordance with (CEQA) which requires adoption of a reporting or monitoring program for those measures placed on a project to mitigate or avoid adverse effects on the environment (Public Resource Code Section 21081.6). The MMRP is designed to ensure compliance during project implementation.

Appendices Includes the technical material prepared to support the analyses contained in the IS.

1.2 PURPOSE

CEQA requires that the proposed project be reviewed to determine the environmental effects that would result if the project were approved and implemented. The County is the Lead Agency and has the responsibility of preparing and adopting the associated environmental document prior to consideration of the approval of the proposed project. The County has the authority to make decisions regarding discretionary actions relating to implementation of the proposed project.

This IS has been prepared in accordance with the relevant provisions of CEQA (California Public Resources Code Section 21000 et seq.); the *CEQA Guidelines,*[1] and the rules, regulations, and procedures for implementing CEQA as adopted by the County. The objective of the Initial Study is to inform County decision-makers, representatives of other affected/responsible agencies, the public, and interested parties of the potential environmental consequences of the project.

As established in *CEQA Guidelines* Section 15063(c), the purposes of an IS are to:

[1] California Code of Regulations, Title 14, Chapter 3, Sections 15000 through 15387.

- Provide the Lead Agency (County of Riverside) with information to use as the basis for deciding whether to prepare an Environmental Impact Report (EIR), Negative Declaration (ND), or Mitigated Negative Declaration (MND);
- Enable a Proponent or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for an ND or MND;
- Assist in the preparation of an EIR, if one is required;
- Facilitate environmental assessment early in the design of a project;
- Provide a factual basis for finding in an ND or MND that a project will not have a significant effect on the environment;
- Eliminate unnecessary EIRs; and
- Determine whether a previously prepared EIR could be used with the project.

1.3 INTENDED USE OF THIS INITIAL STUDY

The County formally initiated the environmental process for the proposed project with the preparation of this IS. The IS screens out those impacts that would be less than significant and do not warrant mitigation, while identifying those issues that require further mitigation to reduce impacts to a less than significant level. As identified in the following analyses, project impacts related to various environmental issues either do not occur, are less than significant (when measured against established significance thresholds), or have been rendered less than significant through implementation of mitigation measures. Based on these analytical conclusions, this IS supports adoption of an MND for the proposed project.

CEQA[2] permits the incorporation by reference of all or portions of other documents that are generally available to the public. The IS has been prepared utilizing information from County planning and environmental documents, technical studies specifically prepared for the project, and other publicly available data. The documents utilized in the IS are identified in Section 3.0 and are hereby incorporated by reference. These documents are available for review at the County of Riverside, Economic Development Agency.

1.4 PUBLIC REVIEW OF THE INITIAL STUDY

The IS and a Notice of Intent (NOI) to adopt an MND will be distributed to responsible and trustee agencies, other affected agencies, and other parties for a 20-day public review period. Written comments regarding this Initial Study should be addressed to:

Mike Sullivan
Senior Environmental Planner
Riverside County Economic Development Agency
Project Management Office
3403 Tenth Street, Suite 400
Riverside, California 92501
Phone: (951) 955-8009
msullivan@rivco.org

[2] *CEQA Guidelines* Section 15150.

Consideration of comments raised during the 20-day public review period will be taken into account and addressed prior to adoption of the MND by the County Board of Supervisors.

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2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The project is depicted on the United States Geological Survey *Bachelor Mountain, California* 7.5-minute topographic quadrangle map in Township 6 South, Range 2 West, Section 32 Northeast, San Bernardino Baseline and Meridian (see Figure 1). The project site is located at the east corner of Winchester Road and Skyview Road in the unincorporated community of French Valley, Riverside County. The site is bound by Winchester Road (Highway 79) to the northwest, Skyview Road to the southwest, French Valley Creek to the southeast, and undeveloped open space to the northeast (Figure 2). Undeveloped open space occurs across Highway 79 to the northwest, multi-family residential uses are located across Skyview Road to the southwest, and single-family residential uses are located across the creek to the southeast and east.

2.2 SETTING AND SURROUNDING LAND USE

The 11.5-acre site (Assessor's Parcel Number [APN] 0480-160-021) is a vacant, unpaved property irregularly shaped with scattered vegetation. The site was routinely disked for weed abatement since at least the 1990s and was cleared of vegetation and graded between November 2009 and March 2011.[3] A gravel access road is located along the southeastern boundary of the site above and parallel to a portion of French Valley Creek. A riprap embankment and concrete ramps have been installed along a slope between the gravel road and the creek within a Riverside County Flood Control and Water Conservation District easement to direct drainage flows and protect the road. A series of earthen step-down benches are located along the northern portion of the site, and several soil stockpiles have been dumped along the southern portion of the site (refer to Figures 2 and 3).

The project site is administered in accordance with the Quinta Do Lago Specific Plan. Table 2.2.A summarizes surrounding land uses, County General Plan land use designations, and zoning designations.

Table 2.2.A: On-site and Adjacent Land Uses

Direction	Existing Land Use	General Plan Designation	Zoning Designation	Specific Plan Designation
Project Site	Undeveloped	Southwest Area Plan: Open Space Recreation	Quinta Do Lago Specific Plan	Open Area Combining Zone-Residential Developments
Northwest	Undeveloped	Southwest Area Plan: Commercial Retail and Light Industrial	Dutch Village Specific Plan	Scenic Highway Commercial, Office Commercial, and Industrial
Northeast	French Valley Creek and Single-Family Residential	Southwest Area Plan: Open Space Conservation and Medium Density Residential	Quinta Do Lago Specific Plan	Meadows/Greenbelt and Medium Density Residential (3.6 du/ac)
Southeast	French Valley Creek and Single-Family Residential	Southwest Area Plan: Open Space Conservation and Medium Density Residential	Quinta Do Lago Specific Plan	Meadows/Greenbelt and Medium Density Residential (4.3 du/ac)
Southwest	Undeveloped and Multifamily Residential	Southwest Area Plan: Very High Density Residential	Quinta Do Lago Specific Plan	High Density Multi-Family Residential (13.4 du/ac)

Sources: Figure III-1 (Specific Land Use Plan). Quinta Do Lago Specific Plan. County of Riverside. Adopted August 30, 1994, as amended.
Figure 7 (Land Use Plan Through Amendment No. 10). Dutch Village Specific Plan. County of Riverside. Adopted June 6, 1973, as amended.
du/ac = dwelling units per acre

[3] *French Valley.* Google Earth Pro. 33°36'32.42" N and -117°06'30.28" W. November 15, 2009, and March 9, 2011 (accessed October 15, 2019).

2.3 PROJECT DESCRIPTION

The project includes construction and operation of a new 25,000 square-foot public library facility. The project site will be improved with a two-lane ingress/egress driveway along Skyview Road, on-site parking, dedicated landscaped areas, a garden walking path, and meandering sidewalk along Winchester Road to convey a park-like setting (Figure 4).

Existing utilities (e.g., electricity, water, sewer, natural gas, and telephone) are located underground along the adjacent Highway 79 and/or Skyview Road frontages and will be interconnected to the project site and library facility during finish grading of the site. The proposed library facility will be constructed and operated to meet the requirements for Leadership in Energy and Environmental Design (LEED) Silver Certification[4] and include photovoltaic generation, electric vehicle charging station(s), and on-site stormwater infiltration basins. The Riverside County Economic Development Agency anticipates the proposed project to employ approximately 22 staff.

2.4 METHODOLOGY

The analysis in this IS/MND provides an environmental review of the project pursuant to CEQA. The details of the proposed library facility and associated actions have been characterized in this section and are also addressed in detail throughout Section 3.0 of this IS/MND. If the project were approved, the proposed library would be allowed without further discretionary approval, so long as the development complies with the County's regulations and project-specific Mitigation Measures and Conditions of Approval.

2.5 REQUIRED PERMITS AND APPROVALS

The County is expected to use this IS/MND in consideration of the proposed library facility and associated actions. These actions may include, but are not limited to, the following:

The following approvals from other regulatory agencies may also be required:

- State Water Resources Control Board (SWRCB): NOI to comply with the General Construction Activity National Pollutant Discharge Elimination System (NPDES) Permit.
- Utility Providers: Connection permits.

2.6 INITIAL STUDY APPENDICES/REFERENCE DOCUMENTS

The Initial Study is based on the following environmental documents and technical studies:

Appendix A: California Emissions Estimator Model (CalEEMod) Outputs

Appendix B1: Habitat Assessment for Western Riverside County Multiple Species Habitat Conservation Plan Narrow Endemic Plant Species Area and Criteria Area Plant Species Survey Area Species

Appendix B2: Burrowing Owl Survey Report

Appendix C: Cultural Resources Assessment

Appendix D: Geotechnical Evaluation Report

[4] *Leadership in Energy and Environmental Design (LEED)*. United States Green Building Council. https://new.usgbc.org/leed (accessed October 1, 2019).

Appendix E: Phase I Hazardous Materials Assessment

Appendix F: Water Quality Management Plan

Appendix G: Noise Modeling Outputs

Appendix H: Traffic Impact Analysis

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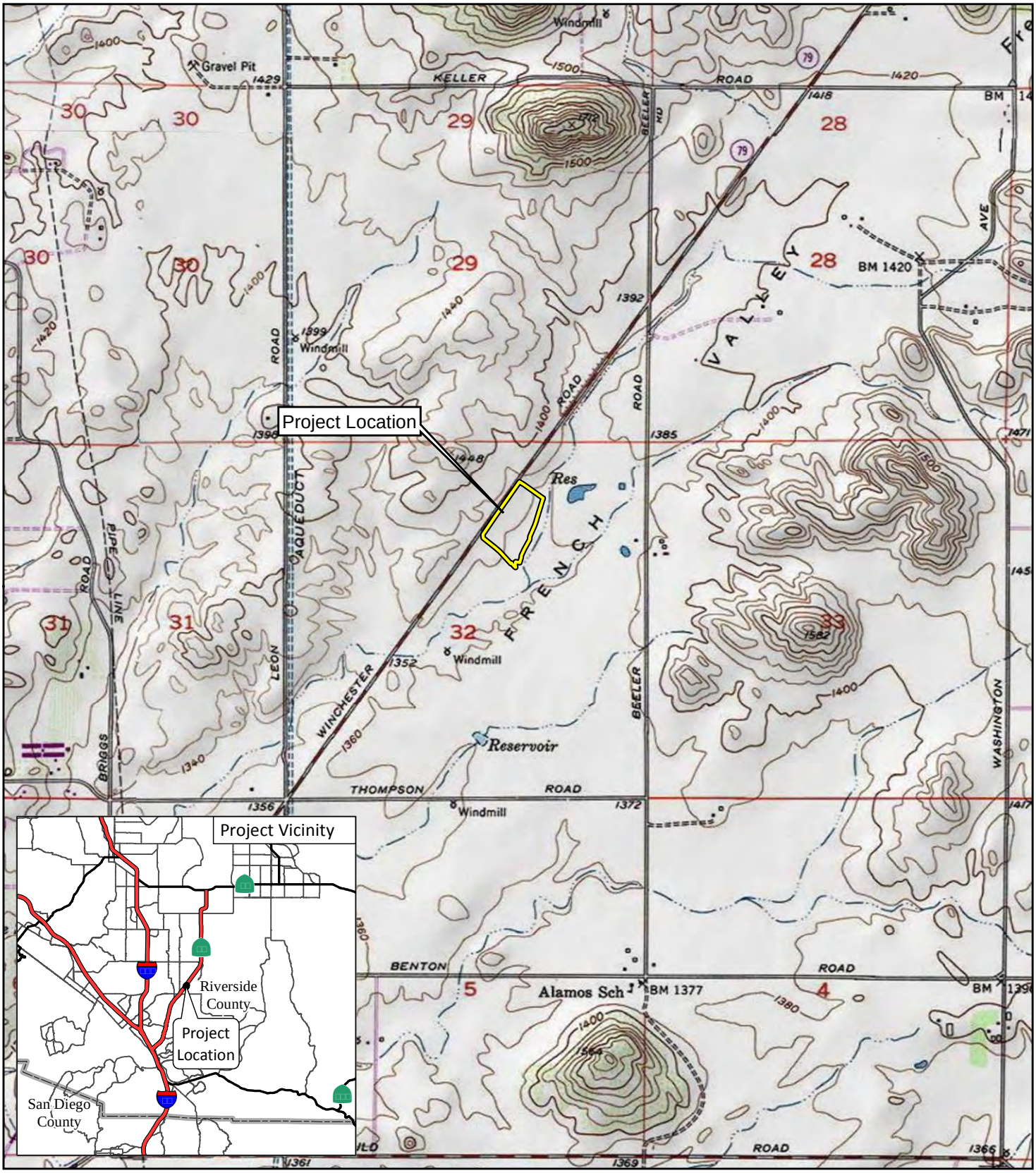

LSA

LEGEND

Project Site

FIGURE 1

N

0 1000 2000

FEET

French Valley Library

Regional and Project Location

SOURCE: USGS 7.5' Quad - Bachelor Mtn (1978), CA

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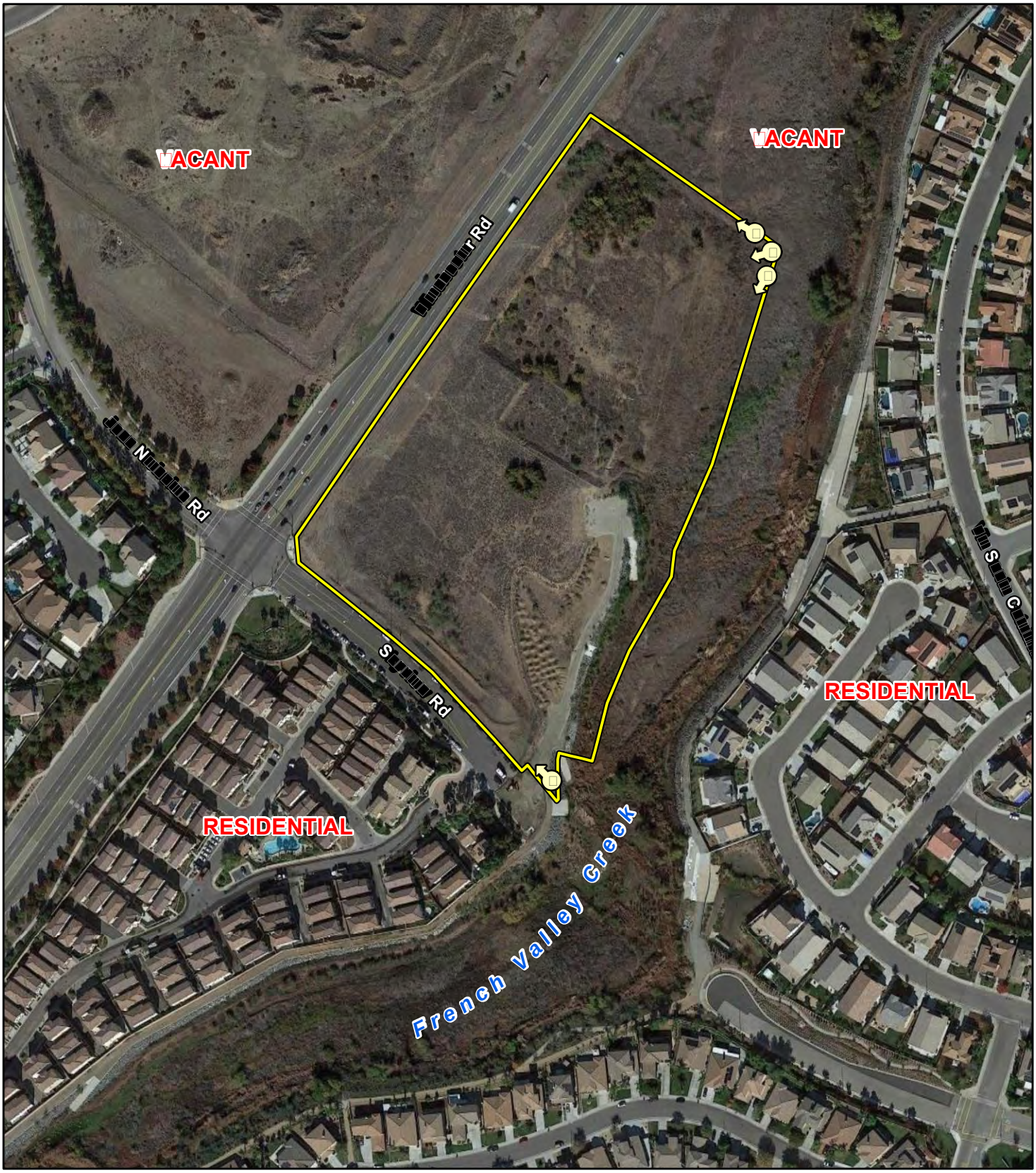

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Project Site

Photo Locations

FIGURE 2

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FEET

SOURCE: County of Riverside (2/19), Google (2018)

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French Valley Library

Setting and Surrounding Land Uses

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Photograph 1. View of survey area, looking northwest.

Photograph 2. View of survey area, looking west.

Photograph 3. View of survey area, looking southwest.

Photograph 4. View of survey area, looking northwest.

LSA

FIGURE 3

French Valley Library
Site Photographs

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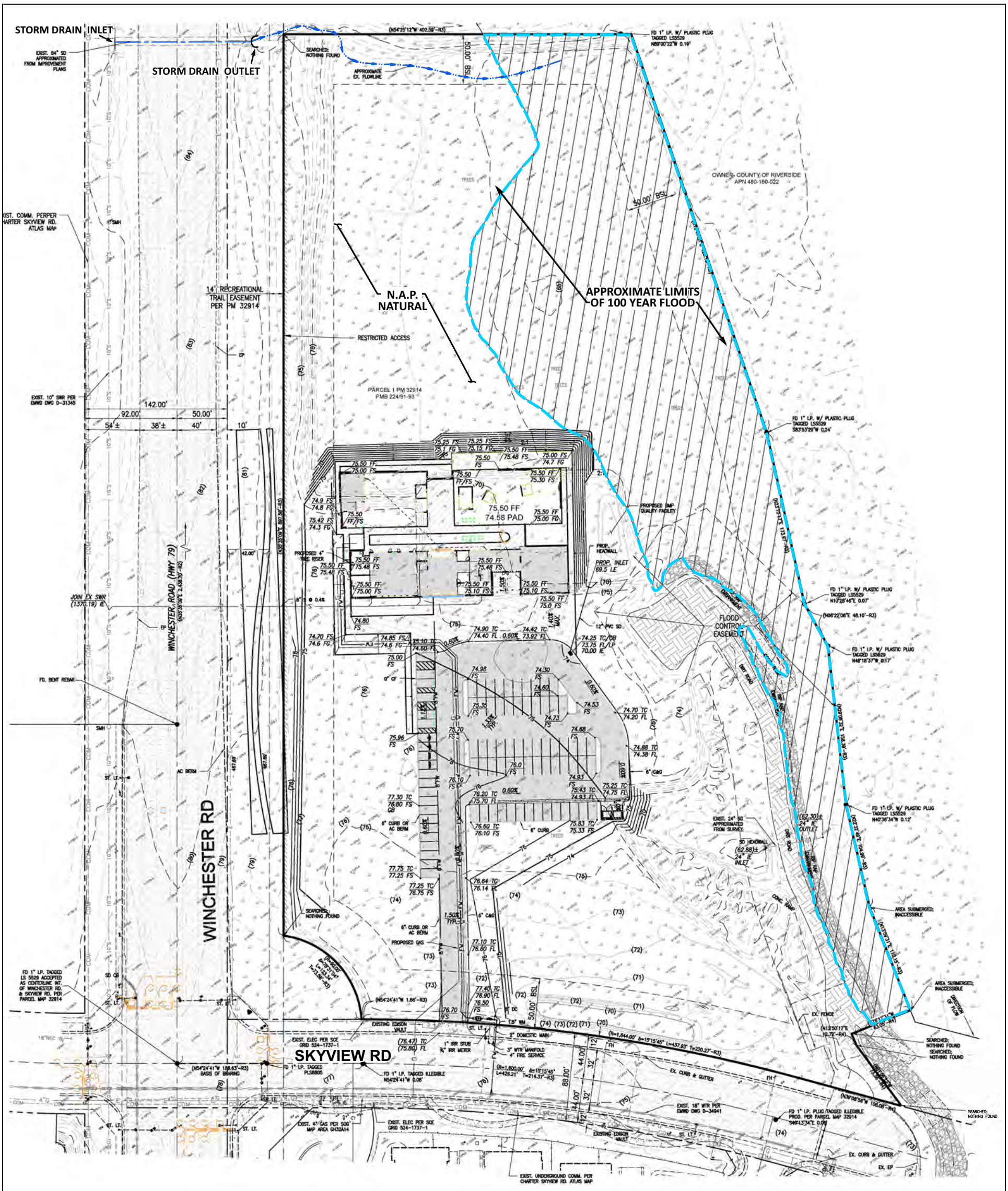

ABBREVIATIONS

AC	ASPHALT CONCRETE	PCC	PORTLAND CEMENT CONCRETE
BSL	BUILDING SETBACK LINE	℄	PROPERTY LINE
℄	CENTERLINE	R	RANGE
C.L.	CHAINLINK	RCFC&WCD	RIVERSIDE COUNTY FLOOD CONTROL
C&G	CURB & GUTTER		& WATER CONSERVATION DISTRICT
C.O.W.	CITY OF WINCHESTER	R/W	RIGHT-OF-WAY
CONC.	CONCRETE	S	SOUTH
E	EAST	SCG	SOUTHERN CALIFORNIA GAS COMPANY
DIA.	DIAMETER	S.B.B.M.	SAN BERNARDINO BASELINE MEDIAN
DWG.	DRAWING	SD	STORM DRAIN
FD.	FOUND	SE'LY	SOUTHEASTERLY
HDR	HIGH DENSITY RESIDENTIAL	SW'LY	SOUTHWESTERLY
I.P.	IRON PIPE	SPK	SPIKE
LDR	LOW DENSITY RESIDENTIAL	T	TOWNSHIP
N	NORTH	W	WEST

LEGEND

CB	CATCH BASIN
FH	FIRE HYDRANT
SMH	SEWER MANHOLE
SDMH	STORM DRAIN MANHOLE
WV	WATER VALVE
	EXISTING TREE (DIA. PER PLAN)
—X—	CHAINLINK FENCE
—E—	ELECTRICAL DUCT BANK
—COM—	COMMUNICATIONS
—G—	GAS
—S—	SEWER
—T—	TELEPHONE
—W—	WATER
590	EXISTING GROUND CONTOUR

- CENTERLINE
- R/W LINE
- BOUNDARY
- DENOTES EXISTING FD. MONUMENT (AS NOTED) W/ REFERENCE
- PCC PAVING
- AC PAVING
- RESTRICTED ACCESS PER PARCEL 32914
- APPROXIMATE LIMITS OF 100 YEAR FLOOD ZONE
- STORM DRAIN (SD) FLOW LINE

LSA

FIGURE 4

N

0 60 120

FEET

SOURCE: Armstrong & Brooks Consulting Engineers, Inc.

French Valley Library

Site Plan

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LEGEND

- Project Site
- Paloma Valley-Bachelor Mountain Proposed Constrained Linkage 18
- Criteria Cell 5477
- RCA MSHCP Conservation Easement
- RCA MSHCP Conserved Lands

FIGURE 5

N

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FEET

Note - MSHCP Sub-Unit 5 (French Valley/Lower Sedco Hills) and focused survey overlays for Burrowing Owl , Narrow Endemic Plant Species, and Criteria Area Species encompass the entire project site and vicinity.

French Valley Library

MSHCP Setting

SOURCE: County of Riverside (2/19), Google (2018)

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3.0 INITIAL STUDY CHECKLIST

1. **Project Title:**
   French Valley Library Project

2. **Lead Agency Name and Address:**
   Riverside County Economic Development Agency
   3403 Tenth Street, Suite 400
   Riverside, California 92501

3. **Contact Person and Phone Number:**
   Mike Sullivan, Senior Environmental Planner
   (951) 955-8009

4. **Project Location:**
   Southeast of Highway 79 (Winchester Road) and northeast of Skyview Road in French Valley (Winchester), California. APN: 0480-160-021.[5]

5. **Project Sponsor's Name and Address:**
   CFP Riverside, LLC
   18336 Minnetonka Boulevard, #C
   Deephaven, Minnesota 55391

6. **General Plan Designation:**
   Southwest Area Plan: Open Space Recreation

7. **Zoning:**
   Quinta Do Lago Specific Plan

8. **Description of Property:**
   Please refer to Section 2.2.

9. **Setting and Surrounding Land Uses:**
   Please refer to Sections 2.1 and 2.2.

10. **Required Actions:**
    Please refer to Section 2.5.

11. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?** Please refer to Checklist Section 3.18 (Tribal Cultural Resources).

    Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the

[5] According to the Title Report, the property does not have a physical address and, therefore, must be referenced by its APN.

environmental review process. (See Public Resources Code Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a potentially significant impact as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of the initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature: _____ Date: 1/21/20

Michael Sullivan, Senior Planner

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or [mitigated] negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significant.

3.1 AESTHETICS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

a. Would the project have a substantial adverse effect on a scenic vista?

Less than Significant Impact

Discussion of Effects: Unique visual features typically include parks, natural open space and topographic features, and native flora. The major scenic resources in proximity to the project site are French Valley Creek along the southeastern boundary of the site, as well as the Hogbacks (topographic ridgeline) and Bachelor Mountain approximately 2 miles west and east of the site, respectively.[6] Additional topographic features critical to the County's visual character include the San Jacinto Mountains and San Gorgonio Badlands on the northeast, the Box Springs Mountains to the north, and the Santa Ana Mountains on the southwest. Rural farmland, local hills and rock outcrops, and other open space features also are considered scenic vistas in the County.[7]

The project site is currently undeveloped and is vegetated primarily by non-native species. In accordance with the Quinta Do Lago Specific Plan and Dutch Village Specific Plan, properties surrounding the site have been developed with residential and recreational park uses, or have been designated for development of commercial and light industrial uses (refer to Table 2.2.A and Figures 2 and 3).

[6] *French Valley.* Google Earth Pro. 33°36'32.42" N and -117°06'30.28" W. December 2, 2018 (accessed October 16, 2019).
[7] *Multipurpose Open Space Element.* County of Riverside General Plan Amendment No. 960. Page OS-52. Adopted December 8, 2015.

The surrounding residential uses comprise two-story single-family homes and two- or three-story multifamily homes with associated landscaping that, in conjunction with the surrounding street trees, already obstruct public views of regional topographic features to the west and other scenic vistas within the project view shed. Bachelor Mountain, east of the site, is visible along the horizon from Highway 79, but French Valley Creek along the southeastern edge of the site is generally not discernable due to an approximate 20-foot change (step down) in elevation profile from Highway 79 (10-foot step down from Skyview Road) to the creek.

The project will be designed and constructed in accordance with the Quinta Do Lago Specific Plan, which provides a framework to consider the relationship and compatibility of the proposed library facility with its surroundings through building layout, orientation, setbacks and height. The project site is proposed to be an Open Area Combining Zone-Residential Developments land use, within which minimum building setbacks are 50 feet and the maximum building height is 50 feet. In order to protect scenic vistas, the proposed library facility will be set back approximately 93 feet from Highway 79 and 400 feet from Skyview Road. Additionally, the proposed building will be a single-story structure that will be constructed between 18 feet and 22 feet tall, heights lower than the surrounding residential structures, and well below the maximum permitted building height of 50 feet. Through incorporation of these design features, the proposed project would not have a substantial adverse effect on a scenic vista. Impacts would be **less than significant** and mitigation is not required.

b. Would the project substantially damage scenic resources, including, but not limited to trees, rock outcroppings and historic buildings within a State scenic highway?

No Impact

Discussion of Effects: The proposed project is not located along a State scenic highway, and there are no State- or locally-designated scenic highways located in the project vicinity.[8] Therefore, the project will not affect any scenic resources within a State scenic highway. **No impact** would occur and no mitigation is required.

c. Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant Impact

Discussion of Effects: As of the last United States Census, the United States Census Bureau estimated French Valley's population to be 23,067 persons and the unincorporated community's land area to be approximately 10.87 square miles.[9] The project is located in an area with at least 1,000 persons per square mile and therefore meets the definition of *Urbanized Area* under Section 15387 of the *CEQA Guidelines*.

During construction, vehicles and equipment would be visible during removal of vegetation, installation of structures and features, laying of asphalt and concrete, and other visible general construction activity. However, the presence of construction equipment would be temporary and would cease once

[8] *Circulation Element.* County of Riverside General Plan Amendment No. 960. Figure C-8 (Scenic Highways). Adopted December 8, 2015.

[9] *QuickFacts, French Valley, Census-Designated Place, California.* United States Census Bureau. https://www.census.gov/quickfacts/fact/table/frenchvalleycdpcalifornia/PST045218 (accessed October 17, 2019).

construction is complete. Due to the temporary nature of construction activities, impacts to visual character of the site and its surroundings would be **less than significant** during construction and mitigation is not required.

Unique visual features typically include parks, natural open space and topographic features, and native flora. The major scenic resources in proximity to the project site are French Valley Creek along the southeastern boundary of the site, as well as the Hogbacks (topographic ridgeline) and Bachelor Mountain approximately 2 miles west and east of the site, respectively.[10] Additional topographic features critical to the County's visual character include the San Jacinto Mountains and San Gorgonio Badlands on the northeast, the Box Springs Mountains to the north, and the Santa Ana Mountains on the southwest. Rural farmland, local hills and rock outcrops, and other open space features also are considered scenic vistas in the County.[11] However, design elements incorporated in the Quinta Do Lago Specific Plan establish a framework to consider the relationship and compatibility of the proposed library facility with its surroundings through building layout, orientation, setbacks, and height.

As detailed in response to Checklist Question 3.1a, the proposed project will exceed the minimum 50-foot setback distance by constructing the library facility approximately 93 feet from Highway 79 and 400 feet from Skyview Road (Figure 4). Additionally, the proposed building will be a single-story structure that will be constructed between 18 feet and 22 feet tall, heights lower than the surrounding residential structures, and well below the maximum building height of 50 feet. Through incorporation of these design features, the proposed project would integrate with the surrounding community.

Policy OS 21.1 of the County General Plan Multipurpose Open Space Element includes provisions for the protection of the County's skylines, view corridors, and outstanding scenic vistas. Additionally, the County's Zoning Ordinance and Caltrans Scenic Highway Program are prescribed to maintain and enhance the quality of the visual character throughout the County.

The project site is surrounded in every direction by land uses regulated by either the Dutch Village Specific Plan or the Quinta Do Lago Specific Plan (refer to Table 2.2.A). Pursuant to California Government Code Section 65450 et seq., Specific Plans provide detailed land use and infrastructure plans and policies and must be consistent with an applicable General Plan to ensure cohesive, aesthetically pleasing, and compatible development for a certain geographic area and integrate uniformly with the established community. The Dutch Village Specific Plan was originally adopted by the Riverside County Board of Supervisors on June 6, 1973 with a primary focus of providing housing and support facilities needed to develop a tourist commercial center similar to the community of Solvang, in Santa Barbara County.[12] Subsequent to the original approval, the Board of Supervisors had adopted numerous amendments to the Dutch Village Specific Plan.[13] On August 30, 1994, the Board of Supervisors adopted Specific Plan No. 284 (Quinta Do Lago), which had the effect of superseding the land use designations on 470.1 acres of the Dutch Village Specific Plan, including the project site. Through the process of amending the Dutch Village Specific Plan and adopting the Quinta Do Lago Specific Plan, development

[10] *French Valley.* Google Earth Pro. 33°36'32.42" N and -117°06'30.28" W. December 2, 2018 (accessed October 16, 2019).

[11] *Multipurpose Open Space Element.* County of Riverside General Plan Amendment No. 960. Page OS-52. Adopted December 8, 2015.

[12] *Submittal to the Board of Supervisors, County of Riverside, State of California.* Riverside County Planning Department. Item 17.3 (ID # 4793. Page 3. July 25, 2017.

[13] The Dutch Village Specific Plan no longer retains its Dutch theme and is now being planned with mixed uses similar to those found in the nearby cities of Temecula and Murrieta.

schemas under both Specific Plans are refined to ensure design consistency for an enduring, identifiable, and dynamic image for the project site and the community.

The proposed library facility will be constructed consistent with the Quinta Do Lago Specific Plan, which provides a framework to guide new development in order to strengthen community identity. Design plans must consider the relationship and compatibility of the proposed library facility with its surroundings through building layout, orientation, and architectural features, as well as selection of materials, colors, and landscaping.

The proposed library facility will incorporate 360-degree architecture where all elevations of the building receive equal articulation and design consideration to provide visual appeal and minimize the appearance of a large building. Additionally, the landscaped area is to include a mixture of "California-friendly"[14] trees, shrubs and groundcover to help integrate the new building into the existing setting and to reduce water use. Development of the project site consistent with the same development framework as the surrounding land uses would ensure compatibility with the existing and proposed visual character of the surrounding community. Therefore, the proposed project would not conflict with applicable zoning and other regulations governing scenic quality. Impacts would be **less than significant** and mitigation is not required.

d. Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Less than Significant Impact

Discussion of Effects: The lighting sources currently at or near the project site consist of street lights along Skyview Road and Highway 79, vehicle headlights along these roadways, and residential lighting from adjacent developed uses. New development would result in new lighting sources such as parking lot lighting, interior and exterior building lighting (included for safety purposes), additional vehicle headlights, and illuminated signage. These new sources of light would be visible from neighboring development and along adjacent roadways.

The project site is located within Zone B of the Mount Palomar Night Time Lighting Policy Area, approximately 22 miles northwest of the Mount Palomar Observatory. Accordingly, the project is subject to specific County ordinances for the regulation of light sources. Policy LU 4.1 of the County General Plan requires new developments to be located and designed to visually enhance and not degrade the character of the surrounding area through consideration of lighting and other impacts on surrounding properties. County Ordinance No. 655 restricts new development from incorporating fixtures emitting light that would create undesirable light rays into the night sky and detrimentally affect astronomical observations and research. Additionally, Ordinance No. 655 mandates that all outdoor lighting, aside from street lighting, be low to the ground, shielded, and/or hooded in order to prevent shine onto adjacent properties and streets.

The selection of building materials and colors, including installation of photovoltaic panels, would be subject to County plan check review in order to reduce the potential for architectural glare and to blend in with the surrounding environment. Furthermore, incorporation of project site perimeter and streetscape landscaping would serve to further shield surrounding properties from light and/or glare

[14] A California Friendly® Landscape is defined as one which is drought-tolerant, aesthetically pleasing, and sustainable in accordance with the *California Friendly® Maintenance Guide for Landscapers, Gardeners, and Land Managers.* Douglas Kent + Associates. March 2017.

generated on site. Through compliance with Policy LU 4.1 and County Ordinance No. 655, which mandate that all outdoor lighting, aside from street lighting, be low to the ground, shielded, and/or hooded in order to prevent shine onto adjacent properties, streets and the night sky, the proposed project would not generate sources of light and/or glare that would be substantial when compared to the existing condition (e.g., vehicle lights along adjacent roadways, and residential lights from adjacent developed uses) in the project vicinity. Therefore, impacts from light and glare would be **less than significant** and mitigation is not required.

3.2 AGRICULTURE RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b.	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c.	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined in Public Resources Code section 4526), or timberland zoned Timberland Production (as defined in Government Code section 51104(g))?	☐	☐	☐	☒
d.	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e.	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact

Discussion of Effects: The California Department of Conservation, Farmland Mapping and Monitoring Program, compiles Important Farmland maps pursuant to the provisions of Section 65570 of the California Government Code. These maps utilize data from the United States Department of Agriculture, Natural Resource Conservation Service (NRCS) soil survey and current land use information using eight mapping categories, and they represent an inventory of agricultural resources within Riverside County.

No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is located on or near the project site. The site is designated as "Farmland of Local Importance" (soils that would be classified as Prime and Statewide but lack available irrigation water, etc.).[15] As no Prime or Unique Farmlands or Farmland of Statewide Importance is located within or adjacent to the project site, no conversion of such farmlands will occur. **No impact** related to this issue would occur and no mitigation is required.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact

Discussion of Effects: Williamson Act contracts restrict land development of contract lands.[16] These contracts typically limit land use to agriculture, recreation, and open space, unless otherwise stated in the contract. The project is not located within a Williamson Act contract area, so **no impact** would occur. Mitigation is not required.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g), timberland (as defined by Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact

Discussion of Effects: Neither the project site nor surrounding properties are zoned for forest land or timberland.[17] Therefore, the proposed project would have **no impact** on forest land or timberland. No mitigation is required.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact

Discussion of Effects: The project site was routinely disked for weed abatement since at least the 1990s and was cleared of vegetation and graded between November 2009 and March 2011.[18] No forest land exists on site. As discussed in response to Checklist Question 3.2c, the proposed project would not result

[15] *Riverside County Important Farmland 2016. Sheet 1 of 3*. State of California Department of Conservation, California Important Farmland Finder. ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016/riv16_w.pdf (accessed October 4, 2019).

[16] The Williamson Act is a procedure authorized under State law to preserve agricultural lands as well as open space. Property owners entering into a Williamson Act contract receive a reduction in property taxes in return for agreeing to protect the land's open space or agricultural values.

[17] *Ibid.*

[18] *French Valley.* Google Earth Pro. 33°36'32.42" N and -117°06'30.28" W. November 15, 2009 and March 9, 2011 (accessed October 15, 2019).

in the loss of forest land or conversion of forest land to non-forest use. Therefore, **no impact** would occur and no mitigation is required.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Less than Significant Impact

Discussion of Effects: No agricultural operations are located on, adjacent to, or near the project site. Although the site is designated "Farmland of Local Importance," it is not subject to a Williamson Act Contract. The project site is part of the Quinta Do Lago Specific Plan, which does not include agriculture in its proposed land uses.[19] Since no agricultural uses exist on site, and the anticipated buildout of the Dos Lagos Specific Plan does not plan for agricultural activities to be developed on-site, the proposed project would not result in the conversion of agricultural land to a non-agricultural use. Similarly, no forestry uses exist on site. In the absence of land designated for agricultural or forestry use, impacts would be **less than significant,** and mitigation is not required.

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b.	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard?	☐	☐	☒	☐
c.	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d.	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

[19] Figure III-1 (Specific Land Use Plan). Quinta Do Lago Specific Plan. County of Riverside. Adopted August 30, 1994, as amended.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact

Discussion of Effects: The project site is in the South Coast Air Basin (Basin), which is managed by the South Coast Air Quality Management District (SCAQMD). The United States Environmental Protection Agency (EPA) has designated the status of the Basin as nonattainment for ozone (O_3), coarse inhalable particulate matter less than 10 microns in size (PM_{10}), and fine inhalable particulate matter less than 2.5 microns in size ($PM_{2.5}$) under the California Ambient Air Quality Standards. Under the National Ambient Air Quality Standards, the EPA has designated the status of the Basin as nonattainment for O_3 and $PM_{2.5}$.

The SCAQMD and Southern California Association of Governments (SCAG) are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. The applicable AQMP is the SCAQMD Final 2016 AQMP.[20] The 2016 AQMP incorporates local General Plan land use assumptions and regional growth projections developed by SCAG to estimate stationary and mobile source emissions associated with projected population and planned land uses. If a new land use is consistent with the local General Plan and the regional growth projections adopted in the 2016 AQMP, then the added emissions are considered to have been evaluated, are contained in the 2016 AQMP, and would not conflict with or obstruct implementation of the regional 2016 AQMP.

The proposed project is not considered a project of statewide, regional, or area-wide significance (e.g., large-scale projects such as airports, electrical generating facilities, petroleum and gas refineries, residential development of more than 500 dwelling units, shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space, etc.) as defined in the California Code of Regulations (Title 14, Division 6, Chapter 3, Article 13, §15206(b)).

As detailed in Table 2.2.A, the County's General Plan designates the project site land use as Open Space Recreational (OP-R), and the zoning of the site is [Quinta Do Lago] Specific Plan Zone (SP). Pursuant to the County's Ordinance 348, Article XVIIa, Section 17.27 (Land Use Permitted), public facility land uses such as the proposed library are permitted in the SP Zone. No changes are proposed to the General Plan land use designation or zoning, as the project will include the development of a 25,000 square-foot public library. Therefore, the project would not generate any increase in population that otherwise would not have been planned for in the County. Since the proposed project is consistent with the General Plan land use and zoning designation and would not generate any increase in population beyond that which has already been planned for by SCAG and the County, the proposed project is consistent with the 2016 AQMP. Impacts would be **less than significant** and mitigation is not required.

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard?

Less than Significant Impact

Discussion of Effects: The SCAQMD's CEQA *Air Quality Handbook* establishes suggested significance thresholds based on the volume of pollution emitted. According to the *Handbook*, any project in the Basin with daily emissions that exceed any of the following thresholds should be considered as having an individually and cumulatively significant air quality impact:

[20] *Final 2016 Air Quality Management Plan*. South Coast Air Quality Management District, March 2016.

- 55 lbs. per day of volatile organic compounds (VOC) (75 lbs./day during construction);
- 55 lbs. per day of oxides of nitrogen(Nox) (100 lbs./day during construction);
- 550 lbs. per day of carbon monoxide (CO) (550 lbs./day during construction);
- 150 lbs. per day of PM_{10}) (150 lbs./day during construction);
- 55 lbs. per day of $PM_{2.5}$) (55 lbs./day during construction); and
- 150 lbs. per day of oxides of sulfur (SOx) (150 lbs./day during construction).

The most recent version of the CalEEMod (Version 2016.3.2) was used to calculate construction and operation emissions from development of the proposed project (Appendix A).

No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. The SCAQMD developed the thresholds of significance based on the level above which a project's individual emissions would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. Therefore, a project that exceeds the SCAQMD project-specific thresholds would also have a cumulatively considerable contribution to a significant cumulative impact.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by site leveling, paving, and other activities. Emissions from construction equipment are also anticipated and would include CO, NOx, VOC, directly-emitted $PM_{2.5}$ or PM_{10}, and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Construction emissions were estimated for the project using CalEEMod Version 2016.3.2, consistent with SCAQMD recommendations for the proposed project.

For purposes of air quality analysis, it is assumed that construction would happen in phases. Each individual phase of project development would include the following construction activities: site preparation; grading; building construction; paving and surface improvement; and architectural coating (painting). The application of paving and architectural coating starts right after building construction and is assumed to continue throughout the construction process. The construction analysis includes estimating the construction equipment that would be used during each construction activity, the hours of use for that construction equipment, the quantities of earth and debris to be moved, and on-road vehicle trips (worker, soils hauling, and vendor trips). CalEEMod modeling defaults are assumed for the construction activities, off-road equipment, on-road construction fleet mix, and trip lengths. The tentative project construction schedule would have a probable start date in early 2020 and a planned opening in late 2021.

Table 3.3.A identifies the maximum daily emissions associated with construction activities and indicates no criteria pollutant emission thresholds would be exceeded from construction of the proposed project.

Table 3.3.A: Short-Term Regional Construction Emissions

Construction Phase	Maximum Daily Regional Pollutant Emissions (lbs/day)							
	VOCs	NOx	CO	SOx	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Site Preparation	1.69	19.94	11.59	0.03	0.71	0.78	0.09	0.72
Grading	1.97	21.37	10.34	0.02	2.67	0.99	1.34	0.91
Building Construction	2.44	18.54	16.09	0.03	0.34	0.96	0.09	0.92

Table 3.3.A: Short-Term Regional Construction Emissions

Construction Phase	Maximum Daily Regional Pollutant Emissions (lbs/day)							
	VOCs	NOx	CO	SOx	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Paving	1.33	10.69	12.33	0.02	0.17	0.58	0.04	0.54
Architectural Coating	24.36	1.54	2.00	0.00	0.06	0.09	0.01	0.09
Peak Daily Emissions	**24.36**	**21.37**	**16.09**	**0.03**	**3.66**		**2.25**	
SCAQMD Thresholds	**75.00**	**100.00**	**550.00**	**150.00**	**150.00**		**55.00**	
Significant?	**No**	**No**	**No**	**No**	**No**		**No**	

Source: Compiled by LSA (Appendix A).

Note: Numbers may appear to not sum correctly due to rounding.

CO = carbon monoxide
NOx = nitrogen oxides
PM_{10} = coarse inhalable particulate matter less than 10 microns in size
SOx = sulfur oxides
lbs/day = pounds per day
$PM_{2.5}$ = fine inhalable particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
VOCs = volatile organic compounds

Operational Emissions. Long-term air pollutant emissions associated with operation of the proposed project include emissions from stationary, energy, and mobile sources. Stationary sources include area sources such as architectural coatings, consumer products, and landscaping. Energy sources include natural gas consumption for heating and electricity for lighting. Mobile-source emissions are from vehicle trips associated with operation of the project. Based on the stationary-source parameters in CalEEMod for a library and trip generation rates estimated for the proposed project (refer to Appendix A), operational emissions are detailed in Table 3.3.B. Projects in the Basin with operation-related emissions that exceed any of the listed emission thresholds are considered by the SCAQMD to generate potentially significant impacts to the environment.

The proposed project is estimated to generate 1,801 vehicle trips per day (refer to Appendix H). Area sources include architectural coatings, consumer products, and landscaping. Electrical energy sources include lightings for modular office trailer, parking lots, and security cameras.

Table 3.3.B indicates that the emissions of criteria pollutants generated from operation of the proposed project would not exceed the corresponding SCAQMD daily emission thresholds.

Table 3.3.B: Operational Emissions with Regional Effects

Source	Pollutant Emissions (lbs/day)					
	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Area Sources	0.57	<0.01	0.01	0	<0.01	<0.01
Energy Sources	0.02	0.22	0.18	<0.01	0.02	0.02
Mobile Sources	3.32	23.07	34.12	0.14	9.80	2.69
Total Project Emissions	**3.92**	**23.29**	**34.32**	**0.14**	**9.81**	**2.70**
SCAQMD Thresholds	**55.0**	**55.0**	**550.0**	**150.00**	**150.00**	**55.00**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (Appendix A).
Note: Numbers may appear to not sum correctly due to rounding.

CO = carbon monoxide
NOx = nitrogen oxides
PM_{10} = coarse inhalable particulate matter less than 10 microns in size
SOx = sulfur oxides
lbs/day = pounds per day
$PM_{2.5}$ = fine inhalable particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
VOC = volatile organic compounds

As per regulatory policy in the Basin, the proposed project is required to comply with SCAQMD Rule 403, which includes implementation of standard control measures for fugitive dust. Table 3.3.A and Table 3.3.B demonstrate that, with compliance with applicable regulatory policy designed to reduce emissions, the proposed project would not exceed any SCAQMD threshold during construction or operation. Therefore, the proposed project would not contribute significantly to cumulative impacts from generation of any pollutants for which the region is in nonattainment. Specifically, the proposed project construction and operational emissions would not exceed the SCAQMD's mass daily thresholds for VOC and NOx that serve as project and cumulative impact thresholds of significance for gauging regional O_3 impacts. Therefore, the proposed project's contribution to cumulative air quality impacts would not be cumulatively significant.

Compliance with SCAQMD Rules 402, 403, and 431.2, which include implementation of standard control measures for diesel equipment emissions, fugitive dust, and construction methods is a regulatory requirement for all projects in the Basin. Other regulatory measures such as Title 13-Section 2449 of the California Code of Regulations; and California Department of Resources Recycling and Recovery (CalRecycle) Sustainable (Green) Building Program regulations also will be implemented for the proposed project. Through compliance with these regulations as part of applicable policy designed to reduce emissions, the proposed project would not exceed any SCAQMD threshold or contribute to a substantial increase in regional air emissions. Therefore, the proposed project would not result in a cumulatively considerable contribution to significant air quality impacts. Cumulative air quality impacts would be **less than significant** and mitigation is not required.

c. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact

Discussion of Effects: Localized Significance Thresholds (LSTs) are developed based upon the size or total area of the emissions source from construction equipment activities, the ambient air quality levels in each source receptor area (SRA) in which the emission source is located, and the distance to nearby sensitive receptors. LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each SRA. For the proposed project, the appropriate SRA for the LST is SRA 26 (Temecula Valley).

LSTs only apply to CO, nitrogen dioxide (NO_2), PM_{10}, and $PM_{2.5}$ emissions during construction and operation. Screening-level analysis of LSTs is only recommended for construction activities at project sites that are 5 acres or less. The SCAQMD recommends that operational activities and construction for any project over 5 acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors. Although the project site is approximately 11.5 acres, the area of development is anticipated to be 2.64 acres (refer to Figure 2 in Appendix H). Therefore, screening-level analysis of LSTs for 3 acres was used for construction and operational activities.[21]

Localized significance is determined by comparing the on-site-only portion of the construction and operational emissions with emissions thresholds derived by the SCAQMD to ensure pollutant

[21] Whereas screening-level analysis of LSTs typically considers sites of 1 acre, 2 acres, or 5 acres in size, the construction footprint of the project is anticipated to be 2.64 acres. Therefore, interpolation was used to construct a data point between a 2-acre site and a 5-acre site to accurately represent the proposed area of construction disturbance for the project. Three acres is used in this analysis as a conservative, worst-case scenario.

concentrations at nearby sensitive receptors. For this Project, the closest sensitive receptor is the residential land uses located approximately 80 feet (24 meters) southwest of the project site. The localized construction and operational analysis results are below the LST thresholds established by the SCAQMD. Tables 3.3.C and 3.3.D detail the construction and operational LST emissions.

Table 3.3.C: Summary of Construction Emissions, Localized Significance

Source	Pollutant Emissions			
	NOx (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
On-Site Emissions	21	15	3.5	2.2
LST Thresholds	363	2,537	35.0	9.4
Significant?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (Appendix A).
Note: Source Receptor Area (SRA) for the LST is SRA 26 (Temecula Valley). The closest sensitive receptor is the residential land uses, located approximately 24 meters (80 feet) southwest of the project site.

CO = carbon monoxide
ppm =parts per million
$\mu g/m^3$ =microgram per cubic meter air
LST = localized significance threshold
NO_2 = nitrogen dioxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Table 3.3.D: Summary of Operational Emissions, Localized Significance

Source	Pollutant Emissions			
	NOx (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
On-Site Emissions	1	2	0.5	0.1
LST Thresholds	363	2,537	8.7	2.8
Significant?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (Appendix A).
Note: Source Receptor Area (SRA) for the LST is SRA 26 (Temecula Valley). The closest sensitive receptor is the residential land uses, located approximately 24 meters (80 feet) southwest of the project site.

CO = carbon monoxide
ppm =parts per million
$\mu g/m^3$ =microgram per cubic meter air
LST = localized significance threshold
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

As detailed in Table 3.3.C and Table 3.3.D, project construction and operational emissions would not exceed LST thresholds. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations. Impacts related to substantial pollutant concentrations for construction and operation would be **less than significant**. Mitigation is not required.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact

Discussion of Effects: Other emissions, including nuisance odors, may occur during the operation of diesel-fueled equipment during construction and operation of the project. However, these emissions would be short term in duration and are expected to be isolated to the immediate vicinity of the construction site or transport route. SCAQMD Rules 402, 403, and 431.2, as well as Title 13, Section 2449(d)(d) of the California Code of Regulations (CCR), require the project proponent to implement standard control measures for fugitive dust and diesel equipment emissions. Additionally, operators of off-road vehicles (i.e., self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on road) are required to limit vehicle idling to five minutes or less; register and

label vehicles in accordance with the CARB Diesel Off-Road Online Reporting System; restrict the inclusion of older vehicles into fleets; and retire, replace, or repower older engines or install Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). Finally, SCAQMD Rule 402 regarding nuisances states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property." Adherence to these rules is standard regulatory policy for all development within the Basin and would reduce impacts from other emissions such as nuisance odors to **less than significant** levels. Mitigation is not required.

3.4 BIOLOGICAL RESOURCES

Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c.	Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

f.	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☒	☐	☐

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated

Discussion of Effects: The project site is undeveloped but is bound by Highway 79 to the northwest, Skyview Road to the southwest, French Valley Creek to the southeast, and undeveloped open space to the northeast (Figure 2). Undeveloped but disturbed open space occurs across Highway 79 to the northwest, multi-family residential uses are located across Skyview Road to the southwest, and single-family residential uses are located across the creek to the southeast and east.

The project site is located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). MSHCP Figures 6-2 (Criteria Area Species Survey Area), 6-3 (Amphibian Species Survey Area), 6-4 (Burrowing Owl Survey Area), and 6-5 (Mammal Species Survey Area) of the MSHCP indicate the project site is located within the Criteria Area Species Survey Area, Narrow Endemic Plant Species Survey Area, and Burrowing Owl Survey Area. Accordingly, the project site was subject to a habitat assessment and focused survey in conjunction with MSHCP implementation in order to achieve coverage for these species.[22]

A Habitat Assessment for MSHCP Narrow Endemic Plant Species Survey Area (NEPSSA) and Criteria Area Species Survey Area (CASSA) Species was performed to determine habitat suitability for each of the NEPSSA and CASSA species listed in the MSHCP (see Appendix B1). Vegetation on-site was dominated by non-native grassland comprised primarily of shortpod mustard (*Hirschfeldia incana*), redstem stork's bill (*Erodium cicutarium*), common fiddleneck (*Amsinckia intermedia*), and ripgut brome (*Bromus diandrus*). Stands of cattail (*Typha* sp.), mule fat (*Baccharis salicifolia*), black mustard (*Brassica nigra*), shortpod mustard, Mediterranean tamarisk (*Tamarix ramosissima*), and tree tobacco (*Nicotiana glauca*) also were observed. Due to the absence of exposed mapped clay soils, alkali soils, and indicated native plant communities, as well as grading of most of the project site within the past few years, the site does not provide suitable habitat for any NEPSSA or CASSA species.

A focused burrowing owl (*Athene cunicularia*) survey was performed on the project site, including accessible portions of a 150-meter buffer area, in accordance with the *County of Riverside Guidelines for Burrowing Owl Surveys* (revised March 29, 2006) (see Appendix B2). No burrowing owls, burrowing owl sign, or burrows or similar features suitable for burrowing owl occupation were found to be present on site. However, portions of the site are suitable for burrowing owl occupation, so there is potential for burrowing owl to occupy the site prior to construction. Therefore, **Mitigation Measure (MM) BIO-1** is required to ensure a pre-construction burrowing owl survey will be conducted prior to disturbance of the site.

[22] *Western Riverside County Multiple Species Habitat Conservation Plan.* Western Riverside County Regional Conservation Authority. Section 6.0 Implementation Structure. June 17, 2003.

MM BIO-1 **A qualified biologist shall conduct a pre-construction burrowing owl/Initial Take and Avoidance Survey within 30 days prior to the beginning of project construction to determine if the project site contains suitable burrowing owl habitat and to avoid any potential impacts to the species. The survey shall be performed pursuant to the Riverside County Multiple Species Habitat Conservation Plan (MSHCP) 30-day Pre-Construction Burrowing Owl Survey Guidelines (revised August 17, 2006) and include 100 percent coverage of the project site. If the survey reveals no suitable habitat for burrowing owl is present, no further work in this regard is required.**

If active burrowing owl burrows are determined to be present, the burrow(s) shall be flagged, and a 160-foot buffer shall be established around the burrow(s) during the non-breeding season (September 1 to January 30) and a 250-foot buffer shall be created during the breeding season (February 1 to August 31). As determined by Riverside County (County), the buffer limits may vary depending on burrow location and burrowing owl sensitivity to human activity. The buffer(s) shall be sufficient to ensure that nesting behavior is not adversely affected by the construction activity. A monitoring report shall be prepared and submitted to the County for review and approval prior to reinitiating construction activities within the buffer area(s), and construction within the designated buffer area(s) shall not proceed until written authorization is received from California Department of Fish and Wildlife (CDFW). The monitoring report shall summarize the results of the owl monitoring, describe construction restrictions currently in place, and confirm that construction activities can proceed within the buffer area(s) without jeopardizing the survival of the owl(s). Any relocation efforts must be coordinated with the CDFW. This measure shall be implemented to the satisfaction of Riverside County and, as applicable, the CDFW.

Implementation of **MM BIO-1** would reduce impacts to burrowing owls to **less than significant** levels.

Development of the project would not eliminate significant amounts of habitat for potentially occurring special-status plant or wildlife species, nor would it reduce population size of sensitive plant and/or wildlife species below self-sustaining levels on a local or regional basis with implementation of **MM BIO-1**. However, on-site vegetation, perimeter street trees along Skyview Road, and vegetation within the French Valley Creek adjacent to the east could provide potential nesting sites for common native bird species protected under the Migratory Bird Treaty Act (MBTA) or the California Fish and Game Code (Sections 3503, 3503.5, and 3515). Construction activity could result in a significant impact to species protected by regulation, and **MM BIO-2** is required.

MM BIO-2 **A qualified biologist shall conduct a pre-construction nesting bird survey within three days prior to vegetation- or ground-disturbing activities if such activities are proposed during the nesting season (February 1 through September 15). The survey shall include 100 percent coverage of the project site. If no active avian nests are found during survey, no further work in this regard is required.**

If an active avian nest is discovered during survey, vegetation- and/or ground-disturbing activities shall be redirected around the nest(s). As determined by Riverside County, the qualified biologist shall delineate the boundaries of any such buffer area. The buffer shall be sufficient to ensure that nesting behavior is not adversely affected by the vegetation- and/or ground-disturbing activity. If such activities are delayed or suspended for more than seven days after the survey, the site shall be resurveyed.

Should eggs or fledglings be discovered in any native nest, these resources cannot be disturbed until the young have hatched and fledged (matured to a stage that they can leave the nest on their own). Once the qualified biologist has determined that young birds have successfully fledged or the nest has otherwise become inactive, a monitoring report shall be prepared and submitted to Riverside County for review and approval prior to reinitiating vegetation- and/or ground-disturbing activities within the buffer area. The monitoring report shall summarize the results of the nest monitoring, describe construction restrictions currently in place, and confirm that construction activities can proceed within the buffer area without jeopardizing the survival of the young birds. This measure shall be implemented to the satisfaction of Riverside County.

Implementation of **MM BIO-1 and MM BIO-2** will result in **less than significant impacts with mitigation incorporated** to burrowing owls and migratory birds in accordance with the MSHCP, MBTA, and the California Fish and Game Code (Sections 3503, 3503.5, and 3515). With implementation of **MM BIO-1 and MM BIO-2**, the proposed project would have a **less than significant impact** on burrowing owls, nesting birds, and any other species identified as a candidate, sensitive, or special status species in local or regional plans (MSHCP), policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact

Discussion of Effects: Certain habitats/natural communities are considered to be of special concern based on, 1) federal, State, or local laws regulating their development; 2) limited distributions; and/or 3) whether they support the habitat requirements of special-status plants or animals. The project-specific habitat assessment (Appendix B1) and focused survey (Appendix B2) performed in conjunction with MSHCP implementation identified a small area along the northeast edge of the project site that includes mule fat (*Baccharis salicifolia*) and cattail (*Typha sp.*), which are riparian species. These species are supported by stormwater runoff conveyed beneath Highway 74 and occur strictly in the northern portion of the site where development under the proposed project will not occur (Figures 4 and 5). Additional riparian habitat is located along French Valley Creek and its embankments, which are outside of the project site boundaries and will be completely avoided by the proposed project.

The project site is not within any MSHCP Core Area, but the easternmost boundary of the site abutting French Valley Creek is within the Paloma Valley-Bachelor Mountain Proposed Constrained Linkage 18 that connects the Antelope Valley Proposed Core 2 with the Bachelor Mountain Proposed Extension of Existing Core 7.[23] Additionally, the project site is not within a Cell Group, but it is within MSHCP Criteria Cell 5477 and Sub Unit 5 (French Valley/Lower Sedco Hills) of the Southwest Area Plan.[24]

According to the MSHCP Criteria for the Southwest Area Plan, conservation within Criteria Cell 5477 will contribute to assembly of Proposed Constrained Linkage 18 and will focus on riparian scrub, woodland

[23] *Section 5.10: Biological Resources.* Final Environmental Impact Report for the Murrieta General Plan 2035. Exhibit 5.10-1 (MSHCP Proposed and Existing Conservation Land). SCH No. 2010111084. July 19, 2011.

[24] *Ibid.* Exhibit 5.10-2 (MSHCP Area Plans and Subunits).

and forest habitat, and adjacent agricultural land. Areas conserved within this Cell will be connected to riparian scrub, woodland and forest habitat, and agricultural land proposed for conservation in Cell #5479 to the west and in Cell #5378 to the north. Conservation within Cell 5477 will range from 20 to 30 percent of the Cell, focusing in the northwestern portion of the Cell.[25]

To help meet the conservation goals of MSHCP Criteria Cell 5477, a conservation easement, consisting of 11.9 acres, was previously established as part of a Joint Project Review with the Riverside Conservation Authority for development of the project site as a Boys and Girls Club (refer to Figure 5). The project site subsequently underwent clearing and grading with a building pad, although the previous development concept was never completed. The proposed project would result in the operation of a library which would be similar to the previous development concept, although lower noise levels would occur with a library, resulting in a benefit to the adjacent wildlife corridor. Furthermore, the Western Riverside County Regional Conservation Authority indicates "constrained" linkages tend to be hemmed in by existing patterns of development and may work well as pathways linking core areas but not as living spaces.[26] The proposed project is designed to avoid the on-site riparian area and French Valley Creek, which serves as a pathway linking Antelope Valley Proposed Core 2 and Bachelor Mountain Proposed Extension of Existing Core 7. Therefore, development of the project site as proposed will not further impede assembly of Constrained Linkage 18 as a wildlife corridor between Core Areas of the MSHCP pursuant to the conservation goals of MSHCP Criteria Cell 5477. Therefore, impacts to riparian habitat or other sensitive natural communities would be **less than significant**. Mitigation is not required.

c. Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact

Discussion of Effects: The U.S. Army Corps of Engineers (USACE) regulates discharges of dredge or fill material into water of the U.S. including wetlands and non-wetland bodies of water that meet specific criteria. In order to be considered a jurisdictional wetland under Section 404 of the Federal Clean Water Act (CWA), an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology.

As stated previously, the project-specific habitat assessment (Appendix B1) and focused survey (Appendix B2) performed in conjunction with MSHCP implementation identified a small area along the northeast edge of the project site that includes hydrophytic vegetation mule fat (*Baccharis salicifolia*) and cattail (*Typha sp.*) supported by stormwater runoff conveyed beneath Highway 74. This area of the project site is located approximately 360 feet north of the project construction limits and shall remain undeveloped under the proposed scope of work (Figures 4 and 5). The culvert beneath Highway 74 that conveys the off-site storm water through the northernmost portion of the site prior to draining into French Valley Creek will be maintained, and the flowline and associated vegetation will be avoided during site development.

[25] *Western Riverside County Multiple Species Habitat Conservation Plan.* Western Riverside County Regional Conservation Authority. Section 3.0 Conservation Planning Process Description and Area Plan Criteria of the MSHCP Conservation Area. Table 3-16: Criteria for Southwest Area Plan. June 17, 2003.

[26] *Habitat Conservation.* Western Riverside County Regional Conservation Authority. http://www.wrc-rca.org/habitat-conservation/ (accessed November 1, 2019).

Additionally, the French Valley Creek adjacent to the east of the project site possesses wetland characteristics and will be completely avoided by the proposed project, as indicated in Figures 4 and 5. As detailed in Section 3.10, implementation of **Standard Condition of Approval HYD-2** would ensure polluted runoff during site preparation and construction would be addressed by the Storm Water Pollution Prevention Plan (SWPPP). During operation of the project, implementation of **Standard Condition of Approval HYD-3** will require design and construction of a bioretention basin treatment control BMP to exceed the site's design capture volume of runoff and to treat identified pollutants of concern[27] with a medium to high efficacy rating[28] in accordance with the Municipal Separate Stormwater Sewer System (MS4) Permit for the Santa Margarita Region (Appendix F) prior to discharge to French Valley Creek. With adequate design capture volume and medium-high pollutant removal efficacy, the bioretention basin BMP will treat "first-flush" runoff[29] from the project site and ensure post-development storm water runoff volume or time of concentration would not exceed pre-development conditions by more than ten percent over a one year period pursuant to the NPDES MS4 Permit. Therefore, the project will not affect potentially jurisdictional waters and will not be subject to the regulatory authority of the USACE under Section 404 of the CWA, the San Diego Regional Water Quality Control Board (SDRWQCB) under Section 401 of the CWA, or the CDFW under Sections 1600 et seq. of the California Fish and Game Code. Therefore, the proposed project will have no effects on State or federally protected wetlands. **No impact** would occur and no mitigation is required.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant with Mitigation Incorporated

Discussion of Effects: Habitat fragmentation occurs when a single, contiguous habitat area is divided into two or more areas, or where an action isolates two or more new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or to/from one habitat type to another. Habitat fragmentation may occur when a portion of one or more habitats is converted into another habitat, as when scrub habitats are converted into annual grassland habitat because of frequent burning. Wildlife movement includes seasonal migration along corridors, as well as daily movements for foraging. Examples of migration corridors may include areas of unobstructed open space for deer, riparian corridors providing cover for migrating birds, routes between breeding waters and upland habitat for amphibians, and between roosting and feeding areas for birds.

As stated previously, the easternmost boundary of the site abutting French Valley Creek is within the Paloma Valley-Bachelor Mountain Proposed Constrained Linkage 18.[30] This linkage is comprised primarily of French Valley Creek that connects the Antelope Valley Proposed Core 2 in the Hogbacks [mountains] near Murrieta with the Bachelor Mountain Proposed Extension of Existing Core 7 of the Bachelor Mountain range.[31] According to the Western Riverside County Regional Conservation

[27] The project-specific priority pollutants of concern are Bacterial Indicators, Metals, and Nutrients pursuant to Section 3.3(d) of the Clean Water Act and the United States Environmental Protection Agency. Refer to Section 3.10 and Appendix F for additional information.

[28] Medium is between 40 percent and 80 percent removal efficiency; High is equal to or greater than 80 percent removal efficiency.

[29] "First-flush" runoff is the initial surface runoff of stormwater along impervious surfaces, such as parking lots, and is typically more concentrated with pollutants compared to the remainder of a storm event.

[30] *Section 5.10: Biological Resources.* Final Environmental Impact Report for the Murrieta General Plan 2035. Exhibit 5.10-1 (MSHCP Proposed and Existing Conservation Land). SCH No. 2010111084. July 19, 2011.

[31] *Ibid.*

Authority, "constrained" linkages tend to be hemmed in by existing patterns of development and may work well as pathways linking core areas but not as living spaces.[32]

Land adjacent to the project site and surrounding the Paloma Valley-Bachelor Mountain Proposed Constrained Linkage 18 has been developed through buildout of various planning areas of the Quinta Do Lago Specific Plan,[33] Dutch Village Specific Plan,[34] and general planned urbanization of western Riverside County (refer to Figure 2). The proposed project site is designed to avoid French Valley Creek, which serves as a pathway linking Antelope Valley Proposed Core 2 and Bachelor Mountain Proposed Extension of Existing Core 7. Therefore, development of the project site as proposed will not preclude the anticipated operation of Constrained Linkage 18 as a wildlife corridor between Core Areas of the MSHCP (refer to Figure 5).

Pursuant to the Urban/Wildlands Interface guidelines presented in MSHCP Section 6.1.4, the project has the potential to indirectly affect wildlife movement through edge effects associated with locating a public library facility in proximity to an MSHCP Conservation Area. Edge effects are indirect effects associated with artificial lighting, increased noise, unnatural predators (e.g., domestic cats and other non-native animals), competitors (e.g., exotic plants and non-native animals), unauthorized recreational use that may damage vegetation and/or habitat, increased generation of dust and trash/debris, and effects on storm water and water quality. These effects and the alteration of existing on-site vegetation may result in changes in the behavioral patterns of wildlife or reduce the amount or diversity of wildlife adjacent to the site.

Through compliance with Policy LU 4.1 and County Ordinance No. 655, which mandate that all outdoor lighting, aside from street lighting, be low to the ground, shielded, and/or hooded in order to prevent shine onto adjacent properties, streets, and the night sky, the proposed project would not generate sources of light and/or glare that would shine onto French Valley Creek or be substantial when compared to the existing condition (e.g., vehicle lights along adjacent roadways, and residential lights from adjacent developed uses).

As stated previously, development of the site as a Boys and Girls Club was subject to Joint Project Review with the Riverside Conservation Authority. The project site subsequently underwent clearing and grading with a building pad, although the previous development concept was never completed. The proposed project would result in the operation of a library, which would be similar to the previous development concept, although lower noise levels would occur with a library, resulting in a benefit to the adjacent wildlife corridor.

The landscaped area is to include a mixture of "California-friendly"[35] trees, shrubs and ground cover to help integrate the new building into the existing setting. A major component of "California-friendly" landscaping is selection of plant species native to California, which minimizes the potential for invasive

[32] *Habitat Conservation.* Western Riverside County Regional Conservation Authority. http://www.wrc-rca.org/habitat-conservation/ (accessed November 1, 2019).

[33] Figure III-1 (Specific Land Use Plan). Quinta Do Lago Specific Plan. County of Riverside. Adopted August 30, 1994, as amended.

[34] Figure 7 (Land Use Plan Through Amendment No. 10). Dutch Village Specific Plan. County of Riverside. Adopted June 6, 1973, as amended.

[35] A California Friendly® Landscape is defined as one which is drought-tolerant, aesthetically pleasing, and sustainable in accordance with the *California Friendly® Maintenance Guide for Landscapers, Gardeners, and Land Managers.* Douglas Kent + Associates. March 2017.

species to out-compete native vegetation in proximity to the site. Additionally, since the project is a public library facility, predatory wildlife such as domestic cats and other non-native animals are not expected to be introduced to the site through its operation when compared, for example, to a residential use where occupants may harbor pets. Development of the proposed project is expected to reduce edge effects related to existing unauthorized use of the site (e.g., off-highway vehicle travel, loitering, and dumping of trash) through the establishment of a defined use as a public library.

Standard Conditions of Approval HYD-2 and **HYD-3** will address edge effects associated with storm water and water quality. **Standard Condition of Approval HYD-2** would ensure polluted runoff during site preparation and construction would be addressed by the SWPPP, and **Standard Condition of Approval HYD-3** will require a bioretention basin BMP designed to prevent the release of toxins, chemicals, petroleum products, exotic plant material, or other elements into French Valley Creek while maintaining the site's existing drainage pattern and runoff volume. Since the Paloma Valley-Bachelor Mountain Proposed Constrained Linkage 18 adjacent to the project site consists primarily of French Valley Creek, **Standard Conditions of Approval HYD-2** and **HYD-3** will minimize edge effects by maintaining the conveyance of seasonal clean water flows along French Valley Creek, which connects the Antelope Valley Proposed Core 2 in the Hogbacks [mountains] near Murrieta with the Bachelor Mountain Proposed Extension of Existing Core 7 of the Bachelor Mountain range.

Although the project does have potential to affect migratory birds, implementation of **MM BIO-2** would protect migratory birds during the nesting bird season when unfledged offspring would not be able to flee the site safety during construction through the provision of appropriate buffers within which construction would not be allowed. Therefore, protection of French Valley Creek and the Paloma Valley-Bachelor Mountain Proposed Constrained Linkage 18 through implementation of **Standard Conditions of Approval HYD-2** and **HYD-3**, as well as implementation of **MM BIO-2,** would ensure development of the project site would not significantly affect wildlife movement opportunities, established native resident or migratory wildlife corridors, or native wildlife nursery sites. Impacts to wildlife corridors or linkages would be reduced to **less than significant with mitigation incorporated**.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact

Discussion of Effects: Riverside County's Oak Tree Management Guidelines, County Ordinance No. 559, and General Plan Policies OS 9.3 and 9.4 regulate tree removal. According to the Habitat Assessment for MSHCP NEPSSA and CASSA Species (Appendix B1), there are no oak trees or other trees of special concern on site. The project will comply with the MSHCP, County General Plan Policies for protection of biological resources, and all other guidelines and regulations applicable to the project site**. No impact** would occur and no mitigation is required.

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

Less than Significant with Mitigation Incorporated

Discussion of Effects: The project site is not within any MSHCP Core Area, but the easternmost boundary of the site abutting French Valley Creek is within the Paloma Valley-Bachelor Mountain Proposed Constrained Linkage 18 that connects the Antelope Valley Proposed Core 2 with the Bachelor Mountain

Proposed Extension of Existing Core 7.[36] Additionally, the project site is not within a Cell Group, but it is within MSHCP Criteria Cell 5477 and Sub Unit 5 (French Valley/Lower Sedco Hills) of the Southwest Area Plan.[37]

According to the MSHCP Criteria for the Southwest Area Plan, conservation within Criteria Cell 5477 will contribute to assembly of Proposed Constrained Linkage 18 and will focus on riparian scrub, woodland and forest habitat, and adjacent agricultural land. Areas conserved within this Cell will be connected to riparian scrub, woodland and forest habitat, and agricultural land proposed for conservation in Cell #5479 to the west and in Cell #5378 to the north. Conservation within Cell 5477 will range from 20 to 30 percent of the Cell, focusing in the northwestern portion of the Cell.[38]

To help meet the conservation goals of MSHCP Criteria Cell 5477, a conservation easement , consisting of 11.9 acres, was previously established as part of the development of the project site as a Boys and Girls Club (refer to Figure 5). The project site and onsite habitat subsequently underwent clearing and grading with a building pad, although the previous development concept was never completed. The proposed library would be substantially similar to the existing development that followed the process identified within the MSHCP and resulted in a Joint Process Review with the Riverside Conservation Authority and wildlife agencies. No additional change in circumstances regarding the development proposal has occurred which could result in a conflict with any applicable habitat conservation plan. Furthermore, the Western Riverside County Regional Conservation Authority indicates "constrained" linkages tend to be hemmed in by existing patterns of development and may work well as pathways linking core areas but not as living spaces.[39] The proposed project is designed to avoid the on-site riparian area and protect French Valley Creek, which serves as a pathway linking Antelope Valley Proposed Core 2 and Bachelor Mountain Proposed Extension of Existing Core 7, through implementation of **Standard Conditions of Approval HYD-2** and **HYD-3**. Therefore, development of the project site as proposed will not further impede assembly of Constrained Linkage 18 as a wildlife corridor between Core Areas of the MSHCP pursuant to the conservation goals of MSHCP Criteria Cell 5477. As detailed in response to Checklist Question 3.4d, development of the proposed project is not expected to result in significant edge effects pursuant to the Urban/Wildlands Interface guidelines presented in MSHCP Section 6.1.4.

The project site is currently undeveloped and is vegetated primarily by non-native annual grasses. In accordance with the MSHCP, the project was subject to site-specific biological studies, including a Habitat Assessment for MSHCP NEPSSA and CASSA Species (Appendix B1) and a focused burrowing owl survey (Appendix B2) to address potential impacts to MSHCP-covered species having the potential to occur on site. Based on mapped soils of the site and a pedestrian survey, NEPSSA and CASSA Species do not have the potential to occur on site. Burrowing owls have some potential to occur on the project site even though none were observed during the focused field survey. Therefore, **MM BIO-1** is required to ensure consistency with the provisions of the MSHCP. Additionally, there is potential for the project site to support bird species protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711),

[36] *Section 5.10: Biological Resources.* Final Environmental Impact Report for the Murrieta General Plan 2035. Exhibit 5.10-1 (MSHCP Proposed and Existing Conservation Land). SCH No. 2010111084. July 19, 2011.

[37] *Ibid.* Exhibit 5.10-2 (MSHCP Area Plans and Subunits).

[38] *Western Riverside County Multiple Species Habitat Conservation Plan.* Western Riverside County Regional Conservation Authority. Section 3.0 Conservation Planning Process Description and Area Plan Criteria of the MSHCP Conservation Area. Table 3-16: Criteria for Southwest Area Plan. June 17, 2003.

[39] *Habitat Conservation.* Western Riverside County Regional Conservation Authority. http://www.wrc-rca.org/habitat-conservation/ (accessed November 1, 2019).

so **MM BIO-2** is required to ensure impacts to endangered or threatened species listed under state and federal regulations would be less than significant.

The MSHCP includes a Local Development Mitigation Fee in accordance with Riverside County Ordinance No. 810 to assist in providing revenue to acquire and preserve vegetation communities and natural areas within Riverside County known to support populations of threatened, endangered, or key sensitive populations of plant and wildlife species. MSHCP payment will be submitted based on a per-acre fee of development pursuant to County Ordinance No. 810. In addition to the MSHCP, the project site is within the Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan (HCP) fee boundary, but is not located within an SKR reserve, nor is the site located in an area requiring focused SKR surveys. However, because the project is a public facility administered by an agency of Riverside County (i.e., Riverside County Economic Development Agency), the project is exempt from payment of SKR HCP fees.

Avoidance of the on-site riparian area, off-site conservation easement, and French Valley Creek, and implementation of **MM BIO-1** and **MM BIO-2,** will ensure impacts related to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan would be reduced to **less than significant levels with mitigation incorporated.**

3.5 CULTURAL RESOURCES

Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c.	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than Significant with Mitigation Incorporated

Discussion of Effects: Cultural resources are broadly defined as any physical manifestations of human activity that are least 50 years of age and may include archaeological resources as well as historic-era buildings and structures. Archaeological resources include both prehistoric remains and remains dating to the historical period. Prehistoric (or Native American) archaeological resources are physical manifestations of human activities that predate written records and may include village sites, temporary camps, lithic (stone tool) scatters, rock art, roasting pits/hearths, milling features, rock features, and

burials. Historic archaeological resources can include refuse heaps, bottle dumps, ceramic scatters, privies, foundations, and burials and are generally associated in California with the Spanish Mission Period (1769 through 1833) through the mid-late 20th century (1970). Archaeological resources that are eligible for listing in the National Register of Historic Places (National Register), California Register of Historical Resources (California Register), or a local register are considered *historical resources* pursuant to *CEQA Guidelines* §15064.5. *CEQA Guidelines* §15064.5 defines the term "historical resource" as:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code §5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements Section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code, § 5024.1, Title 14 CCR, Section 4852) including the following:

   A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

   B. Is associated with the lives of persons important in our past.

   C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

   D. Has yielded, or may be likely to yield, information important in prehistory or history.

A "substantial adverse change" to a historical resource, according to Public Resources Code (PRC) §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired."

The project site was subject to a Cultural Resources Assessment, which included an archaeological and historical records search, intensive pedestrian survey, and report (Appendix C). The records search of the project site included a one-mile radius search index and revealed 25 cultural resources within one mile of the project site. No cultural resources have been previously recorded within the project site, but two prehistoric resources have been recorded within 1,000 feet of the site. The records search also identified 37 previous surveys and/or excavations within one mile of the project site, two of which encompassed all or part of the site. The site was previously surveyed for cultural resources in 1990 and again in 2003. A subsequent intensive pedestrian survey conducted for the proposed project occurred on May 24, 2019.

The project-specific pedestrian survey did not result in the identification of any cultural resources on site. Additionally, the survey revealed the majority of the site has been previously graded and/or disturbed by construction of flood control facilities. Based on the results of the Cultural Resources Assessment, the project site does not contain any "historical resources" as defined under *CEQA Guidelines* §15064.5 or any known archaeological resources. However, the project site's proximity to previously-recorded cultural resources, as indicated through the records search, indicates there is some potential for the site to contain subsurface cultural resources, and mitigation is required. Therefore, **MM TCR-1** and **TCR-3** are required to ensure impacts to any unanticipated cultural resources would be reduced to **less than significant levels with mitigation incorporated.**

MM TCR-1 **Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified archaeologist to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources.**

The Project Archaeologist and the Tribal monitor(s) shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Project Archaeologist and the Tribal monitor(s), shall have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors.

The developer/permit holder shall submit a fully executed copy of the contract to Riverside County Economic Development Agency (EDA) to ensure compliance with this condition of approval. Upon verification, County EDA shall clear this condition.

In addition, the Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and County EDA, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with County EDA as provided for in California Public Resources Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with County EDA, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take

the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, County EDA, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

This measure shall be implemented to the Satisfaction of the County.

MM TCR-3 **Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required or the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. Riverside County Economic Development Agency (EDA) shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, County EDA shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s). This measure shall be implemented to the Satisfaction of the County.**

With implementation of **MM TCR-1** and **MM TCR-3**, impacts to "historical resources" as defined under *CEQA Guidelines* §15064.5 or "archaeological resources" pursuant to *CEQA Guidelines* §15064.5 would be reduced to **less than significant levels with mitigation incorporated**.

c. Disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant with Mitigation Incorporated

Discussion of Effects: No known human remains are present on the project site, and there is no evidence that Native Americans are buried on the project site. In the unlikely event that human remains are encountered during project construction, the proper authorities (i.e., Riverside County Coroner) shall be notified, and standard procedures for the respectful handling of human remains during the earthmoving activities will be followed. Construction contractors are required to adhere to CCR Section 15064.5(e), PRC Section 5097, and Section 7050.5 of the State's Health and Safety Code. In the event of an unanticipated discovery of a human burial, human bone or suspected human bone, or funerary objects associated with a human burial, the law requires all excavation or grading in the vicinity of the find halt immediately, the area of the find be protected, and the contractor immediately notify the County Coroner of the find. The construction contractor, project proponent, and the County Coroner are required to comply with the provisions of CCR Section 15064.5(e), PRC Section 5097.98, and Section 7050.5 of the State's Health and Safety Code. Furthermore, both the Pechanga Band of Luiseño Indians (Pechanga) and the Soboba Band of Luiseño Indians (Soboba) requested site-specific mitigation to address potential unanticipated encounters with human remains in accordance with PRC 21080.3.2, and the following Mitigation Measures were identified:

MM TCR-4 **If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code**

Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within 24 hours. Subsequently, the Native American Heritage Commission shall identify the "most likely descendant." The most likely descendant shall then make recommendations and engage in consultation concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. This measure shall be implemented to the Satisfaction of the County.

MM TCR-5 **It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code 6254 (r). This measure shall be implemented to the Satisfaction of the County.**

Compliance with CCR Section 15064.5(e), PRC Section 5097.98, and Section 7050.5 of the State's Health and Safety Code, and implementation of **MM TCR-4** and **MM TCR-5,** would ensure that any potential impacts to unknown buried human remains would be **less than significant with mitigation incorporated**.

3.6 ENERGY

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact

Discussion of Effects: The project's consumption of energy during construction and operation is calculated via CalEEMod, as detailed in Appendix A.

Construction. The anticipated construction schedule assumes that the project would be built in approximately 12 months. Construction would require energy for the manufacture and transportation of building materials, preparation of the site for demolition and grading activities, utility installation,

paving, and building construction and architectural coating. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. However, energy usage on the project site during construction would be temporary in nature.

The CalEEMod output for energy consumption incorporates project compliance with SCAQMD Rule 431.2, Title 13-Section 2449 of the CCR, and CalRecycle/Green Building Program regulations, which include implementation of standard control measures for equipment emissions and materials recycling. Adherence to these regulations, including the implementation of Best Available Control Measures, is a standard requirement for any construction or ground disturbance activity occurring within the Basin.

Best Available Control Measures include, but are not limited to, requirements that the project proponent utilize only low-sulfur diesel having a sulfur content of 15 parts per million by weight or less; ensure off-road vehicles (i.e., self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on road) limit vehicle idling to five minutes or less; register and label vehicles in accordance with the California Air Resources Board (CARB) Diesel Off-Road Online Reporting System; restrict the inclusion of older vehicles into fleets; and retire, replace, or repower older engines or install Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). Additionally, the construction contractor must recycle/reuse at least 65 percent of the construction material (including, but not limited to, proposed aggregate base, soil, mulch, vegetation, concrete, lumber, metal, and cardboard) and use "Green Building Materials," such as those materials that are rapidly renewable or resource efficient, and recycled and manufactured in an environmentally friendly way, for at least 10 percent of the project, in accordance with CalRecycle regulations. Through compliance with SCAQMD Rule 431.2, Title 13-Section 2449 of the CCR, and the CalRecycle Green Building Program as a matter of regulatory policy, construction of the project would demand only the energy required, and impacts from wasteful, inefficient, or unnecessary energy consumption would be **less than significant**. No mitigation is required for short-term construction impacts.

Operation. During project operation, electricity would be the main form of energy consumed on the site. Electricity would be used for building heating and cooling, lighting, and water heating. Table 3.6.A presents the energy use of the proposed project.

Table 3.6.A: Estimated Annual Energy Use of Proposed Project

Land Use	Electricity Use (kWh/year)	Natural Gas (Btu/year)	Patrons and Employees Vehicles Gasoline (gallons/year)
25,000 square-foot public library facility	253,750	812,250	177,175
Parking lot	11,900	0	--
Total	**265,650**	**812,250**	**177,175**

Source: CalEEMod. Compiled by LSA. October 2019. (Appendix A).
kWh = kilowatt hours
Btu = British thermal units

As identified in Table 3.6.A, demand from proposed uses on the site would generate a total 265,650 kilowatt hours (kWh) of electricity and 812,250 British thermal units (Btu) of natural gas on an annual basis. In addition, the project would result in energy usage associated with consumption of motor vehicle gasoline to fuel project-related trips. Based on the project Traffic Impact Analysis (Appendix H), the proposed public library facility would generate up to 1,801 daily trips during a weekday. The proposed project's 1,801 total daily trips is estimated to result in 3,897,844 annual vehicle miles

traveled (VMT). Using the 2016 fuel economy estimate of 22 miles per gallon (mpg),[40] the proposed project would consume approximately 177,175 gallons of gasoline per year.[41]

The State of California provides a minimum standard for building design and construction standards through Title 24 of the CCR, known as the California Building Code (CBC). The CBC is updated every three years, and the current 2016 CBC went into effect in January 2017. Compliance with Title 24 is mandatory at the time new building permits are issued by local governments. The California Building Standards Commission adopted Part 11 of the Title 24 Building Energy Efficiency Standards (also referred to as the California Green Building Standards Code, or CALGreen) in 2010 as part of the State's efforts to reduce greenhouse gas (GHG) emissions and energy consumption from residential and nonresidential buildings. CALGreen code covers the following five categories: (1) planning and design, (2) energy efficiency, (3) water efficiency and conservation, (4) material conservation and resource efficiency, and (5) indoor environmental quality. The County has adopted both the CBC and CALGreen Code pertaining to energy conservation standards. The projected energy use of the project is representative of a worst-case scenario because the estimates do not account for energy efficiency measures that would be incorporated into the proposed project. In accordance with the United States Green Building Council LEED building certification program, the project would meet the requirements of the LEED Silver certification level, which exceeds Title 24 requirements of the CBC for energy conservation. LEED Silver certification would further improve energy efficiency during operation.

Electricity is provided in the State through a complex grid of power plants and transmission lines. In 2018, California's in-state electric generation totaled 194,842 gigawatt-hours (GWh); the State's total system electric generation, which includes imported electricity, totaled 285,488 GWh.[42] Population growth is the primary source of increased energy consumption in the State; due to population projections, annual electricity use is anticipated to increase by approximately 1 percent per year through 2027.[43] The project's net electricity usage would total less than 0.00014 percent[44] of electricity generated in the State in 2018, which would not represent a substantial demand on available electricity resources.

The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 mpg in 1980 to 22.0 mpg in 2016.[45] Federal fuel economy standards have changed substantially since the Energy Independence and Security Act was passed in 2007, which originally mandated a national fuel economy standard of 35 mpg by the year 2020, and would be applicable to cars and light trucks of Model Years 2011 through 2020. The EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) amended the existing Corporate Average Fuel Economy (CAFE) standard. The new vehicle rules under the Safe Affordable Fuel-Efficient (SAFE) will hold the emissions standards at 2020 standards for both CAFE and

[40] Table 4-23. *Average Fuel Efficiency of U.S. Light Duty Vehicles.* United States Department of Transportation, Bureau of Transportation Statistics. https://www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles (accessed November 1, 2019).

[41] 3,897,844 VMT per year ÷ 22 mpg = 177,175 gallons of gasoline per year

[42] *Total System Electric Generation*. California Energy Commission. https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html (Accessed November 1, 2019).

[43] Table ES-1. *California Energy Demand 2018–2030 Revised Forecast.* California Energy Commission. https://ww2.energy.ca.gov/2017_energypolicy/documents/ (accessed November 1, 2019).

[44] 0.27 GWh (proposed project) ÷ 194,842 GWh (generated in State in 2018) = < 0.00014 percent.

[45] Table 4-23. *Average Fuel Efficiency of U.S. Light Duty Vehicles.* United States Department of Transportation, Bureau of Transportation Statistics. https://www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles (Accessed November 1, 2019).

SAFE until 2026. This new rules applies to the emissions of light duty cars and trucks from model years 2021 to 2026.[46]

As stated previously, implementation of the proposed project would increase the project-related annual gasoline demand by 177,175 gallons. Automobiles operated by patrons and employees, as well as transit buses driving to and from the project site, are subject to fuel economy and efficiency standards applied throughout the State. As such, the fuel efficiency of vehicles associated with the project site would increase throughout the life of the project as fuel efficiency of vehicles continues to improve in order to meet the State's 2050 GHG emission reduction goals. In addition, as the price and efficiency of electric passenger vehicles improve more people will buy them, reducing the number and use of fossil fuel dependent vehicles on the road. The result is a decrease the gasoline fuel demand in the transportation sector, including transit buses and passenger vehicles.

Patrons who would utilize the proposed library facilities would benefit from improved transportation to the site, as the improvements to public transportation will result in an expanded network of municipal buses, bicycle infrastructure, and rideshare programs. Although the Traffic Impact Analysis (Appendix H) describes the project as generating 1,801 "new" daily vehicle trips to/from the project site, many of these trips are not necessarily new but more likely rerouted vehicle trips that are expected to be travelling to other land uses and already consuming gasoline. The long-term operation of the project will see a decrease in fuel consumption per mile due to continuous improvements to vehicles and transportation infrastructure, which would demand less energy consumption through the life of the Project.

Increasingly stringent electricity, natural gas, and fuel efficiency standards combined with LEED Silver certification and improved alternative transportation infrastructure throughout the region would ensure operation of the project would demand only the energy required, and impacts from wasteful, inefficient, or unnecessary energy consumption would be **less than significant.**

Construction and operation of the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. Impacts would be **less than significant** and mitigation is not required.

b. Conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

No Impact

Discussion of Effects: The project would comply with the CBC and CalGreen Code pertaining to energy conservation standards in effect at the time of construction. In accordance with the United States Green Building Council LEED building certification program, the project would meet the requirements of the LEED Silver certification level, which exceeds Title 24 requirements of the CBC for energy conservation. Therefore, the proposed project would be consistent with applicable plans related to renewable energy and energy efficiency. **No impact** would occur and no mitigation is required.

[46] *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks.* August 24, 2018. United States Environmental Protection Agency and United States Department of Transportation. https://www.govinfo.gov/content/pkg/FR-2018-08-24/pdf/2018-18418.pdf (accessed January 15, 2020).

3.7 GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
ii Strong seismic ground shaking?
iii Seismic-related ground failure, including liquefaction?
iv Landslides?

No Impact or Less than Significant Impact

The following discussion is based on the project-specific Geotechnical Evaluation Report prepared for the French Valley Public Library (Appendix D).

i. Discussion of Effects: The Alquist-Priolo Earthquake Fault Zoning Act (Act) mitigates fault rupture hazards by prohibiting the development of structures for human occupancy across the trace of an active fault. The Act requires the State Geologist to delineate "Earthquake Fault Zones" along faults that are "sufficiently active" and "well defined." The boundary of an "Earthquake Fault Zone" is generally 500 feet from major active faults and between 200 and 300 feet from well-defined minor faults. Based on the information published by the Department of Conservation, State of California, the project site is not within an Alquist-Priolo Special Study Zone/Alquist-Priolo Earthquake Fault Zone. **No impact** related to fault rupture would result from the implementation of the project. Mitigation is not required.

ii. Like all of southern California, the project site has and will continue to be subject to ground shaking generated from activity on local and regional faults. Based on United States Seismic Design Maps, the proposed library facility may be subject to and must accommodate up to a maximum site horizontal acceleration of 0.68g with two (2) percent exceedance probability in 50 years. Accordingly, the Geotechnical Evaluation Report (Appendix D) prescribes seismic design parameters pursuant to the latest edition of the CBC[47] and American Society of Civil Engineers (ASCE) 7-10[48] standards.

Chapter 16 of the CBC includes General Design Requirements, including regulations governing seismically resistant construction (Chapter 16, Division IV) and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. Chapter 18 and Chapter 33 include site demolition, excavations, foundations, retaining walls, and grading, including requirements for seismically resistant design, foundation investigations, stable cut and fill slopes, and drainage and erosion control. The procedures and limitations for the design of structures are based on site characteristics, occupancy type, configuration, structural system height, and seismic zoning. Construction activities are also subject to occupational safety standards for excavation, shoring, and trenching as specified in California Occupational Safety and Health Administration regulations (California Code of Regulations, Title 8).

[47] Pursuant to California Code of Regulations, Title 24, Part 2, the California Building Code (CBC) establishes minimum standards for building design in the State, and it is consistent with or more stringent than Uniform Building Code requirements.

[48] *Minimum Design Loads for Buildings and Other Structures: ASCE Standard ASCE/SEI 7-10*. American Society of Civil Engineers. Page 608. 2010.

State law requires the design and construction of new structures to comply with current CBC requirements which address general geologic, seismic (including ground shaking), and soil constraints for new buildings. Accordingly, the Geotechnical Evaluation Report details proper engineering design and construction recommendations to be implemented through development of the proposed project as **Standard Condition of Approval GEO-1** in conformance with the current edition of the CBC and ASCE 7-10 standards. Implementation of **Standard Condition of Approval GEO-1** would ensure that impacts related to strong seismic ground shaking would be less than significant.

Standard Condition of Approval: Mitigation is not required; however, the following Standard Condition of Approval is a regulatory requirement that would be implemented to ensure impacts related to strong seismic ground shaking remain less than significant.

Standard Condition of Approval GEO-1: The Proponent shall provide evidence to the County of Riverside for review and approval that on-site structures, features, and facilities have been designed and constructed in conformance with applicable provisions of the California Building Code in effect at the time of construction and the recommendations cited in Section 6 of the Geotechnical Evaluation Report (Appendix D). Geotechnical recommendations include, but are not limited to, the following:

- Vegetation, utilities, asphalt, concrete, and other deleterious debris must be stripped from the areas to be graded and properly disposed of off site.
- Remedial grading must extend beyond the perimeter of the proposed structures a horizontal distance equal to the depth of excavation or a minimum of two feet.
- All foundations must bear on engineered fill or competent native soils.
- For each area to receive compacted fill, the removal of low density, compressible earth materials such as upper alluvial materials must continue until firm, competent alluvium is encountered.
- All fill soils must be free of organics, debris, rocks, or lumps over three inches in largest dimension, other deleterious material, and not more than 40 percent larger than ¾ inch.
- Any imported fill material must be inspected by a qualified geotechnical engineer and consist of granular soil having a “very low” expansion potential (i.e., expansion index of 20 or less) and low corrosion potential (chloride content less than 500 parts per million [ppm], soluble sulfate content of less than 0.1 percent, and pH of 5.5 or higher).
- A qualified geotechnical engineer must observe excavation so that any necessary modifications based on variations in the encountered soil conditions can be made. Verification testing must be performed upon completion of ground improvements to confirm that the compressible soils have been sufficiently densified.
- Corrosion protection for metal in contact with site soils must be implemented. Corrosion protection may include the use of epoxy or asphalt coatings. A corrosion specialist must be consulted regarding appropriate protection for buried metals and suitable types of piping.

This condition shall be implemented to the satisfaction of the County of Riverside EDA Deputy Building Official or designee.

Proper engineering design and construction in conformance with CBC and ASCE 7-10 standards and project-specific geotechnical recommendations (**Standard Condition of Approval GEO-1**) would ensure potential impacts from strong seismic ground shaking would be **less than significant**. Mitigation is not required.

iii. Liquefaction occurs when loose, unconsolidated, water-laden soils are subject to shaking, causing the soils to lose cohesion. Coarse-grained on-site soils are dense to very dense, and fine-grained on-site soils are stiff to hard. The Geotechnical Evaluation Report determined groundwater beneath the site at depths between 30 and 45 feet below the surface. The project is not located within a zone of required liquefaction investigation, and the Riverside County General Plan identifies the risk of liquefaction at the project site as low. Proper engineering design and construction in conformance with CBC standards and project-specific geotechnical recommendations (**Standard Condition of Approval GEO-1**) would ensure potential for earthquake induced liquefaction and lateral spreading on-site would be low due to the recommended compacted fill, relatively low groundwater level, and the dense nature of the on-site earth materials. Potential impacts from seismic-related ground failure, including liquefaction would be **less than significant** and mitigation is not required.

iv. The project site is characterized by flat to gently sloping topography and is not within an area potentially subject to earthquake-induced landslides. Additionally, the project site is surrounded by fully improved, engineered, and/or developed uses. Therefore, the likelihood of a landslide on the project site is low, and impacts associated with landslides are **less than significant**. Mitigation is not required.

b. Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact

Discussion of Effects: The project site is currently undeveloped and comprises earthen surfaces with sparse vegetation. Surface soils are compacted and disturbed; the NRCS identifies four soil types on-site:[49]

- PtB: Porterville clay, moderately deep, slightly saline-alkali, 0 to 5 percent slopes;
- WyC2: Wyman loam, 2 to 8 percent slopes, eroded;
- YbC: Yokohl loam, 2 to 8 percent slopes; and
- YbE3: Yokohl loam, 8 to 25 percent slopes, severely eroded.

Construction activities, such as vegetation grubbing, grading, and other excavation, would disturb surface soils, rendering them susceptible to erosion from wind and water.

The County is a Co-permittee under the San Diego Regional Water Quality Control Board Order number R9-2013-0001, NPDES Permit No. CAS0109266, as amended by Order No. R9-2015-0001 and R9-2015-0100, also known as the Municipal Separate Storm Sewer System or MS4 permit. In order to address the

[49] *Web Soil Survey.* Natural Resources Conservation Service. United States Department of Agriculture. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed October 18, 2019).

potential for erosion pursuant to the MS4 Permit, the project is required to implement Best Management Practices (BMPs) during the construction phase that would reduce erosion in accordance with NPDES regulations. These BMPs may include covering stockpiled soils and use of straw bales and silt fences to minimize off-site sedimentation, and would be selected as part of the Storm Water Pollution Prevention Plan (SWPPP) that is required to address erosion and discharge impacts associated with the proposed on-site ground-disturbing activities. Wind erosion would be minimized through soil stabilization measures required by the SCAQMD Rule 403 (Fugitive Dust). In addition, the site where ground disturbance is proposed would be covered with asphalt, concrete, and landscaping materials during operations. Therefore, when compared to the existing undeveloped condition, soil erosion would be minimal. Compliance with State and federal requirements, as well as with County grading permit requirements, would ensure that the proposed project would have a **less than significant** impact related to soil erosion or loss of topsoil. Mitigation is not required.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less than Significant Impact

Discussion of Effects: Liquefaction occurs when loose, unconsolidated, water-laden soils are subject to shaking, causing the soils to lose cohesion. Shaking suddenly causes soils to lose strength and behave as a liquid. Liquefaction-related effects include loss of bearing strength, lateral spreading, and flow failures or slumping.

Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the seismic inertial forces may cause the mass to move downslope toward a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements and such movement typically damages pipelines, utilities, bridges, and structures.

Factors that contribute to slope failure and landslides include slope height and steepness, shear strength and orientation of weak layers in the underlying geologic units, and pore water pressures.

Ground subsidence is typically a gradual settling or sinking of the ground surface with little or no horizontal movement, although fissures (cracks and separations) can result from lowering of the ground surface. Most of the damage caused by subsidence is the result of oil, gas, or groundwater extraction from below the ground surface. Ground subsidence may occur as a response to natural forces such as earthquake movements, which can cause abrupt elevation changes of several feet or densification of low density granular soils during an earthquake event that may cause several inches of settlement.

Hydrocompaction, or soil collapse, typically occurs in recently deposited Holocene (less than 11,000 years before present time) soils that were deposited in an arid or semi-arid environment. Soils prone to collapse are commonly associated with man-made fill, wind-laid sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. Sudden substantial settlement may occur when saturated, collapsible soils lose their cohesion. An increase in surface water infiltration (such as from irrigation) or a rise in the groundwater table, combined with the weight of a building or structure, may initiate settlement, causing foundations and walls to crack.

As stated in response to Checklist Question 3.7a(iii), the project site is not considered susceptible to liquefaction, and the potential for seismic-induced settlement and lateral spreading at the project site is negligible. Additionally, the majority of the project site and vicinity are relatively flat areas with less than two percent slope aspect. The embankment to French Valley Creek is engineered to be stabilized with riprap. There are no known landslides at the site, nor is the site in the path of any known or potential landslides. Proposed project operations do not include oil, gas, or groundwater extraction, which could result in ground subsidence. On-site soils (i.e. refer to response to Checklist Question 3.7b) are dense and well drained, and geotechnical field exploration and laboratory tests indicate the potential for subsidence, hydrocompaction, or soil collapse is low with implementation of **Standard Condition of Approval GEO-1**.

Since the effective shrinkage of on-site soils will depend primarily on the type of compaction equipment and method of compaction used on-site by the contractor and accuracy of the topographic survey, the project is required to implement **Standard Condition of Approval GEO-1** pursuant to the CBC to ensure remedial earthwork and/or ground improvement will provide a sufficient layer of engineered fill or densified soil beneath the structural footings/foundations, as well as proper surface drainage devices and erosion control. Pursuant to **Standard Condition of Approval GEO-1,** verification testing must be performed upon completion of ground improvements to confirm that the compressible soils have been sufficiently densified, which would ensure impacts from unstable geologic units or soils would **be less than significant.** Mitigation is not required.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?

Less than Significant Impact

Discussion of Effects: Expansive soils generally have a substantial amount of clay particles that can give up water (shrink) or absorb water (swell). The change in the volume exerts stress on structures and other loads placed on these soils. The extent or range of the shrink/swell is influenced by the amount and kind of clay present in the soil. The occurrence of these soils is often associated with geologic units having marginal stability. Expansive soils can be widely dispersed, and they can occur in hillside areas as well as low-lying alluvial basins.

Preliminary laboratory test results indicate on-site earth materials exhibit a *low* expansion potential, as classified in accordance with 2016 CBC Section 1803.5.3 and American Society for Testing and Materials (ASTM) D4829. Pursuant to **Standard Condition of Approval GEO-1**, removal of low density, compressible earth materials such as upper alluvial materials must occur until firm, competent alluvium is encountered. Verification testing must be performed upon completion of ground improvements to confirm that the compressible soils have been sufficiently densified, which would ensure impacts from expansive soils would be **less than significant**. Mitigation is not required.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact

Discussion of Effects: The project would not require the construction or expansion of septic tanks or alternative wastewater disposal systems. The proposed library facility will be connected to the municipal wastewater system, and septic tanks and/or alternative wastewater disposal systems would not be utilized. **No impact** would occur and no mitigation is required.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation Incorporated

Discussion of Effects: As detailed in the *Geologic Map of the Bachelor Mountain 7.5' Quadrangle, Riverside County, California,* the project site is underlain by Very Old Alluvial Valley Deposits (Middle to Early Pleistocene).[50] Although Pleistocene sediments have some potential to contain paleontological resources, the County General Plan indicates the project site is in an area of low paleontological sensitivity.[51] However, ground-disturbing activities at the project site still have the potential to disturb previously unknown resources if excavation depths reach native, undisturbed sediments. Therefore, **MM-GEO-1** shall be implemented during ground disturbing activities to ensure impacts on paleontological resources are reduced to a **less than significant** level:

MM GEO-1 Prior to the issuance of grading permits, Riverside County shall verify that the following mitigation is included in all grading plans:

If any suspected paleontological resources (fossils) are discovered during ground-disturbing activities, the construction supervisor shall halt work within a 60-foot radius around the find and establish an exclusionary buffer. Construction personnel shall not collect or move any suspected paleontological materials or further disturb any soils within the exclusionary buffer, but construction activity may continue unimpeded on other portions of the project site. Construction activity shall not resume within the exclusionary buffer until a qualified paleontologist can assess the significance of the find. If the paleontologist determines the find is not a paleontological resource, no further evaluation shall be required within the exclusionary buffer, and construction activity shall be allowed to resume therein. However, if the paleontologist determines the find is a paleontological resource, construction activity shall not resume within the exclusionary buffer in order to assess its significance pursuant to the California Environmental Quality Act. Collected resources shall be prepared to the point of curation, identified to the lowest taxonomic level possible, catalogued, and curated into the permanent collections of an accredited scientific institution. All subsequent ground-disturbing activities shall be monitored at the discretion of the paleontologist. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.

In the event that paleontological resources are encountered when a paleontological monitor is not on site, work in the immediate area of the find shall be redirected, and the qualified paleontologist shall be contacted to assess the find for significance. If the find is determined to be significant, it shall be collected from the field, and the paleontologist shall make recommendations for monitoring, curation, and reporting.

This measure shall be implemented to the satisfaction of Riverside County.

[50] *Geologic Map of the Bachelor Mountain 7.5' Quadrangle, Riverside County, California.* United States Geological Survey Department of Earth Sciences, University of California, Riverside. Morton, Douglas M. and M.P. Kennedy. 1991, 1995 through 1998.

[51] *Multipurpose Open Space Element.* County of Riverside General Plan Amendment No. 960. Figure OS-8 (Paleontological Sensitivity). December 16, 2013.

Implementation of **MM GEO-1** would reduce impacts on paleontological resources to **less than significant levels with mitigation incorporated** by ensuring paleontological resources encountered on site would be subject to scientific recovery, evaluation, and curation.

3.8 GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data." Climate change is a global issue and is described in the context of the cumulative environment.

The County adopted a Climate Action Plan (CAP) on December 8, 2015, and a CAP Update on December 17, 2019, to integrate its past and current efforts with future efforts to reduce GHG emissions and promote sustainability in its operations and growth. The 2019 CAP Update includes an update to the County's GHG inventory for the year 2017 and sets a target to reduce communitywide GHG emissions by 15 percent from 2008 baseline levels by 2020, 49 percent by 2030, and 83 percent by 2050.[52] GHG reduction measures prescribed in the 2019 CAP Update build upon those adopted under the County's 2015 CAP to ensure that the County meets the reduction targets established pursuant to SB 32. The CAP Update also takes into consideration a Partial Settlement Agreement between Petitioners the Sierra Club, Center for Biological Diversity, and San Bernardino Audubon Society, and the County of Riverside.[53] The Partial Settlement Agreement includes specific considerations for EV charging stations, on-site renewable energy generation, and high efficiency traffic signal lights, as well as a requirement for the County to update the GHG inventory every four years, review the effectiveness of specific measures in the CAP, and revise associated point values in the screening tables according to available evidence.

[52] State goals pursuant to Senate Bill 32 are to achieve 1990 levels of emissions by 2020 (15 percent below 2008 baseline levels), 40 percent below 1990 levels of emissions by 2030 (49 percent below 2008 baseline levels) and 80 percent below 1990 levels of emissions by 2050 (83 percent below 2008 baseline levels).

[53] Partial Settlement Agreement, 2017. Petitioners: Sierra Club, Center for Biological Diversity, San Bernardino Audubon Society and Respondents: County of Riverside and Riverside County Board of Supervisors.

In the County's guidance document titled "Greenhouse Gas Emissions, Screening Tables, County of Riverside, California,"[54] the County determined the size of development that is too small to be able to provide the level of GHG emission reductions expected from the Screening Tables or alternate emissions analysis method. The County's analysis determined that the 3,000 metric ton (MT) of carbon dioxide equivalent gases (CO_2e) per year value be used in defining small projects that, when combined with modest energy efficiency measures shown in the bullet points below, are considered less than significant and do not need to use the Screening Tables or alternative calculations. The efficiency measures required of small projects are:[55]

- Energy efficiency matching or exceeding the Title 24 requirements in effect as of January 2017; and
- Water conservation measures that match the California Green Building Standards Code in effect as of January 2017.

If the project exceeds the 3,000 MT CO_2e per year threshold, impacts to the environment from emissions of GHGs would be significant unless project GHG emissions are reduced by 25 percent from year 2017 emissions levels, or the project achieves a minimum of 100 points pursuant to the CAP Screening Tables. The screening tables also allow developers to tailor their mitigation measures to the project's needs, rather than have them be subject to one-size-fits-all mitigation measures that may be too stringent or inapplicable for various land uses.

This section evaluates potential significant impacts to GHG that could result from implementation of the proposed project. Construction and operation of project development would generate GHG emissions. Overall, the following activities associated with the proposed project could contribute directly or indirectly to the generation of GHG emissions:

- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Furthermore, CH_4 is emitted during the fueling of heavy equipment.
- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.
- **Gas, Electricity, and Water Use:** Natural gas use results in the emission of two GHGs: CH_4 (the major component of natural gas) and CO_2 (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. Furthermore, California's water conveyance system is energy-intensive. CalEEMod defaults were used to estimate these emissions from the project. Electricity demand anticipated during project operation assumes LEED Silver compliance and other energy efficient features such as the installations of the electric vehicle charging stations and solar photovoltaic panels. The proposed library facility also will include daylighting rooms such that all of the occupied space will have daylight-using windows, solar tubes, skylights, or equivalents. Low-flow water fixtures consistent with 2019 CALGreen standards and efficient irrigation systems in compliance with the modern water efficient landscape ordinance (MWELO) as required by the Riverside County Ordinance 859.2 also will be incorporated into the project design.

[54] *Climate Action plan Update.* County of Riverside. November 2019. Appendix D.
[55] *Ibid.* Appendix D, Page 6.

- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of solid waste disposal use energy for transporting and managing the waste and produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH_4 from the anaerobic decomposition of organic materials. CH_4 is 25 times more potent a GHG than CO_2. However, landfill CH_4 can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere. The proposed project would implement the statewide goal of meeting the 75 percent recycling program on-site pursuant to AB 341.

GHG emissions associated with project construction would occur over the short term from construction activities and would consist primarily of emissions from equipment exhaust. Long-term regional emissions would also be associated with project-related vehicular trips and stationary-source emissions (e.g., natural gas used for heating, electricity usage for lighting, water used for irrigation). The calculations presented below include construction emissions in terms of CO_2 and annual CO_2e GHG emissions from increased energy consumption, water usage, solid waste disposal, and estimated GHG emissions from vehicular traffic that would result from implementation of the proposed project. The following project activities were analyzed for their contribution to global CO_2e emissions.

Construction Emissions. Construction activities produce combustion emissions from various sources, such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. The construction GHG emission estimates were calculated using CalEEMod Version 2016.3.2. Table 3.8.A details the emissions estimates for the construction of the project.

Table 3.8.A: Construction Greenhouse Gas Emissions

Construction Phase	Greenhouse Gas Emissions, CO_2e (Metric Tons per Year)
Site Preparation	3.37
Grading	5.75
Building Construction	269.10
Paving	8.48
Architectural Coating	1.50
Total Project Emissions	**288.20**
Total Construction Emissions Amortized over 30 years	**9.61**

Source: Compiled by LSA (Appendix A).
Note: Numbers may appear to not sum correctly due to rounding.
CO_2e = carbon dioxide equivalent

As indicated in Table 3.8.A, project construction would result in total emissions of 288 MT of CO_2e, which when amortized over 30 years, would equal 9.61 MT CO_2e.

Operational Emissions. The operational GHG emissions estimates were also calculated using CalEEMod. GHGs associated with operation of the proposed project include emissions from stationary, energy, and mobile sources. Stationary sources include area sources such as architectural coatings, consumer products, and landscaping. Energy sources include natural gas consumption for heating and electricity for lighting. Mobile-source emissions are from vehicle trips associated with operation of the project.

Activities such as consumption of natural gas, electricity, and water; disposal of solid waste, and motor vehicle use are expected to contribute directly and/or indirectly to the generation of GHG emissions from operation of the proposed project. Table 3.8.B details the emissions estimates for the operation of the project.

Table 3.8.B: Operational Greenhouse Gas Emissions

Source	Pollutant Emissions (MT/yr)					
	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e
Construction Emissions Amortized over 30 Years	0	9.56	9.56	<0.01	0	9.61
Operational Emissions						
Area	0	<0.01	<0.01	<0.01	0	<0.01
Energy	0	107.06	107.06	<0.01	<0.01	107.32
Mobile	0	1,895.93	1,895.93	0.11	0	1,898.67
Waste	1.17	0	1.17	0.07	0	2.89
Water	0.20	5.02	5.21	0.02	<0.01	5.87
Total Project Emissions	**1.37**	**2,017.56**	**2,018.93**	**0.20**	**0**	**2,024.35**

Source: Compiled by LSA (Appendix A).
Note: Numbers may appear to not sum correctly due to rounding.

Bio-CO_2 = biologically generated CO_2
CO_2 = carbon dioxide
GHG = greenhouse gas
N_2O = nitrous oxide
CH_4 = methane
CO_2e = carbon dioxide equivalent
MT/yr = metric tons per year
NBio-CO_2 = non-biologically generated CO_2

As indicated in Table 3.8.B, project operations would generate GHG emissions of 2,024 MT of CO_2e per year. In accordance with the County's adopted CAP, the GHG threshold of 3,000 MT of CO_2e per year is used for the proposed project. The CO_2e emissions from construction and operation of the project would not exceed the County's 3,000 MT of CO_2e per year threshold. Therefore, impacts related to the generation of GHG emissions, either directly, indirectly, or cumulatively, that may have a significant impact on the environment would be **less than significant**. No mitigation is required.

b. Conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact

Discussion of Effects: The CARB, a part of the California Environmental Protection Agency (CalEPA) is responsible for the coordination and administration of both federal and State air pollution control and climate change programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment. As stated previously, the County's CAP contains further guidance on the County's GHG Inventory reduction goals, policies, guidelines, and implementation programs, elaborates on the General Plan goals and policies relative to GHG emissions, and provides a specific implementation tool to guide future decisions of the County.

The CAP is designed to ensure that the development accommodated by the buildout of the General Plan supports the goals of AB 32 - the Global Warming Solutions Act of 2006. The CARB adopted the State's strategy for achieving AB 32 targets in its Climate Change Scoping Plan (Scoping Plan) in 2008, with updates in 2017 - California Climate Change Scoping Plan.

The proposed project is required to comply with Title 13-Section 2449 of the CCR and the CalRecycle Sustainable (Green) Building Program regulations, which include implementation of standard control measures for equipment emissions. Adherence to these regulations, including the implementation of best available control measures (BACMs) is a standard requirement for any construction or ground disturbance activity occurring within the South Coast Air Basin.

BACMs include, but are not limited to, requirements that the project proponent utilize only low-sulfur fuel (i.e., having a sulfur content of 15 parts per million by weight or less); ensure off-road vehicles (i.e., self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on road) limit vehicle idling to five minutes or less; register and label vehicles in accordance with the CARB Diesel Off-Road Online Reporting System; restrict the inclusion of older vehicles into fleets; and retire, replace, or repower older engines or install Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). Additionally, the construction contractor will recycle/reuse at least 50 percent of the construction material (including, but not limited to, proposed aggregate base, soil, mulch, vegetation, concrete, lumber, metal, and cardboard) and use "Green Building Materials," such as those materials that are rapidly renewable or resource efficient, and recycled and manufactured in an environmentally friendly way, for at least 10 percent of the project, in accordance with CalRecycle regulations.

Long-term (operational) project emissions typically include emissions from use of consumer products, energy and water usage, and emissions from vehicle use and the generation/disposal of solid waste. As stated previously, the proposed project is required to comply with SCAQMD Rule 431.2; Title 13-Section 2449 of the CCR; and CalRecycle/Green Building Program regulations. Through compliance with BACMs as part of applicable regulatory policies designed to reduce emissions, the proposed project's estimated GHG emissions[56] would not conflict with the Global Warming Solutions Act of 2006 to support a more sustainable community. Therefore, the proposed project will not generate GHG emissions that will have a significant impact on the environment, nor will the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Associated impacts will be **less than significant** and no mitigation is required.

3.9 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

[56] As detailed in Table 3.8.B, annual project GHG emissions would total 2,024 MT of CO_2e/year, which is less than the County CAP and SCAQMD Tier 3 threshold of 3,000 MT CO_2e/year.

b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c.	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d.	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e.	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g.	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact

Discussion of Effects: The routine use, transport, or disposal of hazardous materials is primarily associated with industrial uses that require such materials for manufacturing operations or that produce hazardous wastes as by-products of production applications. Relatively small amounts of potential hazardous materials such as fuel, paint products, lubricants, solvents, and cleaning products may be used and/or stored on site during site preparation and construction. However, due to the limited quantities of these materials to be used, they are not considered hazardous to the public at large.

Widely used hazardous materials common at library/academic and office uses include cleaners, pesticides, and gasoline (for landscaping). The remnants of these and other products are disposed of as household hazardous waste that are prohibited or discouraged from being disposed of at local landfills.

The transport, use, and storage of hazardous materials during the construction and operation of the site will be conducted pursuant to all applicable local, State and federal laws, and in cooperation with the

Riverside County Fire Department Office of Emergency Services (OES), Riverside County Department of Environmental Health Hazardous Materials Division (DEH) Environmental Protection and Oversight Division, and California Occupational Safety and Health Administration. Additionally, the United States Department of Transportation Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials by truck and rail on State highways and rail lines, as described in Title 49 of the *Code of Federal Regulations*, and implemented by Title 13 of the California Code of Regulations.

These regulations inherently safeguard life and property from the hazards of fire/explosion arising from the storage, handling, and use of hazardous substances, materials, and devices, as well as hazardous conditions due to the use or occupancy of buildings. Through compliance with all applicable federal, State, and local laws, impacts to the public or environment from the routine transportation, use and disposal of hazardous materials would be **less than significant**. Mitigation is not required.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant with Mitigation Incorporated

Discussion of Effects: A project-specific Phase I Environmental Site Assessment (ESA) was prepared for the project for the purposes of identifying recognized environmental conditions or historical recognized environmental conditions within one-half-mile of the project site (Appendix E). The Phase I ESA included a database search, on-site reconnaissance survey, and report in accordance with American Society for Testing and Materials (ASTM) E1527-13 guidance. The project site and a one-half-mile radius encompassing the project site were evaluated also via the SWRCB GeoTracker database,[57] the Department of Toxic Substances Control's (DTSC) EnviroStor database,[58] and the Hazardous Waste and Substances Sites (Cortese) List.[59]

"Recognized environmental condition" means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. The term is not intended to include *de minimis* conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not recognized environmental conditions. "Historical Recognized environmental condition" means an environmental condition which in the past would have been considered a *recognized environmental condition*, but which may or may not be

[57] *GeoTracker Database.* State Water Resources Control Board. https://geotracker.waterboards.ca.gov/map/ (accessed November 4, 2019).

[58] *EnviroStor Database.* California Department of Toxic Substances Control. https://www.envirostor.dtsc.ca.gov/public/map/ (accessed November 4, 2019).

[59] *Hazardous Waste and Substances Site List (Cortese).* California Department of Toxic Substances Control. https://www.envirostor.dtsc.ca.gov/public/search.asp?page=6&cmd=search&business_name=&main_street_name=&city=&zip=&county=&status=ACT%2CBKLG%2CCOM%2CCOLUR&branch=&site_type=CSITES%2COPEN%2CFUDS%2CCLOSE&npl=&funding=&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29&reporttype=CORTESE&federal_superfund=&state_response=&voluntary_cleanup=&school_cleanup=&operating=&post_closure=&non_operating=&corrective_action=&tiered_permit=&evaluation=&spec_prog=&national_priority_list=&senate=&congress=&assembly=&critical_pol=&business_type=&case_type=&searchtype=&hwmp_site_type=&cleanup_type=&ocieerp=&hwmp=False&permitted=&pc_permitted=&inspections=&complaints=&censustract=&cesdecile=&school_district=&orderby=county (accessed November 4, 2019).

considered a *recognized environmental condition* currently. If a past release of any *hazardous substances* or *petroleum products* has occurred in connection with the *property*, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a case closed letter or equivalent), this condition shall be considered a *historical recognized environmental condition*.

One property, the Quinta Do Lago Elementary School located approximately 0.5 mile to the southeast at the intersection of Pourroy Road and Thompson Road, was identified as the site of former agricultural activity and, therefore, subject to investigation required to facilitate use of that property as a school. No contaminants were identified on the Quinta Do Lago Elementary School property, and a "no action required" determination was issued for that property by the DTSC on August 22, 2001.[60] Accordingly, no *recognized environmental conditions* or *historical recognized environmental conditions* were identified in the Phase I ESA or in the GeoTracker, EnviroStor, or Cortese List databases within one-half mile of the project site. Additionally, the likelihood of site contamination from an off-site source is considered low.

The project site is vacant and generally undeveloped, and it is surrounded by residential uses and open space (see Figure 2). No signs of soil staining were observed, and no visible signs of hazardous waste generation, storage, dumping, or leaking were noted during the site reconnaissance survey. One upright wood utility pole with an unknown purpose and several small soil stockpiles of unknown origin were noted on site. It is assumed the wood material consists of wood typical of utility poles treated with hazardous chemicals that protect the wood from insect attack and fungal decay during its use. Treated wood waste is considered a hazardous waste pursuant to California Health and Safety Code §25150.7 and §25150.8, as amended by AB 1353 and shall be managed by the DTSC Alternative Management Standards, which permit disposal at specific non-hazardous waste landfills as a matter of regulatory policy. Since the source of the stockpiled soil is unknown, there is potential this material may be contaminated, so **MM HAZ-1** is required.

MM HAZ-1 **In the event any unidentified subsurface feature, oil, or chemical-stained soil is discovered prior to or during project grading, activity in the vicinity of the unidentified material shall be halted, and a qualified professional shall be retained to evaluate whether the feature or material warrants further assessment or remediation. The results of any testing shall be provided to the County. In the event the material is determined not to be hazardous, no further action is required.**

In the event the material is deemed to be hazardous, removal/remediation shall be conducted pursuant to applicable statutory and regulatory requirements. A qualified professional retained by the project proponent must carry out this work and report directly to the Riverside County Department of Environmental Health Hazardous Materials Division, Environmental Protection and Oversight Division. Prior to the commencement of construction activities, the proponent shall submit evidence to the County for review and approval that any such hazardous material has been appropriately removed/remediated. This measure shall be implemented to the satisfaction of Riverside County.

Compliance with local, State, and federal laws; cooperation with the Riverside County Fire Department OES, Riverside County DEH Environmental Protection and Oversight Division, and California Occupational

[60] *EnviroStor Database.* California Department of Toxic Substances Control. https://www.envirostor.dtsc.ca.gov/public/map/ (accessed November 4, 2019).

Safety and Health Administration; and implementation of **MM HAZ-1** would ensure impacts from reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be reduced to **less than significant with mitigation incorporated**.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less than Significant Impact

Discussion of Effects: The nearest existing school to the project site is Susan LaVorgna Elementary School, located at 31777 Algarve Avenue, approximately 0.2 mile south of the project site. The next nearest school is the Harvest Hill STEAM Academy (elementary school) located at 31600 Pat Road, approximately 0.6 mile north of the project site.

As detailed in response to Checklist Question 3.9a, the Riverside County Fire Department OES, Riverside County DEH Environmental Protection and Oversight Division, and California Occupational Safety and Health Administration will regulate the transport, use, and storage of hazardous materials during construction, operation, and occupation of the proposed library facility. The United States Department of Transportation Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials by truck and rail on State highways and rail lines.

These regulations inherently safeguard life and property from the hazards of fire/explosion arising from the storage, handling, and use of hazardous substances, materials, and devices, as well as hazardous conditions due to the use or occupancy of buildings. Furthermore, no *recognized environmental conditions* or *historical recognized environmental conditions* were identified as part of the Phase I ESA or in the GeoTracker, EnviroStor, or Cortese List databases within one-half mile of the project site (refer to response to Checklist Question 3.9b).

Compliance with all applicable federal, State, and local laws for construction, operation, and occupancy of the proposed project would ensure impacts from the emission or handling of hazardous materials within one-quarter mile of an existing or proposed school would be **less than significant.** Mitigation is not required.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact

Discussion of Effects: Pursuant to Government Code Section 65962.5, the Hazardous Waste and Substances Sites List has been compiled by the CalEPA Hazardous Materials Data Management Program. The DTSC compiles information from subsets of the following databases to make up the Cortese List:

1. The DTSC list of contaminated or potentially contaminated hazardous waste sites listed in the California Sites database, formerly known as ASPIS, is included;
2. The California State Water Resources Control Board listing of leaking underground storage tanks is included; and

3. The California Integrated Waste Management Board list of sanitary landfills that have evidence of groundwater contamination or known migration of hazardous materials (formerly WB-LF, now AB 3750).

A review of the Hazardous Waste and Substances Sites (Cortese) List revealed no properties listed in proximity to the project site.[61] Therefore, **no impact** related to the Cortese List or other governmental databases compiled pursuant to Government Code Section 65962.5 would occur, and no mitigation is required.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Less than Significant Impact

Discussion of Effects: The project site is located within Compatibility Zone E (Other Airport Environs) of the [*French Valley*] *Riverside County Airport Land Use Compatibility Plan* (ALUCP).[62] The ALUCP is developed to promote compatible land uses adjacent to airfields. As indicated in Appendix D of the ALUCP, the proposed project as an institutional land use (akin to schools, colleges, and universities) is a compatible land use in proximity to the French Valley Airport.

Part 77, Subpart B of the Federal Aviation Administration (FAA) requires notification to the FAA of any proposed construction or alteration having a height greater than an imaginary surface extending 100 feet outward and 1 foot upward (slope of 100:1) for a distance of 20,000 feet from nearest point of any runway more than 3,200 feet in actual length, and also requires FAA notification for construction of any object taller than 200 feet.[63]

The project site is located as close as 10,886 feet northeast of the nearest runway of the French Valley Airport. Therefore, any development on the project site equal to or greater than 108.86 feet in height (equal to a slope of 100:1 in relation to the distance to the nearest runway) would require notification to the FAA. The proposed library facility will be a single-story building constructed between 18 feet and 22 feet tall and therefore will not require notice to the FAA pursuant to Part 77, Subpart B.

Pursuant to California Public Utilities Code Section 21676, the proposed project does not require airspace review by the Riverside County Airport Land Use Commission because the project is a land use compatible with ALUCP Compatibility Zone E (Other Airport Environs), and the proposed library facility will be far less than 100 feet in height (refer to Table 3.9.A). Therefore, impacts from safety hazards to

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61 *Hazardous Waste and Substances Site List (Cortese).* California Department of Toxic Substances Control. https://www.envirostor.dtsc.ca.gov/public/search.asp?page=6&cmd=search&business_name=&main_street_name=&city=&zip=&county=&status=ACT%2CBKLG%2CCOM%2CCOLUR&branch=&site_type=CSITES%2COPEN%2CFUDS%2CCLOSE&npl=&funding=&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29&reporttype=CORTESE&federal_superfund=&state_response=&voluntary_cleanup=&school_cleanup=&operating=&post_closure=&non_operating=&corrective_action=&tiered_permit=&evaluation=&spec_prog=&national_priority_list=&senate=&congress=&assembly=&critical_pol=&business_type=&case_type=&searchtype=&hwmp_site_type=&cleanup_type=&ocieerp=&hwmp=False&permitted=&pc_permitted=&inspections=&complaints=&censustract=&cesdecile=&school_district=&orderby=county (accessed November 4, 2019).

62 *Riverside County Airport Land Use Compatibility Plan. Volume 1 Policy Document.* Chapter 3, FV. French Valley Airport. Riverside County Airport Land Use Commission. October 14, 2004, Amended January 2012.

63 *Ibid.* Appendix B.

people residing or working in the project area from a project within an airport land use plan would be the **less than significant**. No mitigation is required.

Table 3.9.A: Compatibility Criteria for Land Use Actions

Zone	Locations	Maximum Densities / Intensities					Additional Criteria	
		Residential (d.u./ac)[1]	Other Uses (people/acre)[2]			Required Open Land[3]	Prohibited Uses[4]	Other Development Conditions[5]
			Average[6]	Single Acre[7]	With Bonus[8]			
E	Other Airport Environs	No Limit	No Limit[11]			Not Required	Hazards to flight[9]	• Airspace review required for objects >100 feet tall[10] • Major spectator-oriented sports stadiums, amphitheaters, concert halls discouraged beneath principal flight tracks[11]

d.u./ac = dwelling units per acre

[1] Residential development must not contain more than the indicated number of dwelling units (excluding secondary units) per gross acre. Clustering of units is encouraged. See Policy 4.2.5 for limitations. Gross acreage includes the property at issue plus a share of adjacent roads and any adjacent, permanently dedicated, open lands. Mixed-use development in which residential uses are proposed to be located in conjunction with nonresidential uses in the same or adjoining buildings on the same site shall be treated as nonresidential development. See Policy 3.1.3(d).

[2] Usage intensity calculations shall include all people (e.g., employees, customers/visitors, etc.) who may be on the property at a single point in time, whether indoors or outside.

[3] Open land requirements are intended to be applied with respect to an entire zone. This is typically accomplished as part of a community general plan or a specific plan, but may also apply to large (10 acres or more) development projects. See Policy 4.2.4 for definition of open land.

[4] The uses listed here are ones that are explicitly prohibited regardless of whether they meet the intensity criteria. In addition to these explicitly prohibited uses, other uses will normally not be permitted in the respective compatibility zones because they do not meet the usage intensity criteria.

[5] As part of certain real estate transactions involving residential property within any compatibility zone (that is, anywhere within an airport influence area), information regarding airport proximity and the existence of aircraft overflights must be disclosed. This requirement is set by state law. See Policy 4.4.2 for details. Easement dedication and deed notice requirements indicated for specific compatibility zones apply only to new development and to reuse if discretionary approval is required.

[6] The total number of people permitted on a project site at any time, except rare special events, must not exceed the indicated usage intensity times the gross acreage of the site. Rare special events are ones (such as an air show at the airport) for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate.

[7] Clustering of nonresidential development is permitted. However, no single acre of a project site shall exceed the indicated number of people per acre. See Policy 4.2.5 for details.

[8] An intensity bonus may be allowed if the building design includes features intended to reduce risks to occupants in the event of an aircraft collision with the building. See Policy 4.2.6 for details.

[9] Hazards to flight include physical (e.g., tall objects), visual, and electronic forms of interference with the safety of aircraft operations. Land use development that may cause the attraction of birds to increase is also prohibited. See Policy 4.3.7

[10] This height criterion is for general guidance. Shorter objects normally will not be airspace obstructions unless situated at a ground elevation well above that of the airport. Taller objects may be acceptable if determined not be obstructions. See Policies 4.3.3 and 4.3.4.

[11] Although no explicit upper limit on usage intensity is defined for Zone E, land uses of the types listed—uses that attract very high concentrations of people in confined areas—are discouraged in locations below or near the principal arrival and departure flight tracks. This limitation notwithstanding, no use shall be prohibited in Zone E if its usage intensity is such that it would be permitted in Zone D.

Source: Table 2A. *Riverside County Airport Land Use Compatibility Plan. Volume 1 Policy Document.* Chapter 2, Countywide Policies. Riverside County Airport Land Use Commission. October 14, 2004

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact

Discussion of Effects: Construction activities that could temporarily restrict vehicular traffic would incorporate appropriate measures to facilitate the passage of persons and vehicles through/around any temporary road closures in accordance with the California Fire Code. During construction, standard traffic control devices such as warning signs, warning lights, and flaggers will be utilized as applicable to minimize obstructions and ensure the safe passage of emergency vehicles as necessary for the purposes of coordinating efforts during local, State, and/or federal emergency events, including response to hazardous materials incidents. Implementation of these traffic control measures will include guidance and navigational tools throughout the project area in order to maintain traffic flow and safety during construction.

The project is proposed with a two-lane access driveway off of Skyview Road that would provide entry and exit points for emergency access. The project site will include a C10 fire alarm without gates to ensure immediate fire department access to the project site in the event of an emergency. Fire department emergency vehicle apparatus access road locations and design shall be in accordance with the California Fire Code, Riverside County Ordinance No. 787, and Riverside County Fire Department Standards to ensure proper roadway turning radii, fire lane widths, etc. Additionally, the project site layout includes provisions for emergency vehicle access, which also would be reviewed for adequacy by the County Fire Department. Therefore, impacts would be **less than significant** and mitigation is not required.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less than Significant Impact

Discussion of Effects: The project site is not within or adjacent to a Very High Fire Hazard Severity Zone, as designated by the California Department of Forestry and Fire Protection (CAL FIRE).[64] Design and construction of the project in accordance with the CBC and California Fire Code, which include design features such as ignition-resistant materials and incorporation of fire sprinklers, would minimize risk of exposure of persons or property to wildland fires. Impacts would remain **less than significant** and mitigation is not required.

[64] *Fire Hazard Severity Zones in Local Responsibility Area (LRA), Western Riverside County.* California Department of Forestry and Fire Protection (CAL FIRE). Adopted December 24, 2009.

3.10 HYDROLOGY AND WATER QUALITY

Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b.	Substantially decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management in the basin?	☐	☐	☒	☐
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i.	Result in substantial erosion or siltation on or off site?	☐	☐	☒	☐
ii.	Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?	☐	☐	☒	☐
iii.	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
iv.	Impede or redirect flood flows?	☐	☐	☒	☐
d.	Result in flood hazard, tsunami, or seiche zones, or risk release of pollutants due to project inundation?	☐	☐	☒	☐
e.	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less than Significant Impact

Discussion of Effects: The project site is located within the Temecula Valley Subbasin of the larger Santa Margarita Watershed. Under existing conditions, storm water drains in a southeasterly direction toward French Valley Creek adjacent to the east of the project site. French Valley Creek joins Warm Springs Creek approximately 2.2 miles southwest of the project site. Warm Springs Creek connects to Murrieta Creek 7 miles southwest of the project site. From there, storm water flows southeast approximately 7.2 miles within Murrieta Creek along the eastern foothills of the Santa Ana Mountains to the Santa Margarita River, through the Santa Ana Mountain Range and Camp Pendleton before discharging into the Pacific Ocean.

The County is a Co-permittee under the SDRWQCB Order number R9-2013-0001, NPDES Permit No. CAS0109266, as amended by Order No. R9-2015-0001 and R9-2015-0100, also known as the Municipal Separate Storm Sewer System or MS4 permit.

Construction. The Clean Water Act (CWA) establishes a framework for regulating municipal and industrial (including construction) storm water discharges under the NPDES permit. Section 402(p) of the CWA requires NPDES permits for storm water discharges from municipal separate storm sewer systems (MS4), as well as other designated storm water discharges that are considered significant contributors of pollutants. All new development is required to comply with provisions of the NPDES program, including Waste Discharge Requirements (WDR), and the County's MS4, as enforced by the SDRWQCB.

Projects resulting in the disturbance of 1.0 acre or more require compliance with the NPDES permit. Coverage under an NPDES permit includes the submittal of an NOI application to the SDRWQCB, the receipt of a Waste Discharge Identification Number (WDIN) from SDRWQCB, and preparation of a SWPPP. The purpose of a SWPPP is to identify and implement BMPs to reduce construction-related impacts from erosion and sedimentation as a result of ground and vegetation disturbance, as well as impacts to surface water from contaminated stormwater discharges.

BMPs may include the use of gravel bags, silt fences, check dams, hydroseed, and soil binders. The construction contractor would be required to operate and maintain these controls throughout the duration of on-site activities. In addition, the construction contractor would be required to maintain an inspection log and have the log on site to be reviewed by the County and representatives of the SQRWQCB.

An NPDES permit would generally specify an acceptable level of a pollutant or pollutant parameter in a discharge (for example, a certain level of bacteria). The permittee may choose which technologies to use to achieve that level. Some permits, however, do contain certain generic BMPs. Table 3.10.A lists BMPs for runoff control, sediment control, erosion control, and housekeeping that may be used during the construction of the proposed project.

Table 3.10.A: General Best Management Practices

Runoff Control	Sediment Control	Erosion Control	Good Housekeeping
• Minimize clearing • Preserve natural vegetation • Stabilize drainage ways	• Install perimeter controls • Install sediment trapping devices • Inlet protection	• Stabilize exposed soils • Protect steep slopes • Complete construction in phases	• Create waste collection area • Put lids on containers • Clean up spills immediately

Source: *National Menu of Stormwater Best Management Practices*. United States Environmental Protection Agency. https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#constr (accessed October 7, 2019). More detailed Best Management Practices are available at this web site.

Operations. Under existing conditions, the project site is 100 percent pervious, and storm water drains generally in a northeasterly direction toward the existing flood zone along and into French Valley Creek. Although the project site is approximately 11.5 acres, the area of development is anticipated to be 2.64 acres (refer to Figure 2 in Appendix H), of which approximately 1.86 acres will be converted to impervious surfaces. However, the site would maintain the existing drainage pattern to the northeast by directing flows through the parking lot via an 18-inch by 18-inch catch basin and 12-inch storm drain into a bioretention basin designed to capture storm water runoff before discharging to French Valley Creek adjacent to the east of the project site.

Runoff from French Valley Creek drains into Warm Springs Creek, which discharges into Murrieta Creek, flowing downstream to the Santa Margarita River, and ultimately the Pacific Ocean. To address potential water contaminants, the proposed project is required to comply with applicable federal, State, and local water quality regulations. All priority development projects (which would include the proposed project) in the County are required to prepare a Water Quality Management Plan (WQMP) to reduce water pollution impacts from construction and operation of the developments. According to the project-specific WQMP, the United States Environmental Protection Agency (USEPA)-approved 303(d) listed impairments for the project's receiving waters (Warm Springs Creek, Murrieta Creek, and the Santa Margarita River) include pathogens (bacterial indicators), metals, and nutrients (Appendix F). These are the project's priority pollutants of concern.

The proposed project would include two Drainage Management Areas (DMA A and DMA B) to manage storm water runoff and direct it into the proposed bioretention basin.[65] DMA A would manage runoff from 80,939 square feet of the project site and direct flows to the on-site bioretention basin prior to discharge into French Valley Creek. DMA B would manage runoff from 14,968 square feet of the project site and direct flows into permeable landscaped areas onsite and is therefore considered self-treating. According to the project-specific WQMP (Appendix F), the proposed bioretention basin must be sized with a Design Capture Volume (DCV) at least 3,278 cubic feet of runoff in order to adequately manage the 80,939-square foot DMA A in accordance with the NPDES MS4 Permit.[66] In order to treat identified pollutants of concern[67] and ensure the project will not result in a downstream hydrologic condition of

[65] *Preliminary Hydrology Study for French Valley Library.* Armstrong & Brooks Consulting Engineers. Page 6. October 8, 2019.

[66] Pursuant to the San Diego Regional Water Quality Control Board Order Number R9-2013-0001, NPDES Permit No. CAS0109266, as amended by Order No. R9-2015-0001 and R9-2015-0100 (MS4 Permit), the hydrologic performance standard for the proposed bioretention basin is a flow duration curve of the post-development DMA not to exceed that of the pre-existing, naturally occurring, DMA by more than ten percent over a one-year period.

[67] The project-specific priority pollutants of concern are Bacterial Indicators, Metals, and Nutrients pursuant to Section 3.3(d) of the Clean Water Act and the United States Environmental Protection Agency. Refer to Appendix F for additional information.

concern, the proposed bioretention basin will be designed and constructed to capture approximately 3,300 cubic feet of runoff with a medium to high pollutant removal efficacy rating.[68] With adequate DCV and medium-high pollutant removal efficacy, the bioretention basin BMP will treat "first-flush" runoff[69] from the project site and ensure post-development storm water runoff volume or time of concentration would not exceed pre-development conditions by more than ten percent over a one year period pursuant to the NPDES MS4 Permit.

Proper engineering design and construction in conformance with the requirements of the County, the intent of the NPDES Permit for Riverside County and the incorporated cities of Riverside County within the San Diego Region (MS4 permit), and project-specific recommendations outlined in a SWPPP and WQMP would ensure impacts related to water quality standards or waste discharge requirements remain **less than significant.**

Standard Conditions of Approval: Mitigation is not required; however, the following Standard Conditions of Approval are regulatory requirements that would be implemented to ensure impacts related to water quality standards and waste discharge requirements remain **less than significant.** These are conditions applicable to any similar project and therefore would not represent mitigation pursuant to CEQA.

Standard Condition of Approval HYD-1: Prior to the issuance of a grading permit, the Project Proponent shall file and obtain a Notice of Intent (NOI) with the San Diego Regional Water Quality Control Board (SDRWQCB) in order to be in compliance with the State National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit for discharge of surface runoff associated with construction activities. Evidence that this has been obtained (i.e., a copy of the Waste Discharger's Identification Number) shall be submitted to Riverside County for coverage under the NPDES General Construction Permit. This measure shall be implemented to the satisfaction of Riverside County.

Standard Condition of Approval HYD-2: Prior to the issuance of a grading permit, the Project Proponent shall submit to Riverside County a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural Best Management Practices (BMPs) to control sediment and non-visible discharges from the site. The SWPPP shall include inspection forms for routine monitoring of the site during both the grading and construction phases to ensure National Pollutant Discharge Elimination System (NPDES) compliance and that additional BMPs and erosion control measures will be documented in the SWPPP and utilized if necessary. The SWPPP shall be kept on site for the entire duration of project construction and shall be available to the San Diego Regional Water Quality Control Board (SDRWQCB) for inspection at any time. BMPs to be implemented may include the following:

- Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs shall be periodically inspected during construction, and repairs shall be made when necessary as required by the SWPPP.

[68] Medium is between 40 percent and 80 percent removal efficiency; High is equal to or greater than 80 percent removal efficiency.

[69] "First-flush" runoff is the initial surface runoff of stormwater along impervious surfaces, such as parking lots, and is typically more concentrated with pollutants compared to the remainder of a storm event.

- Materials that have the potential to contribute to non-visible pollutants to storm water must not be placed in drainage ways and must be contained, elevated, and placed in temporary storage containment areas.
- All loose piles of soil, silt, clay, sand, debris, and other earthen material shall be protected in a reasonable manner to eliminate any discharge from the site. Stockpiles shall be surrounded by silt fences and covered with plastic tarps.
- The construction contractor shall be responsible for performing and documenting the application of BMPs identified in the SWPPP. Weekly inspections shall be performed on sandbag barriers and other sediment control measures called for in the SWPPP. Monthly reports and inspection logs shall be maintained by the contractor and reviewed by Riverside County and representatives of the SDRWQCB. In the event that it is not feasible to implement specific BMPs, Riverside County can make a determination that other BMPs will provide equivalent or superior treatment either on or off site.

This measure shall be implemented to the satisfaction of Riverside County.

Standard Condition of Approval HYD-3: Prior to the issuance of a grading permit, the Project Proponent shall submit a Final Water Quality Management Plan (Final WQMP) to Riverside County for review and approval. The project shall implement project design features identified in the Final WQMP. The Final WQMP shall demonstrate that any proposed on-site development plan includes best management practices (BMPs) for source control, pollution prevention, site design, low impact development (LID) implementation, and structural treatment control. BMPs shall be designed and implemented to address 303(d) listed pollutants and retain the project site's minimum design capture volume and hydromodification volume to ensure post-development storm water runoff volume or time of concentration does not exceed pre-development storm water runoff by more than 10 percent over a one-year period in accordance with the San Diego Regional Water Quality Control Board Order Number R9-2013-0001, NPDES Permit No. CAS0109266, as amended by Order No. R9-2015-0001 and R9-2015-0100 (MS4 Permit). The proposed LID BMPs specified in the Final WQMP shall be incorporated into the grading and development plans submitted to the County for review and approval. Periodic maintenance of any required BMPs and landscaped areas during project occupancy and operation shall be in accordance with the schedule outlined in the Final WQMP. This measure shall be implemented to the satisfaction of Riverside County.

The project is located within the French [Groundwater] Management Zone.[70] High levels of total dissolved solids (TDS) affect groundwater in this area, which migrates into the Lakeview portion of the Lakeview/Hemet North Management Zone.[71] To treat the TDS within the French [Groundwater] Management Zone, the Eastern Municipal Water District (EMWD) operates two desalination facilities that recover high TDS groundwater, which has increased EMWD reliance on regional groundwater for potable water sources.[72]

Implementation of the NPDES permit ensures that the State's mandatory standards for the maintenance of clean water and the federal minimums are met. The SDRWQCB regulates waste discharges to minimize and control their effects on the quality of the region's groundwater and surface waters. The

[70] *2015 Urban Water Management Plan.* Figure 6-4: Groundwater Management Zones. Eastern Municipal Water District. June 2016
[71] *Ibid.* Pages 6-15 and 6-16.
[72] *Ibid.* Page 5-2.

project-specific SWPPP and WQMP would be reviewed and approved as routine actions during the processing of the project by the County; therefore, the required measures and features detailed in the SWPPP and WQMP to safeguard surface and groundwater quality would be incorporated into the proposed project. Water and groundwater quality and waste discharge impacts would remain **less than significant** through implementation of **Standard Conditions of Approval HYD-1** through **HYD-3**. Mitigation is not required.

b. Substantially decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management in the basin?

Less than Significant Impact

Discussion of Effects: The project site is located within the Temecula Valley Groundwater Basin, which underlies the Temecula and Pauba Valleys in western Riverside County. Development of the proposed project would convert pervious surfaces to impervious surfaces, thus reducing the capacity of the site to facilitate infiltration of surface flows into the groundwater table. Through implementation of **Standard Condition of Approval HYD-3,** BMPs for the management of storm water will ensure runoff from the project site will continue to be conveyed similar to the existing drainage patterns and in accordance with the NPDES MS4 Permit. The on-site runoff will be detained by an on-site detention basin appropriately sized to capture the site's minimum design capture volume, further facilitating infiltration of storm water into the local groundwater aquifer.

Water for the project will be provided by the EMWD. The EMWD considers current groundwater production to be utilized completely by existing customers, as the majority of EMWD's current and projected water supplies are imported through the Metropolitan Water District (MWD).[73] New developments, including the proposed project, will be supplied with imported water from one of the following sources: (1) treated imported water from MWD; (2) untreated imported water from MWD, which is subsequently treated by EMWD; or (3) untreated imported water treated by EMWD and recharged into the Temecula Valley Groundwater Basin for later withdrawal.

MWD's 2015 Urban Water Management Plan (UWMP) provides information about MWD's regional supply reliability and projected demands. Based on information provided by EMWD and other member agencies, MWD concludes that it is able to meet projected demands for all member agencies through 2040, even during dry periods.[74] Under extreme conditions, water supplies could be allocated using the MWD Water Supply Allocation Plan (WSAP) to preserve supplies in storage by requiring a reduction in demand by member agencies, including the EMWD, pursuant to SB 1168 and 1319, and AB 1739. Since the proposed project will not be served via groundwater, and implementation of **Standard Condition of Approval HYD-3** will not preclude or obstruct on-site infiltration of storm water into the local groundwater aquifer, the proposed project will not deplete groundwater supplies or interfere with groundwater recharge. Impacts would be **less than significant,** and mitigation is not required.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i Result in substantial erosion or siltation on or off site?

[73] *Ibid. Page 7-1.*

[74] *2015 Urban Water Management Plan.* Tables 2-4, 2-5, and 2-6. The Metropolitan Water District of Southern California. June 2016.

ii Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

iii Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

iv Impede or redirect flood flows?

Less than Significant Impact

Discussion of Effects: Under existing conditions, storm water drains in a southeasterly direction toward French Valley Creek adjacent to the east of the project site. Additionally, a culvert beneath Highway 74 conveys off-site storm water through the northernmost portion of the site prior to draining into French Valley Creek. Development of the project site will maintain the existing drainage pattern and avoid the northern portion of the site where off-site flows are conveyed through the site into French Valley Creek (refer to Figures 4 and 5).

i. The project site is almost entirely pervious, except for a few concrete ramps constructed by the Riverside County Flood Control and Water Conservation District along the riprap embankment of French Valley Creek. Construction activities for the proposed project would remove on-site vegetation, comprised primarily of non-native grasses, and would expose surface soils to the potential for wind and water erosion. The Riverside County Flood Control and Water Conservation District concrete ramps and riprap embankments will be completely avoided. Pursuant to **Standard Condition of Approval HYD-2**, the project proponent will submit to Riverside County a SWPPP that shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural BMPs to control sediment and non-visible discharges from the site. The SWPPP will include inspection forms for routine monitoring of the site during construction phases to ensure NPDES compliance and that additional BMPs and erosion control measures will be documented in the SWPPP and utilized if necessary. Upon completion of construction, the project site would be paved and vegetated, which would prevent erosion and siltation of sediments. Through implementation of **Standard Condition of Approval HYD-2,** the project would not result in substantial erosion or siltation on or off site. Impacts would be **less than significant** and mitigation is not required.

ii. On-site conversion of permeable surfaces to impermeable surfaces could increase stormwater runoff rates and/or volume. NPDES regulations require development projects to retain stormwater runoff on-site at levels that generally do not exceed the existing condition. Pursuant to **Standard Condition of Approval HYD-3,** the project proponent shall prepare a site-specific WQMP that details incorporation of self-treating or self-retaining areas such as landscaped areas of permeable surfaces to the greatest extent practicable and streets/sidewalks/parking lots designed to minimum permitted widths to increase permeable areas. The Final WQMP shall identify the site's minimum DCV of runoff and specify appropriate LID BMPs to ensure post-development storm water runoff volume or time of concentration does not exceed pre-development storm water runoff by more than 10 percent over a one-year period in accordance with the NPDES MS4 Permit. Periodic maintenance of any required BMPs during project occupancy and operation will be in accordance with the schedule outlined in the Final WQMP.

The project-specific SWPPP and WQMP would be reviewed and approved as routine actions during the processing of the project by the County; therefore, the required measures and features detailed in the SWPPP and WQMP to maintain drainage patterns and control the rate and volume of runoff would be incorporated into the proposed project. Risks from flooding due to increases in stormwater runoff would remain **less than significant** through implementation of **Standard Conditions of Approval HYD-2** and **HYD-3**. Mitigation is not required.

iii. The CWA delegates authority to the states to issue NPDES permits for discharges of storm water from construction, industrial, and municipal entities to Waters of the United States. The purpose of the MS4 permit is to meet the SWRCB's requirements to mitigate for the negative impact of increases in storm water runoff caused by new development and redevelopment. The project storm water discharge rates cannot exceed the pre-development runoff condition for 2-year 24-hour storm total or the 85th percentile 24-hour storm runoff event by more than five percent to be in compliance with the MS4 post-construction and site design requirements.

The project is over one acre in size and is required to have coverage under the State's General Permit for Construction Activities SWPPP. Pursuant to **Standard Condition of Approval HYD-2,** a SWPPP will be prepared and detail BMPs to be implemented during construction to reduce/ eliminate adverse water quality impacts resulting from development. All impacts related to runoff during site preparation and construction would be addressed through implementation of the SWPPP.

Pursuant to **Standard Condition of Approval HYD-3,** the proponent shall prepare a WQMP to address 303(d) listed pollutants and retain the project site's minimum design capture volume and hydromodification volume. Through implementation of **Standard Condition of Approval HYD-3,** BMPs shall be designed and implemented to ensure post-development storm water runoff volume or time of concentration does not exceed pre-development storm water runoff by more than 10 percent over a one-year period in accordance with the NPDES MS4 Permit. Additional project design features, such as roof downspouts draining into pervious, landscaped areas, and maintenance of existing surface flows across the project site into detention basin(s), would further maintain the site's existing drainage pattern and prevent additional sources of polluted runoff. Periodic maintenance of any required detention basin(s) and landscaped areas during project occupancy and operation shall be in accordance with the schedule outlined in the WQMP.

The project is located in an urbanized area for which storm drain features have been previously planned and installed. A culvert beneath Highway 74 that conveys off-site storm water through the northernmost portion of the site prior to draining into French Valley Creek will be maintained, and the flowline will be avoided during site development. Additionally, the Riverside County Flood Control and Water Conservation District concrete ramps and riprap embankments along French Valley Creek will be avoided during site development (refer to Figures 4 and 5). BMPs to mitigate the pollutants of concern would treat the flow prior to discharge to French Valley Creek. The storm water from project site would be conveyed to a bioretention basin between the project site and French Valley Creek in accordance with **Standard Condition of Approval HYD-3**. Any sources of storm water pollution would be addressed through adherence to NPDES permit requirements. Implementation of **Standard Conditions of Approval HYD-2** and **HYD-3** would ensure polluted runoff during site preparation and construction would be addressed by the SWPPP, and post-development storm water runoff volume or time of concentration would not exceed pre-development conditions by more than 10 percent over a one-year period. Therefore, impacts

related to the creation or contribution of runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff would be **less than significant.** Mitigation is not required.

iv. According to the Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) No. 06065C2730G the project site is located in Zone D, which is defined as an area of undetermined flood hazard.[75] According to the National Flood Insurance Program, the Zone D designation is used for areas where there are possible but undetermined flood hazards, as no analysis of flood hazards has been conducted, and is used also when a community incorporates portions of another community's area where no map has been prepared.[76]

Currently, storm water sheet flows generally in a southeast direction across the site toward French Valley Creek. Upon development of the project, on-site storm water will flow toward water quality detention basins located throughout the site. The site's design capture volume would be captured so that storm water runoff volume or time of concentration would not exceed pre-development conditions by more than 10 percent over a one-year period in accordance with the NPDES MS4 Permit. A culvert beneath Highway 74 that conveys off-site storm water through the northernmost portion of the site prior to draining into French Valley Creek will be maintained, and the flowline will be avoided during site development (refer to Figures 4 and 5).

French Valley Creek generally flows downslope in a southwesterly direction. Improvements to the embankment of French Valley Creek initiated by the Riverside County Flood Control and Water Conservation District in support of build-out of the Quinta Do Lago Specific Plan and construction of a roadway bridge over French Valley Creek along Skyview Road have controlled the direction and concentration of flood flows from French Valley Creek. These improvements (refer to Figures 4 and 5) establish predictability of floodwaters to prevent widespread flood and debris damage in the project vicinity.

As detailed in response to Checklist Question 3.10a, implementation of **Standard Condition of Approval HYD-2** would ensure polluted runoff during site preparation and construction would be addressed by the Storm Water Pollution Prevention Plan (SWPPP). During operation of the project, implementation of **Standard Condition of Approval HYD-3** will require design and construction of a bioretention basin treatment control BMP to exceed the site's design capture volume of runoff and to treat identified pollutants of concern[77] with a medium to high efficacy rating[78] in accordance with the Municipal Separate Stormwater Sewer System (MS4) Permit for the Santa Margarita Region (Appendix F) prior to discharge to French Valley Creek. With adequate design capture volume and

[75] *Flood Insurance Rate Map No. 06065C2730G*. Federal Emergency Management Agency. https://p4.msc.fema.gov/arcgis/rest/directories/arcgisjobs/nfhl_print/nfhlprinttool2_gpserver/j2965ef9d015848de90f17407b03e5733/scratch/FIRMETTE_1b21564f-00bd-11ea-9ccf-001b21bc1ecd.pdf (exported November 6, 2019).

[76] *Understanding Zone D, Unmapped Areas on Flood Hazard Maps, Fact Sheet for Stakeholders.* National Flood Insurance Program, Federal Emergency Management Agency. Page 1. August 2011.

[77] The project-specific priority pollutants of concern are Bacterial Indicators, Metals, and Nutrients pursuant to Section 3.3(d) of the Clean Water Act and the United States Environmental Protection Agency. Refer to Section 3.10 and Appendix F for additional information.

[78] Medium is between 40 percent and 80 percent removal efficiency; High is equal to or greater than 80 percent removal efficiency.

medium-high pollutant removal efficacy, the bioretention basin BMP will treat "first-flush" runoff[79] from the project site and ensure post-development storm water runoff volume or time of concentration would not exceed pre-development conditions by more than 10 percent over a one-year period pursuant to the NPDES MS4 Permit.

The Riverside County Flood Control and Water Conservation District concrete ramps and riprap embankments along French Valley Creek will be avoided during site development, and the overall project site drainage pattern would be perpetuated. The project has been conditioned by the County to delineate the flood zone limits on the grading plans and to demonstrate on the plans that any building finished floor elevation shall be a 1-foot minimum above the 100-year base flood elevation. As detailed in Figure 4, the building pad for the proposed library facility shall be constructed up to 10 feet above the 100-year flood plain in accordance with County Ordinance No. 458 regulating flood hazards. Buildings and structures shall be placed away from the property lines to maintain the French Valley Creek drainage pattern and allow for off-site flows along the northern portion of the site to be accepted on site and conveyed to French Valley Creek without deflecting onto adjacent properties. Finally, the project design shall be submitted to the Riverside County Flood Control and Water Conservation District for review in accordance with Southwest Area Plan Policy 24.4. Any additional project-specific conditions imposed by the Riverside County Flood Control and Water Conservation District must be implemented as applicable during design and construction of the project pursuant to County Ordinance No. 458. Through compliance with applicable regulations and policies, the project would not impede or redirect flood flows. Impacts would be **less than significant,** and mitigation is not required.

d. Result in flood hazard, tsunami, or seiche zones, or risk release of pollutants due to project inundation?

Less than Significant Impact

Discussion of Effects: The project site is within existing inundation areas for three dams at Diamond Valley Lake and for Lake Skinner.[80] However, each of these dams has been engineered to withstand earthquakes of 7.5 magnitude along the San Jacinto Fault and 8.0 magnitude along the San Andreas Fault, and the MWD continuously monitors these dams and their foundations for deformation, which would reduce impacts from damn failure to less than significant.[81]

Floodplains follow existing creeks and mostly affect lowland areas. Improvements to the embankment of French Valley Creek initiated by the Riverside County Flood Control and Water Conservation District control the direction and concentration of flood flows from French Valley Creek and establish predictability of floodwaters to prevent widespread flood and debris damage in the project vicinity (refer to Figures 4 and 5). The building pad for the proposed library facility shall be constructed up to 10 feet above the 100-year flood plain in accordance with County Ordinance No. 458 regulating flood hazards. Buildings and structures shall be placed away from the property lines to maintain the French Valley Creek drainage pattern and allow for off-site flows along the northern portion of the site to be accepted on site and conveyed to French Valley Creek without deflecting onto adjacent properties.

[79] "First-flush" runoff is the initial surface runoff of stormwater along impervious surfaces, such as parking lots, and is typically more concentrated with pollutants compared to the remainder of a storm event.

[80] *Southwest Area Plan*. County of Riverside General Plan Amendment No. 960. Figure 10: Southwest Area Plan Flood Hazards. February 2015.

[81] *Section 5.9 Hydrology and Water Quality*. The City of Menifee General Plan Draft Environmental Impact Report, SCH #2012071033. Pages 5.9-23 and 5.9-24. September 2013.

Finally, the project design shall be submitted to the Riverside County Flood Control and Water Conservation District for review in accordance with Southwest Area Plan Policy 24.4. Any additional project-specific conditions imposed by the Riverside County Flood Control and Water Conservation District must be implemented as applicable during design and construction of the project pursuant to County Ordinance No. 458.

Inundation of the proposed project site by a tsunami is highly unlikely, as the project site is approximately 31 miles northeast of the Pacific Ocean. Lake Skinner is an artificial waterbody located approximately 2.3 miles up gradient from the site and is separated from the site by several tracts of residential development that have incorporated storm drain improvements to convey water downstream to various creeks leading to the Santa Margarita River. Therefore, the risk of inundation from a seiche is low. Finally, the project is a proposed library facility that is not expected to harbor pollutants substantially different from those that would be expected to occur on adjacent properties that are located closer to water bodies and identified to be in flood hazard areas.

The proposed project will be conditioned to meet requirements to address the unlikely event of a dam failure through the County's plan review process. Since the risk of project inundation is low, impacts associated with flood hazards, tsunami, or seiches, or release of pollutants due to project inundation would be **less than significant.** Mitigation is not required.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact

Discussion of Effects: As detailed in response to Checklist Question 3.10b, the proposed project would not substantially contribute to groundwater depletion, nor would it interfere with groundwater recharge. The project does not propose direct additions or withdrawals of groundwater. As detailed in the project-specific Geotechnical Evaluation Report (Appendix D), construction of the project is not expected to include excavation at depths that would impair or alter the direction or rate of groundwater flow. In accordance with **Standard Condition of Approval HYD-3,** BMPs shall be designed and implemented to ensure post-development storm water runoff volume or time of concentration does not exceed pre-development storm water runoff by more than 10 percent over a one-year period in accordance with the NPDES MS4 Permit, so the project is not expected to inhibit the percolation of surface water into the groundwater table. Finally, the project site is expected to be supplied with imported water from one of the following sources: (1) treated imported water from MWD; (2) untreated imported water from MWD, which is subsequently treated by EMWD; or (3) untreated imported water treated by EMWD and recharged into the Temecula Valley Groundwater Basin for later withdrawal.

Implementation of the NPDES permit in accordance with **Standard Condition of Approval HYD-1** ensures that the State's mandatory standards for maintenance of clean water and the federal minimums are met. BMPs detailed in a SWPPP pursuant to **Standard Condition of Approval HYD-2** ensures water quality impacts would be less than significant during construction. LID BMPs specified in the WQMP pursuant to **Standard Condition of Approval HYD-3** ensures the site's design capture volume will be directed to detention basins to facilitate infiltration into the water table. Since the project would not inhibit groundwater recharge potential and would not require groundwater to supply its anticipated demand, the project would not conflict with any applicable water quality control plan or sustainable groundwater management plan. Impacts would be **less than significant** and mitigation is not required.

3.11 LAND USE AND PLANNING

Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

a. Physically divide an established community?

No Impact

Discussion of Effects: The site is located within the Quinta Do Lago Specific Plan and is bound by Highway 79 to the northwest, Skyview Road to the southwest, French Valley Creek to the southeast, and undeveloped open space to the northeast (Figure 2). Undeveloped open space occurs across Highway 79 to the northwest, multi-family residential uses are located across Skyview Road to the southwest, and single-family residential uses are located across the creek to the southeast and east.

The proposed library facility will continue the Specific Plan's pattern of development in the community and provide a public service to the existing residential uses located adjacent to the south and to the east across French Valley Creek. Site improvements such as dedicated landscaped areas, a garden walking path, and meandering sidewalk along Winchester Road will convey a park-like setting (Figure 4), and the project site will be thematically landscaped to differentiate it from other neighborhoods while establishing a unique articulation of space and skyline in the community to facilitate ease of navigation for pedestrians and other residents. Since the project site is already physically bound by Highway 79 to the northwest, Skyview Road to the southwest, French Valley Creek to the southeast, and undeveloped open space to the northeast, development of the site would not physically divide an established community. **No impact** would occur and no mitigation is required.

b. Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less than Significant Impact

Discussion of Effects: The project site is administered in accordance with the Quinta Do Lago Specific Plan. Table 2.2.A summarizes surrounding land uses, County General Plan land use designations, and zoning designations. The project site is located within Planning Area 21 of the Quinta Do Lago Specific Plan, which is designated Open Area Combining Zone-Residential Developments.

The project site is located within unincorporated Riverside County. As detailed in Table 2.2.A, the County's General Plan designates the project site land use as Open Space Recreational (OP-R), and the zoning of the site is [Quinta Do Lago] Specific Plan Zone (SP). Pursuant to the County's Ordinance No. 348, Article XVIIa, Section 17.27 (Land Use Permitted), public facility land uses such as the proposed library are permitted in the SP Zone. No changes are proposed to the General Plan land use designation or zoning, as

the project will include the development of a 25,000 square-foot public library. Therefore, the project would not generate any increase in population that otherwise would not have been planned for in the County.

According to the 2015 General Plan Amendment EIR,[82] buildout of the Riverside County General Plan would increase the County's population by roughly 13,000, which will be incrementally spread out throughout the County. This increase would require an estimated 6,500 additional square feet of library floor space and roughly 35,500 additional volumes. The demand for the additional space and volumes, however, will be incremental and not uniform across the County, as some areas of the County will experience a population decrease while others will experience a population increase. The Southwest Area Plan area would need an incremental amount of additional library services and volumes to continue to provide adequate levels of service within the community.

The Dutch Village Specific Plan located across Highway 79 northwest of the project site was originally adopted by the Riverside County Board of Supervisors on June 6, 1973.[83] On August 30, 1994, the Board of Supervisors adopted Specific Plan No. 284 (Quinta Do Lago), which had the effect of superseding the land use designations on 470.1 acres of the Dutch Village Specific Plan, including the project site. Development under these Specific Plans gained momentum starting in the mid-2000s, declined during the 2008 recession and the ensuing years, and intensified again starting in 2015, particularly along the northern margins of the Dutch Village Specific Plan approximately 0.75 mile north of the project site. Accordingly, development of the proposed project would serve to fulfill both an existing and anticipated need to provide additional library services to this area of the County.

The proposed project will comply with all applicable development standards set forth in the Quinta Do Lago Specific Plan and also be consistent with the County's General Plan for the provision of public services. As detailed throughout this Initial Study, all impacts to the environment resulting from the proposed project are subject to applicable mitigation and local, State and/or federal regulations, which would reduce those impacts to less than significant levels. Therefore, impacts on any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect will be **less than significant** and additional mitigation is not required.

3.12 MINERAL RESOURCES

Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒

[82] *Section 4.17: Public Facilities.* County of Riverside Environmental Impact Report Np. 521. Page 4.17-70. February 2015.

[83] *Submittal to the Board of Supervisors, County of Riverside, State of California.* Riverside County Planning Department. Item 17.3 (ID # 4793. Page 3. July 25, 2017.

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact

Discussion of Effect: The project site is classified as Mineral Resource Zone MRZ-3 (an area containing known or inferred mineral occurrences of undetermined mineral resource significance).[84] No mineral resources are known to occur on the project site, nor has the project site been previously used for mineral extraction. The project site has no potential to be mined in the future because it is surrounded by adjacent and proximal residential uses and is not considered a State-designated mineral resource extraction zone. Therefore, development of the project site would not result in the loss of a known mineral resource that would be of value to the region and residents of the State or that has been delineated on a local land use plan. Impacts would be **less than significant** and mitigation is not required.

3.13 NOISE

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Result in generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip, or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

[84] *Section 4.14: Mineral Resources*. County of Riverside Environmental Impact Report Np. 521. Figure 4.14.2: Mineral Resource Zones – Temescal Valley and San Bernardino Production/Consumption Regions. February 2015.

a. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact

Discussion of Effects: The following discussion is based on the project-specific Traffic Impact Analysis (Appendix H) and Noise Modeling (Appendix G) prepared for the French Valley Public Library.

Construction Noise. Two types of short-term noise could occur during construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the site would incrementally increase noise levels on roadways in the project area. There would be a relatively high single-event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 feet would generate up to a maximum of 84 A-weighted decibels [dBA]). The effect on longer-term (hourly or daily) ambient noise levels would be small because the hourly/daily construction-related vehicle trips are small when compared to existing hourly/daily traffic volume on Winchester Road.

The building construction phase would generate the most trips out of all of the construction phases, at approximately 22 vehicles/trucks per hour, or 43 vehicles/trucks per day based on the CalEEMod results in Appendix A. Winchester Road and/or Skyview Road would be used to access the project site. Winchester Road has an estimated existing hourly/daily traffic volume of 3,020/30,200. Based on the construction-related traffic and existing traffic volumes, construction personnel and equipment trips to and from the project site would not generate a discernable increase in traffic noise levels along these roadways. Therefore, there would be no incremental increase in ambient noise from construction-related vehicle trips, and short-term, construction-related impacts associated with construction personnel and equipment transport to the project site would be **less than significant**. Mitigation is not required.

The second type of short-term noise is related to noise generated during excavation, grading, and building erection on the project site. Construction is completed in discrete phases, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the site as well as the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 3.13.A lists typical construction equipment noise levels recommended for noise impact assessments based on a distance of 50 feet between the equipment and a noise receptor.[85]

The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because the noisiest construction equipment anticipated for the proposed project is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Table 3.13.A details maximum noise levels of typical construction equipment expected to be used on the project site.

[85] *Federal Highway Administration Roadway Construction Noise Model User's Guide.* U.S. Department of Transportation. HEP-05-054. DOT-VNTSC-FHWA-05-01. January 2006. Page 2. https://www.fhwa.dot.gov/Environment/noise/construction_noise/rcnm/index.cfm (accessed October 10, 2019).

Table 3.13.A: Typical Maximum Construction Equipment Noise Levels (L_{max})

Type of Equipment	Acoustical Usage Factor[1]	Suggested Maximum Sound Level for Analysis at 50 feet (dBA)[2]
Air Compressor	40	80
Backhoe	40	80
Cement Mixer	50	80
Excavator	40	85
Forklift	40	85
Generator	50	82
Grader	40	85
Front End Loader	40	80
Paver	50	85
Roller	20	85
Rubber Tire Dozer	40	85
Scraper	40	85
Tractor	40	84
Flatbed Truck	40	84
Pickup Truck	40	55
Welder	40	73

Source: *Federal Highway Administration Roadway Construction Noise Model User's Guide.* U.S. Department of Transportation. HEP-05-054. DOT-VNTSC-FHWA-05-01. January 2006. Table 1. https://www.fhwa.dot.gov/Environment/noise/construction_noise/rcnm/index.cfm (accessed October 10, 2019).

[1] Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

[2] Maximum noise levels were developed based on Spec 721.560 from the CA/T program to be consistent with the City of Boston, Massachusetts, Noise Code for the "Big Dig" project.

dBA = A-weighted decibels FHWA = Federal Highway Administration L_{max} = maximum instantaneous sound level

CA/T = Central Artery/Tunnel

Project construction is expected to require primarily the use of a graders, bulldozers, and water trucks/pickup trucks. As indicated in Table 3.13.A, noise associated with the use of construction equipment is estimated to be between 55 and 85 dBA maximum instantaneous noise level (L_{max}) at a distance of 50 feet from the active construction area for the site preparation phase. Each grader would generate a maximum noise level of approximately 85 dBA L_{max} at 50 feet, each bulldozer would generate approximately 85 dBA L_{max} at 50 feet, and water trucks/pickup trucks would generate approximately 55 dBA L_{max} at 50 feet.

Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates within approximately 50 feet of the other equipment, the worst-case combined noise level during this phase of construction would be 88 dBA L_{max} at a distance of 50 feet from the active construction area. Based on a usage factor of 40 percent, the worst-case combined noise level during this phase of construction would be 84 dBA[86] equivalent continuous sound level (L_{eq})[87] at a distance of 50 feet from the active construction area.

The sensitive receptors closest to the project construction boundary are residences located approximately 990 feet north, 435 feet southeast, 80 feet southwest, and 325 feet west of the project

[86] The usage factor of 40 percent is approximately 4 dBA less than the maximum noise level (88 dBA maximum noise level - 4 dBA usage factor = 84 dBA).

[87] The L_{eq} noise level is provided to describe construction noise levels for a longer period of time (compared to the maximum instantaneous noise level, L_{max}) and compare it to ambient noise levels described subsequently in terms of L_{eq}.

construction boundary (measured from the construction boundary to the residential property lines) and would be exposed to construction noise levels of 58 dBA L_{eq}, 65 dBA L_{eq}, 80 dBA L_{eq}, and 68 dBA L_{eq}, respectively, after distance attenuation.[88] These noise levels represent a worst-case scenario that is typically related to grading activity, which only represents a limited duration in time during the overall construction period.

The National Institute for Occupational Safety and Health (NIOSH) has established a threshold of 85 dBA for an 8-hour period that will result in damage to hearing.[89] As noise levels increase beyond 85 dBA, the exposure time decreases for damage to hearing to occur. (e.g., damage will occur at four hours of exposure for a noise level of 88 dbA). Construction noise will not exceed the NIOSH 85dBA threshold at the nearest sensitive receptors. Therefore, construction of the project would result in temporary and periodic increases in noise, which would result in annoyance and inconveniences, rather than the more serious effects such as hearing loss, sleep deprivation, and stress. Because construction noise is usually generated in short bursts and the heavy equipment used during site preparation moves around the construction site, maximum noise levels are not likely to occur for sustained periods of time, and the temporary inconvenience would not be a substantial increase which could alter human health or safety. Additionally, implementation of regulatory measures that include compliance with the construction hours specified in the County's Noise Ordinance No. 847 § 1, 2006 (Municipal Code Section 9.52.020(I)) and standard conditions for construction that include properly maintained noise mufflers for all construction equipment, stationary construction equipment staged away from off-site sensitive uses, and position construction equipment so that emitted noise is directed away from sensitive receptors would minimize the temporary annoyance and inconveniences associated with construction noise. County Noise Ordinance No. 847 § 1, 2006 (Municipal Code Section 9.52.020(I)) would restrict construction activities within one-quarter mile (1,320 feet) of an inhabited dwelling to between the hours of 6:00 a.m. and 6:00 p.m. during the months of June through September and between the hours of 7:00 a.m. and 6:00 p.m. during the months of October through May.

Measured ambient noise levels near the project site ranges from 44.4 dBA L_{eq} to 64.5 dBA L_{eq}. Although there would be a temporary increase in noise levels within the project vicinity, construction noise is a temporary occurrence and would stop once project construction is completed. Additionally, construction noise levels at the closest residences located 80 feet to the southwest of the project site would be exposed to 80 dBA L_{eq}, which would not exceed the NIOSH threshold. Therefore, noise generated from project construction activity would be **less than significant**. No mitigation is required.

Long-Term Mobile Noise. The Federal Highway Administration (FHWA) *Highway Traffic Noise Prediction Model (FHWA-RD-77-108)* was used to evaluate highway traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the community noise equivalent level (CNEL) values.[90]

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88 According to the Inverse Square Law, sound levels decrease approximately 6 dB for each doubling of distance from the source. (*HyperPhysics.* Department of Physics and Astronomy, Georgia State University. 2016. http://hyperphysics.phy-astr.gsu.edu/hbase/Acoustic/isprob2.html (accessed January 21, 2020)).

89 *Occupational Noise Exposure, Revised Criteria 1998.* National Institute for Occupational Safety and Health. Page 1. June 1998.

90 The CNEL level is used because the County of Riverside General Plan Noise Element uses CNEL to consider long-term mobile noise effects.

Traffic volumes were obtained from the project-specific Traffic Impact Analysis (Appendix H). Tables 3.13.B and 3.13.C respectively provide the traffic noise levels for the existing and existing plus project conditions. These noise levels represent the worst-case scenario, which assumes no shielding is provided between the traffic and the location where the noise contours are drawn. Appendix G provides the specific assumptions used in developing these noise levels and model printouts.

Table 3.13.B: Existing Traffic Noise Levels

Roadway Segment	ADT	Centerline to 70 dBA CNEL (feet)	Centerline to 65 dBA CNEL (feet)	Centerline to 60 dBA CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Winchester Road South of Benton Road	37,400	119	252	540	73.3
Winchester Road Between Benton Road and Max Gilliss Boulevard	42,900	130	276	592	73.9
Winchester Road Between Max Gilliss Boulevard and Jean Nicholas Road	32,300	108	229	490	72.7
Winchester Road Between Jean Nicholas Road and Whisper Heights	30,200	104	219	469	72.4
Winchester Road Between Whisper Heights and Pourroy Road	33,800	111	235	505	72.9
Winchester Road North of Pourroy Road	30,700	138	293	630	74.3
Benton Road East of Winchester Road	20,700	61	123	261	68.5
Max Gilliss Boulevard West of Winchester Road	27,900	72	149	318	69.8
Thompson Road East of Winchester Road	11,600	< 50	82	177	67.5
Jean Nicholas Road West of Winchester Road	5,700	< 50	56	112	62.9
Whisper Heights West of Winchester Road	1,300	< 50	< 50	< 50	56.5
Pourroy Road East of Winchester Road	10,400	< 50	80	166	65.6
Pourroy Road West of Winchester Road	1,000	< 50	< 50	< 50	55.4
Abelia Street East of Winchester Road	4,800	< 50	< 50	101	62.2

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels

Table 3.13.B provides baseline traffic noise levels (i.e., existing traffic noise without the project) to which the anticipated project-related traffic noise contribution would be added to determine if project-related traffic noise would be significant.

Table 3.13.C: Existing With Project Traffic Noise Levels

Roadway Segment	ADT	Centerline to 70 dBA CNEL (feet)	Centerline to 65 dBA CNEL (feet)	Centerline to 60 dBA CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane	Increase from Baseline Condition
Winchester Road South of Benton Road	37,600	119	253	542	73.3	0.0
Winchester Road Between Benton Road and Max Gilliss Boulevard	43,300	130	277	596	73.9	0.0
Winchester Road Between Max Gilliss Boulevard and Jean Nicholas Road	33,000	110	232	497	72.8	0.1
Winchester Road Between Jean Nicholas Road and Whisper Heights	33,000	110	232	497	72.8	0.4
Winchester Road Between Whisper Heights and Pourroy Road	34,200	112	237	509	72.9	0.0
Winchester Road North of Pourroy Road	30,800	138	294	632	74.3	0.0
Benton Road East of Winchester Road	20,900	61	124	262	68.6	0.1
Max Gilliss Boulevard West of Winchester Road	28,100	73	150	319	69.9	0.1
Thompson Road East of Winchester Road	11,800	< 50	83	179	67.6	0.1
Jean Nicholas Road West of Winchester Road	6,000	< 50	58	116	63.2	0.3
Whisper Heights West of Winchester Road	1,500	< 50	< 50	< 50	57.1	0.6
Pourroy Road East of Winchester Road	10,700	< 50	81	169	65.7	0.1
Pourroy Road West of Winchester Road	1,000	< 50	< 50	< 50	55.4	0.0
Abelia Street East of Winchester Road	5,100	< 50	< 50	105	62.5	0.3

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.

ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels

Table 3.13.C details the noise levels in the project vicinity when combining existing traffic noise with the anticipated project-related traffic noise contribution. As indicated in Table 3.13.C, the project-related traffic noise contribution to existing traffic noise levels would reach 0.6 dBA. Noise level increases less

than 3 dBA would not be perceptible to the human ear in an outdoor environment.[91] Therefore, project-related traffic noise on off-site sensitive receptors would be **less than significant**. Mitigation is not required.

Long-Term Stationary Noise. Adjacent off-site land uses would be potentially exposed to stationary-source noise impacts from the proposed on-site rooftop Heating, Ventilation, and Air Conditioning (HVAC) equipment and parking lot activities.

The proposed project would include rooftop HVAC equipment, which would generate noise. However, noise levels generated by HVAC equipment is exempted based on County Noise Ordinance No. 847 § 1, 2006 (Municipal Code Section 9.52.020(L)). Potential noise level generated by HVAC equipment are provided below for informational purposes. Rooftop HVAC equipment would generate noise levels of 66.6 dBA L_{eq} at 5 feet[92] based on previous measurements conducted by LSA. As a worst-case scenario, it is assumed that there would be up to six (6) rooftop HVAC units that would be located at the center of the building's rooftop and would operate 24 hours a day. Six HVAC units operating simultaneously would generate a noise level of 74 dBA L_{eq} at a distance of 5 feet. The closest residential property lines proximal to on-site HVAC equipment are approximately 1,120 feet north, 500 feet southeast, 575 feet southwest, and 660 feet west. At a distance of 1,120 feet, 500 feet, 575 feet, and 660 feet, noise would be attenuated by 47, 40, 41, and 42 dBA, respectively, so noise associated with rooftop HVAC equipment would reach as high as 34 dBA L_{eq} (74 dBA – 40 dBA = 34 dBA) at the nearest sensitive receptor 500 feet to the southeast.[93] Therefore, noise generated from on-site rooftop HVAC equipment would be **less than significant**. Mitigation is not required.

The project includes a surface parking lot that could generate noise potentially affecting adjacent land uses. Noisy activities occurring in the project parking lot would include vehicles traveling at slow speeds, engine start-up noise, car door slams, car horns, car alarms, and tire squeals. These activities would occur generally during daytime hours and are intermittent in nature. Representative parking activities would generate approximately 60 to 70 dBA L_{max} at 50 feet based on measurements conducted by LSA for projects of similar scale. The closest residential property lines proximal to on-site surface parking activities are approximately 1,275 feet north, 465 feet southeast, 225 feet southwest, and 420 feet west. At a distance of 1,275 feet, 465 feet, 225 feet, and 420 feet, noise would be attenuated by 28, 19, 13, and 18 dBA, respectively. In addition, existing residences surrounding the project have a 6-foot high perimeter wall that provides a minimum noise reduction of 5 dBA.[94] Therefore, noise associated with parking activities would reach as high as 52 dBA L_{max} (70 dBA – 13 dBA – 5 dBA = 52 dBA) at the nearest sensitive receptor 225 feet to the southwest.[95] The projected measured ambient noise levels of 63.0, 50.4, 62.1, and 64.5 dBA CNEL at the closest residences north, southeast, southwest, and west of the project site, respectively, are higher than noise levels generated from parking activities. Parking activities would not increase the existing ambient noise level because parking lot activities are

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91 *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. California Department of Transportation (Caltrans). Page 2-44. September 2013.

92 Five (5) feet is an appropriate distance for a noise measurement because HVAC equipment is typically attached to buildings (e.g., rooftops) or located at the base of a building potentially within several feet of a person occupying the site.

93 27 dBA L_{eq} (74 dBA – 47 dBA = 27 dBA), 34 dBA L_{eq} (74 dBA – 40 dBA = 34 dBA), 33 dBA L_{eq} (74 dBA – 41 dBA = 33 dBA), and 32 dBA L_{eq} (74 dBA – 42 dBA = 32 dBA) at sensitive receptors respectively 120 feet, 500 feet, 575 feet, and 660 feet away.

94 *Masonry Sound Barrier Walls and Fences.* Atkinson-Noland & Associates, Inc. Page 28. 2007.

95 37 dBA L_{max} (70 dBA – 28 dBA – 5 dBA = 37 dBA), 46 dBA L_{max} (70 dBA – 19 dBA – 5 dBA = 46 dBA), 52 dBA L_{max} (70 dBA – 13 dBA – 5 dBA = 52 dBA), and 47 dBA L_{max} (70 dBA – 18 dBA – 5 dBA = 47 dBA) at sensitive receptors respectively 1,275 feet, 465 feet, 225 feet, and 420 feet away.

intermittent in nature and generate noise levels lower than the ambient noise level. Therefore, noise generated from on-site parking activities would be **less than significant**. No mitigation is required.

b. Result in generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact

Discussion of Effects: Groundborne noise is typically assessed at locations where there is no airborne noise path, or for buildings with substantial sound insulation such as a recording studio. For typical buildings, the interior airborne noise levels are often higher than the groundborne noise levels. Therefore, the main focus of the discussion/analysis is groundborne vibration. A vibration level of 94 vibration velocity decibels (VdB) (0.2 peak particle velocity [PPV] inches per second [in/sec]) is the threshold used to evaluate construction vibration impacts because this vibration level has the potential to damage residential structures made of non-engineered timber.[96] A vibration level of 78 VdB is used to describe potential human responses[97] (i.e., annoyance) from vibration levels generated by project construction as a means of disclosure, but this community annoyance threshold is not used to identify an impact because of the subjective nature of human annoyance and the temporary nature of construction. The greatest levels of vibration are anticipated to occur during the site preparation phase, during which a large bulldozer and a loaded truck are expected to be used. All other phases are expected to result in lower vibration levels.

Construction Vibration. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts normally occur within buildings. Table 3.13.D shows the PPV and VdB values at a distance of 25 feet from the construction vibration source. As shown in Table 3.13.D, bulldozers and loaded trucks would generate a groundborne vibration level of 87 and 86 VdB, respectively, when measured at a distance of 25 feet, based on the Federal transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual.*[98]

The formula for vibration transmission is provided below:

$$L_v dB\ (D) = L_v dB\ (25\ feet) - 30\ Log\ (D/25)$$
$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

Table 3.13.D: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_v at 25 feet	
	PPV (in/sec)	L_v (Vdb)[1]
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer[2]	0.089	87

[96] *Transit Noise and Vibration Impact Assessment Manual. FTA Report No. 0123.* Federal Transit Administration (FTA). September 2018. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf (accessed January 16, 2020).

[97] *Ibid.*

[98] *Ibid.*

Table 3.13.D: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_v at 25 feet	
	PPV (in/sec)	L_v (Vdb)[1]
Caisson Drilling	0.089	87
Loaded Trucks[2]	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment Manual*. Federal transit Administration. September 2018. https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123 (accessed November 7, 2019).

[1] Root-mean-square VdB is 1 µin/sec.

[2] Equipment shown in **bold** is expected to be used on site.

µin/sec = microinches per second
in/sec = inches per second
PPV = peak particle velocity
FTA = Federal Transit Administration
LV = velocity in decibels
VdB = vibration velocity decibels

Table 3.13.E lists the projected vibration level from various construction equipment expected to be used on the project site to the nearest buildings in the project vicinity. For typical construction activity, the equipment with the highest vibration generation potential is the large bulldozer, which would generate 87 VdB at 25 feet. The closest residential structure to the southwest is approximately 120 feet from the project construction boundary (measured from the construction boundary to the residential structure). As shown in Table 3.13.E, the closest single-family residential structure at 120 feet from the project construction boundary would experience vibration levels of up to 67 VdB (0.008 PPV in/sec). All other residences are farther than 120 feet from the project construction boundary and would experience lower vibration levels.

Table 3.13.E: Summary of Construction Vibration Levels

Land Use	Direction	Equipment/ Activity	Reference Vibration Level Vdb at 25 feet	Reference Vibration Level PPV at 25 feet	Distance (feet)[1]	Maximum Vibration Level (Vdb)	Maximum Vibration (PPV)
Single-Family Residence	North	Large bulldozers	87	0.089	1,075	38	0.000
		Loaded trucks	86	0.076	1,075	37	0.000
Single-Family Residence	Southeast	Large bulldozers	87	0.089	450	49	0.001
		Loaded trucks	86	0.076	450	48	0.001
Single-Family Residence	Southwest	Large bulldozers	87	0.089	120	67	0.008
		Loaded trucks	86	0.076	120	66	0.007
Single-Family Residence	West	Large bulldozers	87	0.089	400	51	0.001
		Loaded trucks	86	0.076	400	50	0.001

Source: Compiled by LSA Associates, Inc. 2019 (Appendix G).

Note: The FTA-recommended building damage threshold is 90 VdB (or 0.12 PPV [in/sec]) for fragile buildings, 94 VdB (0.2 PPV [in/sec]) for non-engineered timber and masonry structures, and 98 VdB (0.3 PPV [in/sec]) for engineered concrete and masonry buildings.

[1] Distances reflect the nearest structure to the nearest project construction boundary.

FTA = Federal Transit Administration
PPV = peak particle velocity
in/sec = inches per second
VdB = vibration velocity decibels

Construction vibration levels at the closest residential building from construction equipment or activity would not exceed the FTA threshold of 94 VdB (0.2 PPV [in/sec]) for building damage when bulldozers and loaded trucks operate at the project construction boundary. In addition, construction vibration levels would not exceed the vibration annoyance threshold of 78 VdB. Therefore, construction vibration levels would be **less than significant.** Mitigation is not required.

Long-Term Operational Vibration. Operation of the proposed library would not generate vibration. In addition, vibration generated from project-related traffic on the adjacent roadways (Highway 79 and Skyview Road) is not expected to be substantial for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Therefore, vibration generated from project-related traffic on the adjacent roadways would be **less than significant.** Mitigation is not required.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project are to excessive noise levels?

No Impact

Discussion of Effects: There are no private airstrips located within the vicinity of the project site. The closest airport to the project site is the French Valley Airport, which is located approximately 2.1 miles southwest. The project site is located beyond the existing and future 55 dBA CNEL impact zone from French Valley Airport.[99] Therefore, the project would not expose people residing or working in the project area to excessive noise levels. **No impact** would occur and no mitigation is required.

3.14 POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial amounts of people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

[99] *Riverside County Airport Land Use Compatibility Plan. Chapter W4 Background Data: French Valley Airport and Environs.* Exhibit FV-4 9Existing Noise Impacts) and Exhibit FV-5 (Future Noise Impacts). Riverside County Airport Land Use Commission. October 14, 2004, Amended January 2012.

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than Significant Impact.

Discussion of Effects: The Riverside County Economic Development Agency expects the proposed project to employ approximately 22 staff. According to the project Title Report, the project site is located within Planning Area 21 of the Quinta Do Lago Specific Plan, which is designated Open Area Combining Zone-Residential Developments. As detailed in Table 2.2.A, the County's General Plan designates the project site land use as Open Space Recreational (OP-R), and the zoning of the site is [Quinta Do Lago] Specific Plan Zone (SP). Pursuant to the County's Ordinance 348, Article XVIIa, Section 17.27 (Land Use Permitted), public facility land uses such as the proposed library are permitted in the SP Zone. No changes are proposed to the General Plan land use designation or zoning, as the project will include the development of a 25,000 square-foot public library. Therefore, the project would not generate any increase in population that otherwise would not have been planned for in the County.

According to the 2015 General Plan Amendment EIR,[100] buildout of the Riverside County General Plan would increase the County's population by roughly 13,000, which will be incrementally spread out throughout the County. This increase would require an estimated 6,500 additional square feet of library floor space and roughly 35,500 additional volumes. The demand for the additional space and volumes, however, will be incremental and not uniform across the County, as some areas of the County will experience a population decrease while others will experience a population increase. The Southwest Area Plan area would need an incremental amount of additional library services and volumes to continue to provide adequate levels of service within the community.

The Dutch Village Specific Plan located across Highway 79 northwest of the project site was originally adopted by the Riverside County Board of Supervisors on June 6, 1973.[101] On August 30, 1994, the Board of Supervisors adopted Specific Plan No. 284 (Quinta Do Lago), which had the effect of superseding the land use designations on 470.1 acres of the Dutch Village Specific Plan, including the project site. Development under these Specific Plans gained momentum starting in the mid-2000s, declined during the 2008 recession and the ensuing years, and intensified again starting in 2015, particularly along the northern margins of the Dutch Village Specific Plan approximately 0.75 mile north of the project site.

The County General Plan and Dutch Village and Quinta Do Lago Specific Plans are used to control and allocate growth. Accordingly, development of the proposed project would serve to fulfill both an existing and anticipated need to provide additional library services to this area of the County. Additionally, generation of 22 employment positions in an area of the Southwest Area Plan dominated by residential uses would help balance the jobs-to-housing ratio in the community surrounding the project site. Since the project site is adjacent to completely improved streets and infrastructure, the project also does not include any significant infrastructure improvements or the significant extension of roads that could indirectly induce growth in the City. Therefore, the proposed project will not generate substantial direct or indirect unplanned population growth. Impacts would be **less than significant** and mitigation is not required.

[100] *Section 4.17: Public Facilities.* County of Riverside Environmental Impact Report Np. 521. Page 4.17-70. February 2015.
[101] *Submittal to the Board of Supervisors, County of Riverside, State of California.* Riverside County Planning Department. Item 17.3 (ID # 4793. Page 3. July 25, 2017.

b. Displace substantial amounts of people or housing, necessitating the construction of replacement housing elsewhere?

No Impact

Discussion of Effects: The project site is located on vacant land. Therefore, **no impact** would occur to people or housing such that replacement housing would be required. Mitigation is not required.

3.15 PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

No Impact or Less than Significant Impact

Discussion of Effects:

Fire Protection. The proposed project is required to comply with applicable provisions of the California Building Code, California Fire Code, Riverside County Ordinance No. 460, Riverside County Ordinance No. 787, and Riverside County Fire Department Standards pertaining to human health and safety (through the building plan check process) to ensure the project would minimize exposure of people or structures to a significant risk of loss, injury, or death involving fires.

Development of the proposed project would incrementally increase demand for fire protection services, but not to the degree that existing fire stations could not meet the demand. The nearest fire station is French Valley Fire Station No. 83 located at 37500 Sky Canyon Drive three miles (six minutes) south of the site. Project design features incorporated into the structural design and layout would keep service demand increases to a minimum. The County's plan check process includes County Fire Department review of proposed fire hydrant spacing and incorporation of automatic sprinkler systems in accordance with applicable Sections of Ordinance No. 787 (e.g., Sections 901.6.1, 903.2, 903.4.2.1, 4.3, 3, 5, and 8603.1), proper roadway turning radii, and fire lane widths, etc. Since the proposed development is located adjacent to Highway 79, emergency vehicles will have the ability to park on the east side of Highway 79 adjacent to the project site in the event that the project driveway is inaccessible. The project site layout, including provisions for emergency vehicle access, would be reviewed for adequacy by the County Fire Department. Therefore, the construction of the proposed project would be in accordance with applicable County policies and regulations and would not require new or physically

altered fire protection facilities, the construction of which could cause significant environmental impacts. Impacts would be **less than significant** and mitigation is not required.

Police Protection. The Riverside County Sheriff's Department (RCSD) provides law enforcement and crime prevention services to the project site. Similar to fire protection services, the proposed project is expected to incrementally increase demand for sheriff protection services in the project area. However, due to the proposed project's relatively limited size and scale, the project would not create a significant impact on Sheriff's services.

Whereas the project site is currently unoccupied and does not preclude or discourage unlawful activity, development of the site with crime prevention through environmental design (CPTED) features would not only deter trespassing through the presence of County staff and the public, but it also would keep police service demand increases to a minimum. For example, the project would incorporate public zones and private zones via physical and symbolic barriers to define acceptable uses of the library facility and determine who has a right to occupy such zones. Additionally, the proposed library facility would be equipped with formal surveillance through the use of closed-circuit television, electronic monitoring, and potential security patrols, as well as informal surveillance such as architecture, landscaping, and lighting designed to minimize visual obstacles and eliminate places of concealment for potential assailants. Therefore, the construction of the proposed project would be in accordance with applicable County policies and would not require new or physically altered sheriff protection facilities, the construction of which could cause significant environmental impacts. Impacts would be **less than significant** and mitigation is not required.

Schools. The project does not include a residential component and no direct increase in the local student population would occur. Operation of the proposed public library would supplement access to literature and other academic material typically provided through the surrounding school districts. The anticipated indirect increase in worker population (i.e., 22 employees of the library facility) who would likely come from the surrounding area and would not be expected to indirectly increase student population. Therefore, impacts on schools would be **less than significant**. Mitigation is not required.

Parks/Recreational Facilities. Refer to responses to Checklist Questions 3.16a and 3.16b. Impacts would be **less than significant** and mitigation is not required.

Other Public Facilities. As detailed in response to Checklist Question 3.11b, the proposed project serves to fulfill an identified deficiency of library facilities/services in the Southwest Area Plan portion of the County. Furthermore, impacts from construction and operation of the proposed project are mitigated, as applicable, throughout this Initial Study. As detailed in Section 3.9 (Hazards and Hazardous Materials, the proposed library facility is not expected to pose significant health risks to the public, so the project will not create significant additional demand for libraries, health or hospital services, or other public facilities. Impacts would be **less than significant** and additional mitigation is not required.

3.16 RECREATION

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

Less than Significant Impact

Discussion of Effects: The proposed project is expected to generate 22 staff, which could result in an incremental increase in use of nearby recreational facilities during project operation. However, the proposed library is inherently designed to provide services to the public commensurate with and supplemental to the recreation opportunities provided by nearby parks through development of site improvements such as dedicated landscaped areas, a garden walking path, and meandering sidewalk along Winchester Road to convey a park-like setting (Figure 4). Therefore, the construction of the proposed project would be in accordance with applicable County policies and would not require new or physically altered park and recreation facilities, the construction of which could cause significant environmental impacts. Impacts would be **less than significant** and mitigation is not required.

3.17 TRANSPORTATION

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☒	☐	☐
b. Would the project conflict or be inconsistent with *CEQA Guidelines* Section 15064.3, subdivision (b)?	☐	☐	☐	☒

c.	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d.	Result in inadequate emergency access?	☐	☐	☒	☐

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less than Significant with Mitigation Incorporated

The following discussion is based on the project-specific Traffic Impact Analysis (TIA) prepared for the French Valley Public Library (Appendix H).

Discussion of Effects: The County of Riverside General Plan identifies intersection thresholds of significance using level of service (LOS) as ratio of traffic volume to roadway capacity. Levels of service are defined using the letter grades A through F, in which LOS A[102] represents the least amount of traffic congestion and LOS F[103] the most. The County identifies LOS D as the minimum level of service criteria for intersections within the Southwest Area Plan.

To assess the performance of an intersection, the County uses the intersection delay method based on procedures contained in the *Highway Capacity Manual*. Based on the established performance standards for the County, a potentially significant transportation impact is defined to occur if:

- The addition of project-generated trips is forecast to cause the performance of a study intersection to deteriorate from acceptable LOS (D or better) to unacceptable LOS (E or F); or,
- The addition of project generated trips is forecast to worsen the performance of a study intersection operating at unacceptable LOS (E or F) in the baseline condition.

Based on the established performance standards for City of Murrieta,[104] a potentially significant transportation impact is defined to occur if:

- The addition of project-generated trips is forecast to cause the performance of a non-freeway interchange study intersection to deteriorate from acceptable LOS D or better to unacceptable LOS E or F; or
- The addition of project-generated trips is forecast to cause the performance of a freeway interchange study intersection to deteriorate from acceptable LOS E or better to unacceptable LOS F; or
- The addition of project generated trips is forecast to worsen the performance of an intersection operating at unacceptable LOS (E or F) in the baseline condition.

To help alleviate LOS deficiencies, public transit is provided via Riverside Transit Agency Routes 79 and 217 along Highway 79. There is a transit stop for Route 79 at the intersection of Highway 79 and

[102] LOS A is defined as a delay per vehicle of ≤ 10 seconds for unsignalized intersection and ≤ 10 seconds for signalized intersection.
[103] LOS F is defined as a delay per vehicle of > 50 seconds for unsignalized intersection and > 80 seconds for signalized intersection.
[104] The project site is within the City of Murrieta Sphere of Influence. The Murrieta performance standards apply to the intersections of Winchester Road at Benton Road and Winchester Road at Max Gilliss Boulevard/Thompson Road.

Whisper Heights/Pourroy Road approximately 2,000 feet northeast of the site. Additionally, a community [bicycle] trail is located approximately 1,000 feet northwest of the site across Highway 79 that connects to a regional urban/suburban trail facilitating alternative modes of transportation in the project vicinity. As detailed in Figure 4, the proposed project will construct a portion of a meandering pedestrian sidewalk along Highway 79 to promote pedestrian access to the site and will not preclude development and/or use of existing public and alternative transit facilities.

A project-specific TIA (Appendix H) was prepared to show the anticipated trip generation for the proposed project. The proposed project is forecast to generate a total of approximately 1,801 daily trips, including 25 trips during the AM peak hour (7:00 AM to 9:00 AM) and 204 trips during the PM peak hour (4:00 PM to 7:00 PM). The study area for the TIA encompasses six distinct intersections in the project vicinity and includes the following scenario volume forecasts (refer to Table 3.17.A):

- Existing Plus Project: Derived by adding the project-generated trips to existing traffic volumes.
- Existing Plus Ambient Plus Project: Existing Plus Project volumes were combined with ambient growth, which was calculated by increasing existing roadway volumes by two percent per year over two years for Opening Year (2021) conditions. This equates to a total growth factor of 1.04.
- Existing Plus Ambient Plus Project Plus Cumulative: Developed by adding trips generated by other developments to the Existing Plus Ambient Plus Project forecast.

With the addition of vehicle trips generated from operation of the proposed project and cumulative growth, changes would occur in the wait time at each of the Study Area intersections. All study area intersections are forecast to operate within acceptable LOS (D or better) during the peak hours for Existing Plus Project, Existing Plus Ambient Plus Project, and Existing Plus Ambient Plus Project Plus Cumulative conditions, except for Winchester Rd at Max Gilliss Blvd/Thompson Rd, which is forecast to continue operating at LOS E or F during all "Plus Project" scenarios (Table 3.17.A). Therefore **Mitigation Measure TRA-1** is required:

Table 3.17.A: Summary of Intersection Levels of Service

Study Intersection	Peak Hour Delay-LOS[1]							
	Existing		Existing Plus Project		Existing Plus Ambient Plus Project		Existing Plus Ambient Plus Project Plus Cumulative	
	AM	PM	AM	PM	AM	PM	AM	PM
1. Winchester Rd at Benton Rd	13.9-B	29.5-C	13.9-B	30.6-C	14.8-B	35.6-D	15.6-B	42.4-D
2. Winchester Rd at Max Gilliss Blvd/Thompson Rd	55.2-E	53.4-D	55.6-E	57.4-E	64.5-E	65.3-E	77.3-E	97-7-F
With Mitigation	—	—	**52.2-D**	**43.3-D**	**54.3-D**	**41.2-D**	**39.1-D**	**53.9-D**
3. Winchester Rd at Jean Nicholas Rd/Skyview Rd	13.2-B	13.7-B	13.7-B	18.5-B	14.1-B	19.1-B	16-B	22-C
4. Winchester Rd at Whisper Heights/Pourroy Rd	18.1-B	24.8-C	18.2-B	25.3-C	19.2-B	26.8-C	22.8-C	31.4-C
5. Winchester Rd AT Pourroy Rd/ Abelia St	18.7-B	14.9-B	18.9-B	15.6-B	19.9-B	16.4-B	20.9-C	17.2-B
6. Project Driveway at Skyview Rd[2]	—	—	7.3-A	7.9-A	7.3-A	7.9-A	7.3-A	7.9-A

Source: *French Valley Library Facility Project Traffic Impact Analysis.* Table 7: Summary of Intersection Levels of Service. Ganddini Group, Inc. October 3, 2019. (Appendix H)

[1] Delay = Average control delay in seconds per vehicle; LOS = Level of Service

[2] The Project shall construct this intersection (#6 Project Driveway at Skyview Rd) as part of the scope of work.

Bold = Indicates Level of Service with implementation of Mitigation Measure TRA-1.

MM TRA-1 **Prior to project occupancy, the project proponent shall restripe the eastbound approach at Winchester Road (Highway 79) at Max Gilliss Boulevard/Thompson Road to provide a second left turn lane. This measure shall be implemented to the satisfaction of the County.**

With implementation of **MM TRA-1**, the proposed project is forecast to result in **less than significant** impacts at the study intersections for Existing Plus Project conditions during the AM and PM peak hours.

The following additional roadway improvements have been identified to address LOS deficiencies expected to occur during the Existing Plus Ambient Plus Project, and Existing Plus Ambient Plus Project Plus Cumulative conditions:

- Existing Plus Ambient Plus Project
  - Construct a second northbound left turn lane at Winchester Road [Highway-79] at Max Gilliss Boulevard/Thompson Road.
- Existing Plus Ambient Plus Project Plus Cumulative
  - Northbound: Construct a second left turn lane and a dedicated right turn lane at Winchester Road [Highway-79] at Max Gilliss Boulevard/Thompson Road.
  - Southbound: Construct a third through lane at Winchester Road [Highway-79] at Max Gilliss Boulevard/Thompson Road.
  - Eastbound: Restripe to provide a second left turn lane at Max Gilliss Boulevard/Thompson Road.

Since the additional roadway improvements are required with the addition of background ambient growth to existing conditions, *but not with the addition of project-generated trips alone*, the improvements listed above are considered to mitigate a cumulative impact. Cumulative impacts may be mitigated via development impact fees assessed to private development projects by the County of Riverside Road and Bridge Benefit District (RBBD) and the Western Riverside Council of Governments Transportation Uniform Mitigation Fee (TUMF) programs. However, the proposed development is exempt from development impact fees since it is a public project. The site-specific improvements prescribed as **MM TRA-1** are sufficient to ensure project consistency with LOS under the County General Plan. However, LOS is no longer a physical impact under CEQA, so the proposed development's exemption from development impact fees would not result in a significant impact pursuant to CEQA. Furthermore, since these LOS deficiencies are cumulative in nature, mitigation for these deficiencies will be implemented as required as ambient growth in the project study area occurs. As detailed in Table 3.17.A, implementation of the additional roadway improvements through payment of development impact fees would reduce the cumulative LOS deficiencies to less than significant levels. Accordingly, implementation of **MM TRA-1** would reduce impacts to LOS to **less than significant** levels. No additional mitigation measures are necessary.

b. Would the project conflict or be inconsistent with *CEQA Guidelines* Section 15064.3, subdivision (b)?

No Impact

Discussion of Effects: *CEQA Guidelines* Section 15064.3, subdivision (b) establishes VMT criteria in lieu of LOS for analyzing transportation impacts and was signed into law as Senate Bill (SB) 743 in 2013. Regulatory changes to the *CEQA Guidelines* that implement SB 743 were approved by the Office of

Planning and Research on December 28, 2018. However, lead agencies have until July 1, 2020, which is the statewide implementation date, to opt-in use of the new VMT metric. In cases where lead agencies use LOS for analyzing transportation impacts, they may continue to do so until July 1, 2020. As the County's General Plan identifies intersection thresholds of significance in accordance with LOS, *CEQA Guidelines* Section 15064.3, subdivision (b) does not apply to the proposed project. Therefore, **no impact** would occur and no mitigation is required.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact

Discussion of Effects: Plans for the required improvements, including preparation of a signing and striping plan, would be based upon a design profile extending a minimum 300 feet beyond the limits of construction at a grade and alignment as approved by the Riverside County Transportation Department pursuant to their Street Improvement Plan Policies and Guidelines. Additionally, driveways would be designed and constructed in accordance with County Standard No. 207A and reviewed for approval by the Riverside County Transportation Department.

Although Skyview Road abutting the project site features improved curb and gutter, Highway 79 currently features minimal improvements. Street improvements incorporated into project design and conditioned by the County would reduce roadway hazards in the project vicinity through lane improvements, striping, etc. Therefore, **no impact** related to design feature hazards or incompatible uses would occur. Mitigation is not required.

d. Result in inadequate emergency access?

Less than Significant Impact

Discussion of Effects: Roadway facilities with regional access such as Highway 79 serve as evacuation routes in the event of an emergency. The project is required to incorporate adequate emergency water flow and to identify and mitigate any fire hazards during the development review process. The project is proposed with a two-lane access driveway off of Skyview Road that would provide entry and exit points for emergency access. The project site will include a C10 fire alarm without gates to ensure immediate fire department access to the project site in the event of an emergency. Fire department emergency vehicle apparatus access road locations and design shall be in accordance with the California Fire Code, Riverside County Ordinance 787, and Riverside County Fire Department Standards to ensure proper roadway turning radii, fire lane widths, etc. Since the proposed development is located adjacent to Highway 79, emergency vehicles will have the ability to park on the east side of Highway 79 adjacent to the project site in the event that the project driveway is inaccessible. The project site layout, including provisions for emergency vehicle access, would be reviewed for adequacy by the County Fire Department. Therefore, impacts would be **less than significant** and mitigation is not required.

3.18 TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	☒	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less than Significant with Mitigation Incorporated

Discussion of Effect: CEQA defines a "historical resource" as a resource that meets one or more of the following criteria: (1) is listed in, or determined eligible for listing in, the California Register of Historical Resources (California Register); (2) is listed in a local register of historical resources as defined in PRC §5020.1(k); (3) is identified as significant in a historical resource survey meeting the requirements of PRC §5024.1(g); or (4) is determined to be a historical resource by a Project's Lead Agency (PRC §21084.1 and *State CEQA Guidelines* §15064.5[a]). "Local register of historical resources" means a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.

Chapter 532, Statutes of 2014 (i.e., AB 52), requires Lead Agencies evaluate a project's potential to impact "tribal cultural resources." Such resources include "[s]ites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical

resources." AB 52 also gives Lead Agencies the discretion to determine, supported by substantial evidence, whether a resource qualifies as a "tribal cultural resource." Also per AB 52 (specifically PRC 21080.3.1), Native American consultation is required upon request by a California Native American tribe that has previously requested that the County provide it with notice of such projects.

Pursuant to AB 52, the County notified the following tribes of the project on May 30, 2019:

- Pala Band of Mission Indians (Pala);
- Pechanga Band of Luiseño Indians (Pechanga);
- Ramona Band of Cahuilla Indians (Ramona);
- Rincon Band of Luiseño Indians (Rincon); and
- Soboba Band of Luiseño Indians (Soboba).

Pala provided a response declining consultation; no responses were received from Ramona or Rincon, and Pechanga and Soboba provided responses requesting consultation. Government-to-government consultation pursuant to AB 52 was initiated on July 17, 2019 and September 17, 2019, respectively. County staff met to discuss project components, impacts, and mitigation requirements. During consultation meetings, it was requested that the consulting Tribes provide County staff with any issues or concerns regarding potential tribal cultural resources that may be present on the project site and vicinity.

In accordance with PRC 21080.3.2, the consulting parties may propose mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource. Both Pechanga and Soboba indicated that the area was culturally sensitive, and the following Mitigation Measures to protect against impacting tribal cultural resources were identified:

MM TCR-1 **Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified archaeologist to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources.**

The Project Archaeologist and the Tribal monitor(s) shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Project Archaeologist and the Tribal monitor(s), shall have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors.

The developer/permit holder shall submit a fully executed copy of the contract to Riverside County Economic Development Agency (EDA) to ensure compliance with this condition of approval. Upon verification, County EDA shall clear this condition.

In addition, the Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and County EDA, shall develop a Cultural Resources Management Plan

(CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with County EDA as provided for in California Public Resources Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. **Project grading and development scheduling;**

b. **The Project archeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with County EDA, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;**

c. **The protocols and stipulations that the contractor, County EDA, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.**

This measure shall be implemented to the Satisfaction of the County.

MM TCR-2 **Tribal monitor(s) shall be required on-site during all ground-disturbing activities. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist. This measure shall be implemented to the Satisfaction of the County.**

MM TCR-3 **Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required or the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. Riverside County Economic Development Agency (EDA) shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, County EDA shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s). This measure shall be implemented to the Satisfaction of the County.**

MM TCR-4 **If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within 24 hours. Subsequently, the Native American Heritage Commission shall identify the "most likely descendant." The most likely descendant shall then make recommendations and engage in consultation concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. This measure shall be implemented to the Satisfaction of the County.**

MM TCR-5 **It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code 6254 (r). This measure shall be implemented to the Satisfaction of the County.**

MM TCR-6 **If during ground disturbance activities, unique cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. Unique cultural resources are defined, for this condition only, as being multiple artifacts in close association with each other, but may include fewer artifacts if the area of the find is determined to be of significance due to its sacred or cultural importance as determined in consultation with the Native American Tribe(s).**

i. **All ground disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the contractor, the archaeologist, the tribal representative(s) and County Economic Development Agency (EDA) to discuss the significance of the find.**

ii. **At the meeting, the significance of the discoveries shall be discussed and after consultation with the tribal representative(s) and the archaeologist, a decision shall be made, with the concurrence of County EDA, as to the appropriate mitigation (documentation, recovery, avoidance, etc.) for the cultural resources.**

iii. **Grading of further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional Tribal monitors if needed.**

iv. **Treatment and avoidance of the newly discovered resources shall be consistent with the Cultural Resources Management Plan and Monitoring Agreements entered into with the appropriate tribes. This may include avoidance of the cultural resources through project design, in-place preservation of cultural resources located in native soils and/or reburial on the Project property so they**

are not subject to further disturbance in perpetuity as identified in Non-Disclosure of Reburial Condition.

v. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan shall be prepared by the project archaeologist, in consultation with the Tribe, and shall be submitted to the Developer for their review and approval prior to implementation of the said plan.

vi. Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation for archaeological resources and cultural resources. If the developer and the Tribe(s) cannot agree on the significance or the mitigation for the archaeological or cultural resources, these issues will be presented to County EDA for decision. EDA shall make the determination based on the provisions of the California Environmental Quality Act with respect to archaeological resources, recommendations of the project archeologist and shall take into account the cultural and religious principles and practices of the Tribe. Notwithstanding any other rights available under the law, the decision of County EDA shall be appealable to the County Board of Supervisors.

This measure shall be implemented to the Satisfaction of the County.

MM TCR-7 **In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:**

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to County Economic Development Agency (EDA):

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources.

ii. Reburial of the resources on the Project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed, with an exception that sacred items, burial goods and Native American human remains are excluded. Any reburial process shall be culturally appropriate. Listing of contents and location of the reburial shall be included in the confidential Phase IV report. The Phase IV Report shall be filed with the County EDA under a confidential cover and not subject to Public Records Request.

iii. If preservation in place or reburial is not feasible then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets Federal Standards per 36 Code of Federal Regulations 800 Part 79 for the Curation of Archaeological Resources ensuring access and use pursuant to the Guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have

been received and that all fees have been paid, shall be provided by the Developer to the County EDA. There shall be no destructive or invasive testing on sacred items, burial goods and Native American human remains. Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report.

This measure shall be implemented to the Satisfaction of the County.

With implementation of **Mitigation Measures TCR-1** through **TCR-7** in accordance with PRC 21080.3.1 and PRC 21080.3.2, impacts to tribal cultural resources would be reduced to **less than significant with mitigation incorporated**.

3.19 UTILITIES AND SERVICE SYSTEMS

Would the project:

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a.	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?	☐	☐	☒	☐
b.	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c.	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d.	Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e.	Comply with federal, State, and local management reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?

Less than Significant Impact

Discussion of Effects: The proposed library facility will connect to existing utilities, including water, drainage, and electric power located beneath Highway 79 and Skyview Road. The approval of drainage features/improvements occurs through the building plan check process. As part of this process, all project-related drainage features would be required to meet County and SDRWQCB standards. On-site project-related drainage features would be designed, installed, and maintained per County standards and the requirements identified in the Final WQMP (per **Standard Condition HYD-3**).

All proposed improvements and interconnection to drainage, electric power, water, and wastewater facilities would be installed simultaneously with finish grading activities and required roadway frontage improvements for the project site. The Riverside County Flood Control and Water Conservation District concrete ramps and riprap embankments will be completely avoided. As a result, interconnection to the existing utilities surrounding the site would not result in substantial disturbance of native habitat or soils, or existing roadways or utilities. There would be no significant environmental effects specifically related to the installation of utility interconnections that are not encompassed within the project's construction and operational footprint, and therefore already identified, disclosed, and subject to all applicable mitigation measures, as well as local, State, and federal regulations, as part of this Initial Study. Therefore, impacts related to relocation of utilities would be **less than significant**. No additional mitigation is required.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less than Significant Impact

Discussion of Effects: The project site is located within the Temecula Valley Groundwater Basin, which underlies the Temecula and Pauba Valleys in western Riverside County. Water for the project will be provided by the EMWD. The EMWD considers current groundwater production to be utilized completely by existing customers, as the majority of EMWD's current and projected water supplies are imported through the MWD.[105] New developments, including the proposed project, will be supplied with imported water from one of the following sources: (1) treated imported water from MWD; (2) untreated imported water from MWD, which is subsequently treated by EMWD; or (3) untreated imported water treated by EMWD and recharged into the San Jacinto River Groundwater Basin for later withdrawal.

As detailed in response to Checklist Question 3.14a, the Riverside County Economic Development Agency expects the proposed project to employ approximately 22 staff, and the proposed project is estimated to generate 1,801 vehicle trips per day (refer to Appendix H). Dividing the daily trips in half would account for one trip to the library and the second trip from the library, so 901 vehicles would visit the site per day. Assuming two persons per vehicle, the library could experience 1,801 patrons per day. EMWD's 2015 average daily per capita water demand for institutional uses is 17.6 gallons per day.[106]

[105] *2015 Urban Water Management Plan.* Page 7-1. Eastern Municipal Water District. June 2016.
[106] *Ibid.* Table 5-7 and Page 5-6.

Therefore, the 22 employees and 1,801 library visitors per day would demand approximately 32,084.8 gallons of water per day.[107]

MWD's 2015 UWMP provides information about MWD's regional supply reliability and projected demands based on official regional demographic and economic projects from SCAG's 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and the San Diego Association of Governments (SANDAG) Series 13: 2050 Regional Growth Forecast from October 2013.[108] SCAG's and SANDAG's projections undergo extensive local review, incorporate zoning information from City and County General Plans, and are supported by Environmental Impact Reports. Because the proposed project is consistent with the County General Plan, its implementation would have been anticipated by SCAG and SANDAG and therefore included in MWD's projections of regional supply reliability. Based on information provided by EMWD and other member agencies, MWD concludes that it is able to meet projected demands for all member agencies through 2040, even during dry periods.[109] Under extreme conditions, water supplies could be allocated using MWD's WSAP to preserve supplies in storage by requiring a reduction in demand by member agencies, including the EMWD, pursuant to SB 1168 and 1319, and AB 1739. Since the EMWD and MWD have the ability to meet all of their existing entitlements and projected supplemental demand through 2040, even under a repeat of historic multiple-year drought scenarios, sufficient water supplies are available to serve the proposed project. Impacts would be **less than significant** and mitigation is not required.

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact

Discussion of Effects: Wastewater from the project site will be collected at the Temecula Valley Regional Water Reclamation Facility (RWRF) for treatment. The Temecula Valley RWRF has a daily treatment capacity of 18 million gallons (mgd) and typically treats approximately 14 mgd.[110] According to the project-specific WQMP, the project is anticipated to generate approximately 30 daily toilet users on site.[111] The typical toilet for a LEED certified building demands up to 1.28 gallons per flush.[112] Therefore, operation of the proposed library is expected to demand up to 38.4 gallons of wastewater per day.[113] Since the Temecula Valley RWRF treats approximately 14 mgd of wastewater and maintains approximately 4 mgd of surplus capacity, the proposed project would not exceed the capacity of the Temecula Valley RWRF to serve the project's projected demand in addition to the provider's existing commitments. Therefore, the proposed project would have a **less than significant** impact on capacity of wastewater treatment. Mitigation is not required.

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107 (22 employees + 1,801 patrons) × 17.6 gallons per capita per day = 32,084.8 gallons per day.

108 *2015 Urban Water Management Plan.* Page ES-2. The Metropolitan Water District of Southern California. June 2016.

109 *Ibid.* Tables 2-4, 2-5, and 2-6.

110 *Temecula Valley Regional Water Reclamation Facility.* Fact Sheet. Eastern Municipal Water District. October 2016.

111 *Project Specific Water Quality Management Plan.* Armstrong & Brooks. Page 14. October 3, 2019. Appendix F.

112 *High-Efficiency Toilets (HET) Contribute to LEED Certification.* Facilitiesnet. October 2009. https://www.facilitiesnet.com/plumbingrestrooms/article/High-Efficiency-Toilets-HET-Contribute-to-LEED-Certification--11222 (accessed January 16, 2020).

113 30 toilet flushes per day × 1.28 gallons per flush = 38.4 gallons of wastewater per day.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant Impact

Discussion of Effects: Solid waste collection is a "demand-responsive" service, and current service levels can be expanded and funded through user fees. The majority of solid waste from French Valley is disposed at the El Sobrante Landfill in unincorporated Riverside County south of the City of Corona, and Badlands Sanitary Landfill near the City of Moreno Valley. According to CalRecycle, the El Sobrante Landfill maintains a permitted throughput of 16,054 tons per day of solid waste and a remaining capacity of 144 million cubic yards,[114] while Badlands Sanitary Landfill maintains a permitted throughput of 4,800 tons per day of solid waste and a remaining capacity of 15.7 million cubic yards.[115] Disposal of solid waste to be generated by the proposed project will be the responsibility of the County and therefore could be directed to either El Sobrante or Badlands Landfills, or several other available disposal sites within the County.

According to CalRecycle, solid waste generation from public/institutional uses can be approximately 0.007 pounds per square foot per day (lb/sq ft/day).[116] Therefore, the proposed 25,000 square-foot library facility would generate approximately 175 pounds of solid waste per day,[117] which is approximately 0.000000072 percent of the El Sobrante remaining capacity and 0.00000066 percent of the Badlands Sanitary Landfill remaining capacity.[118] Therefore, the project is not expected to generate solid waste in excess of the remaining capacity of landfills serving the project site.

Therefore, impacts associated with solid waste disposal capacity and/or regulations would be **less than significant.** Mitigation is not required.

e. Comply with federal, State, and local management reduction statutes and regulations related to solid waste?

No Impact

Please refer to response to Checklist Question 3.19d. **No impact** regarding conflict with federal, State, and local management reduction statutes and regulations related to solid waste would occur. Mitigation is not required**.**

3.20 WILDFIRE

If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

[114] *Solid Waste information System (SWIS).* CalRecycle. El Sobrante Landfill (33-AA-0217) https://www2.calrecycle.ca.gov/swfacilities/Directory/33-AA-0217/ (accessed October 14, 2019).

[115] *Ibid.* Badlands Sanitary Landfill (33-AA-0006) https://www2.calrecycle.ca.gov/swfacilities/Directory/33-AA-0006/ (accessed October 14, 2019).

[116] *Estimated Solid Waste Generation Rates*. CalRecycle, https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates#Industrial (accessed October 14, 2019).

[117] 25,000 square feet × 0.007 pounds per square foot per day = 175 pounds of solid waste per day.

[118] 242,719,200,000 pounds of remaining capacity at El Sobrante ÷ 175 pounds per day = 0.000000072 percent. 26,463,135,000 pounds of remaining capacity at Badlands ÷ 175 pounds per day = 0.00000066 percent.

a.	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b.	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c.	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d.	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact

Discussion of Effects: The project site is not located within or adjacent to a Very High Fire Hazard Severity Zone (VHFHSZ), as designated by the California Department of Forestry and Fire Protection (CAL FIRE).[119] The nearest VHFHSZ is located approximately 4,400 feet to the east and is separated from the project site by several tracts of residential structures. Design and construction of the project in accordance with the CBC and California Fire Code, which include design features such as ignition-resistant materials and incorporation of fire sprinklers, would minimize risk of exposure of persons or property to wildland fires.

Construction activities that could temporarily restrict vehicular traffic would incorporate appropriate measures to facilitate the passage of persons and vehicles through/around any temporary road closures in accordance with the California Fire Code. During construction, standard traffic control devices such as warning signs, warning lights, and flaggers will be utilized as applicable to minimize obstructions and ensure the safe passage of emergency vehicles as necessary for the purposes of coordinating efforts during local, State, and/or federal emergency events, including response to hazardous materials incidents. Implementation of these traffic control measures will include guidance and navigational tools throughout the project area in order to maintain traffic flow and safety during construction.

The project is proposed with a two-lane access driveway off of Skyview Road that would provide entry and exit points for emergency access. The project site will include a C10 fire alarm without gates to ensure immediate fire department access to the project site in the event of an emergency. Fire department emergency vehicle apparatus access road locations and design shall be in accordance with

[119] *Fire Hazard Severity Zones in Local Responsibility Area (LRA), Western Riverside County.* California Department of Forestry and Fire Protection (CAL FIRE). Adopted December 24, 2009.

the California Fire Code, Riverside County Ordinance No. 787, and Riverside County Fire Department Standards to ensure proper roadway turning radii, fire lane widths, etc. Since the proposed development is located adjacent to Highway 79, emergency vehicles will have the ability to park on the east side of Highway 79 adjacent to the project site in the event that the project driveway is inaccessible. The project site layout, including provisions for emergency vehicle access, would be reviewed for adequacy by the County Fire Department. Therefore, impacts would be **less than significant**, and mitigation is not required.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less than Significant Impact

Discussion of Effects: The project site is relatively flat and is surrounded by developed land uses, roadways, and French Valley Creek. On-site vegetation is routinely disked to reduce wildfire risks. Development of the site in accordance with the CBC and California Fire Code, which include design features such as ignition-resistant materials and incorporation of fire sprinklers, as well as hardscaping and irrigated landscaping, would reduce the risk of wildfire compared to the existing condition by removing sources of ignition currently on the site. Therefore, the project would not exacerbate wildfire risks that could otherwise expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be **less than significant,** and mitigation is not required.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may result in temporary or ongoing impacts to the environment?

Less than Significant Impact

Discussion of Effects: The project is proposed with a two-lane access driveway off of Skyview Road that would provide entry and exit points for emergency access. Entrances and exits to and from the site will be clearly marked with appropriate directional signage. The driveway approach will facilitate additional access to the site for emergency fire apparatuses. Furthermore, the landscape will be designed to maintain storm water permeability on the site while reducing the potential for soil erosion and siltation. The project does require the minor extension of utilities for interconnection on-site, but this is not expected to result in temporary or ongoing impacts to the environment beyond those identified, disclosed, and mitigated as necessary throughout this Initial Study. Further, design and construction of the project in accordance with the current CBC, which includes design features such as ignition-resistant materials and incorporation of fire sprinklers that would minimize any risk of exposure of persons or property to wildfires, would ensure impacts remain **less than significant**. Mitigation is not required.

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less than Significant Impact

Discussion of Effects: The project site is not located within or adjacent to a VHFHSZ, as designated by CAL FIRE,[120] and land immediately upstream of the project site is generally developed. Therefore, the risk of flooding or landslides from wildfires is minimal. Furthermore, improvements to the embankment

[120] *Ibid.*

of French Valley Creek initiated by the Riverside County Flood Control and Water Conservation District in support of build-out of the Quinta Do Lago Specific Plan and construction of a roadway bridge over French Valley Creek along Skyview Road have controlled the direction and concentration of flood flows from French Valley Creek. These improvements (refer to Figures 4 and 5) establish predictability of floodwaters to prevent widespread flood and debris damage in the project vicinity.

The Riverside County Flood Control and Water Conservation District concrete ramps and riprap embankments along French Valley Creek will be avoided during site development, and the overall project site drainage pattern shall be perpetuated. The project has been conditioned by the County to delineate the flood zone limits on the grading plans and to demonstrate on the plans that any building finished floor elevation shall be a 1-foot minimum above the 100-year base flood elevation. As detailed in Figure 4, the building pad for the proposed library facility shall be constructed up to 10 feet above the 100-year flood plain in accordance with County Ordinance No. 458 regulating flood hazards. Buildings and structures shall be placed away from the property lines to maintain the French Valley Creek drainage pattern and allow for off-site flows along the northern portion of the site to be accepted on site and conveyed to French Valley Creek without deflecting onto adjacent properties. Finally, the project design shall be submitted to the Riverside County Flood Control and Water Conservation District for review in accordance with Southwest Area Plan Policy 24.4. Any additional project-specific conditions imposed by the Riverside County Flood Control and Water Conservation District must be implemented as applicable during design and construction of the project pursuant to County Ordinance No. 458. Through compliance with applicable regulations and policies, the risk of downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes is **less than significant**. Mitigation is not required.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

Does the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

b.	Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c.	Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant with Mitigation Incorporated

Discussion of Effects: Although potential hydrology and water quality impacts could result from the proposed project, implementation of NPDES permits ensures the State's mandatory standards for the maintenance of clean water and the federal minimums are met. No mitigation is required; however, compliance with the provisions of the NPDES permit and implementation of the LID BMPs specified in the WQMP are regulatory requirements that apply to all development projects. These requirements are detailed as **Standard Conditions HYD-1** through **HYD-3** to be included in the conditions of approval for this project. The WQMP will be approved as a routine action during the processing of the project by the County; therefore, the required measures and features detailed in the WQMP to safeguard water quality would be incorporated into the proposed project. Adherence to **Standard Conditions HYD-1** through **HYD-3** and the requirements included in the NPDES permit, SWPPP, and WQMP would reduce potential water quality impacts to **less than significant.**

Portions of the site are suitable for burrowing owl occupation, so there is potential for burrowing owl to occupy the site prior to construction. Therefore, **Mitigation Measure (MM) BIO-1** is required to ensure a pre-construction burrowing owl survey will be conducted prior to disturbance of the site. Implementation of **MM BIO-1** would reduce impacts to burrowing owls to **less than significant** levels. On-site vegetation, perimeter street trees along Skyview Road, and vegetation within the French Valley Creek adjacent to the east could provide potential nesting sites for common native bird species protected under the Migratory Bird Treaty Act (MBTA) or the California Fish and Game Code (Sections 3503, 3503.5, and 3515). Construction activity could result in a significant impact to species protected by regulation, and **MM BIO-2** is required reduce such impacts to **less than significant** levels.

The project site's proximity to previously-recorded cultural resources, as indicated through the records search, indicates there is some potential for the site to contain subsurface cultural resources, and mitigation is required. Therefore, **MM TCR-1, TCR-3, TCR-4,** and **TCR-5** are required to ensure impacts to any unanticipated cultural resources, including human remains, would be reduced to **less than significant levels with mitigation incorporated.** Additionally ground-disturbing activities at the project site have the potential to disturb previously unknown paleontological resources if excavation depths

reach native, undisturbed sediments. Therefore, **MM-GEO-1** and **MM GEO-2** shall be implemented during ground disturbing activities to ensure impacts to paleontological resources are reduced to **less than significant** levels.

In accordance with PRC 21080.3.2, the consulting Native American parties may propose mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource. Both Pechanga and Soboba indicated that the area was culturally sensitive, and **MM TCR-1** through **MM TCR-7** are prescribed to protect against impacting tribal cultural resources.

The proposed project has either no impact, a less than significant impact, or a less than significant impact with mitigation incorporated with respect to all environmental issues pursuant to CEQA. Due to the limited scope of physical impacts to the environment associated with the proposed project, implementation of the mitigation measures described above would reduce impacts to the quality of the environment to less than significant levels. No additional mitigation is required.

b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less than Significant Impact

Discussion of Effects: In evaluating the cumulative effects of the project, Section 21100(e) of CEQA states that "previously approved land use documents including, but not limited to, general plans, specific plans, and local coastal plans, may be used in cumulative impact analysis." No changes are proposed to the County General Plan land use designation or zoning, as the project will include the development of a 25,000 square-foot public library. Therefore, the project would not generate any increase in population that otherwise would not have been planned for in the County.

As discussed in response to Checklist Question 3.3.b, no exceedance of SCAQMD criteria pollutant emission thresholds is anticipated for the proposed project. Therefore, the proposed project would not contribute significantly to cumulative impacts on any air quality pollutants for which the region is in nonattainment. As for cumulative impacts to regional air quality, the discussion in response to Checklist Question 3.3.a indicates the proposed project would neither conflict with the SCAQMD's AQMP nor jeopardize the region's attainment of air quality standards. The project is consistent with the City's General Plan, as well as the population growth projections used by SCAG to identify future regional air pollutant concentrations necessary to meet the attainment standards identified in the AQMP. The SCAQMD uses the project-level significance thresholds to determine whether a project's emissions are cumulatively considerable. Because the project's emissions do not exceed the SCAQMD's regional significance thresholds, as detailed in Table 3.3.B, the SCAQMD does not consider the project to contribute significantly to a cumulative air quality impact.

All study area intersections are forecast to operate within acceptable LOS (D or better) during the peak hours for Existing Plus Project, Existing Plus Ambient Plus Project, and Existing Plus Ambient Plus Project Plus Cumulative conditions, except for Winchester Rd at Max Gilliss Blvd/Thompson Rd, which is forecast to continue operating at LOS E or F during all "Plus Project" scenarios (Table 3.17.A). Therefore **Mitigation Measure TRA-1** is required to reduce impacts at the study intersections for Existing Plus

Project conditions during the AM and PM peak hours to **less than significant with mitigation incorporated**. Additional roadway improvements have been identified to address LOS deficiencies expected to occur during the Existing Plus Ambient Plus Project, and Existing Plus Ambient Plus Project Plus Cumulative condition (refer to response to Checklist Question 3.17a). Since the additional roadway improvements are required with the addition of background ambient growth to existing conditions, *but not with the addition of project-generated trips alone*, the improvements are considered to mitigate a cumulative impact. Cumulative impacts may be mitigated via development impact fees assessed to private development projects by the County of Riverside RBBD and the Western Riverside Council of Governments TUMF programs. However, the proposed development is exempt from development impact fees since it is a public project. Furthermore, since these LOS deficiencies are cumulative in nature, mitigation for these deficiencies will be implemented as required as ambient growth in the project study area occurs. As detailed in Table 3.17.A, implementation of the additional roadway improvements through payment of development impact fees would reduce the cumulative LOS deficiencies to less than significant levels. Accordingly, implementation of **MM TRA-1** would reduce impacts to LOS to **less than significant** levels. No additional mitigation measures are necessary.

Finally, as detailed throughout Section 3.19, Utilities and Service Systems, sufficient utility facilities and resources are available to serve the project in addition to existing entitlements. The project has no impact, a less than significant impact, or a less than significant impact with implementation of mitigation with respect to all environmental issues. Therefore, a **less than significant** cumulative impact would occur with development of the project, and no additional mitigation is required.

c. Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact

Discussion of Effects: All construction and development within the project site would be required to comply with applicable provisions of the 2016 CBC and the County's building regulations. Accordingly, proper engineering design and construction in conformance with the 2016 CBC standards and project-specific geotechnical recommendations (**Standard Condition GEO-1**) would ensure that the project does not subject people to significant geologic hazards.

One upright wood utility pole with an unknown purpose and several small soil stockpiles of unknown origin were noted on site. It is assumed the wood material consists of wood typical of utility poles treated with hazardous chemicals that protect the wood from insect attack and fungal decay during its use. Treated wood waste is considered a hazardous waste pursuant to California Health and Safety Code §25150.7 and §25150.8, as amended by AB 1353 and shall be managed by the DTSC Alternative Management Standards, which permit disposal at specific non-hazardous waste landfills as a matter of regulatory policy. Since the source of the stockpiled soil is unknown, there is potential this material may be contaminated, so **MM HAZ-1** is required to ensure impacts from reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would be reduced to **less than significant with mitigation incorporated**.

As detailed in the discussion in Section 3.13, Noise, the project would not result in exposure of persons to or generation of noise levels in excess of standards established in the County General Plan or noise ordinance, nor would the project generate a substantial temporary or permanent increase in ambient noise levels above levels existing without the project. Although construction vibration levels may result in community annoyance because FTA's community annoyance threshold of 78 VdB would be exceeded,

this community annoyance threshold is not used to identify an impact because of the subjective nature of human annoyance and the temporary nature of construction. Additionally, the intermittent vibration levels would not result in building damage because the levels would not exceed FTA's damage threshold of 94 VdB (0.2 PPV in in/sec). Therefore, the project would not have a substantial direct or indirect effect on human beings.

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4.0 REFERENCES

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5.0 MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program has been prepared for use in implementing mitigation for the:

French Valley Library Project

The program has been prepared in compliance with State law and the Initial Study (IS) prepared for the project by the County of Riverside.

The California Environmental Quality Act (CEQA) requires adoption of a reporting or monitoring program for those measures placed on a project to mitigate or avoid adverse effects on the environment (Public Resource Code Section 21081.6). The law states that the reporting or monitoring program would be designed to ensure compliance during project implementation.

The monitoring program contains the following elements:

1) The mitigation measures are recorded with the action and procedure necessary to ensure compliance. In some instances, one action may be used to verify implementation of several mitigation measures.

2) A procedure for compliance and verification has been outlined for each action necessary. This procedure designates who would take action, what action would be taken and when, and to whom and when compliance would be reported.

3) The program has been designed to be flexible. As monitoring progresses, changes to compliance procedures may be necessary based upon recommendations by those responsible for the program. As changes are made, new monitoring compliance procedures and records would be developed and incorporated into the program.

This Mitigation Monitoring and Reporting Program includes mitigation identified in the Initial Study.

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FRENCH VALLEY LIBRARY PROJECT

Initial Study / Mitigated Negative Declaration: Mitigation Monitoring Reporting Program

Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
Biological Resources Mitigation Measures							
BIO-1	A qualified biologist shall conduct a pre-construction burrowing owl/Initial Take and Avoidance Survey within 30 days prior to the beginning of project construction to determine if the project site contains suitable burrowing owl habitat and to avoid any potential impacts to the species. The survey shall be performed pursuant to the Riverside County Multiple Species Habitat Conservation Plan (MSHCP) 30-day Pre-Construction Burrowing Owl Survey Guidelines (revised August 17, 2006) and include 100 percent coverage of the project site. If the survey reveals no suitable habitat for burrowing owl is present, no further work in this regard is required. If active burrowing owl burrows are determined to be present, the burrow(s) shall be flagged, and a 160-foot buffer shall be established around the burrow(s) during the non-breeding season (September 1 to January 30) and a 250-foot buffer shall be created during the breeding season (February 1 to August 31). As determined by Riverside County (County), the buffer limits may vary depending on burrow location and burrowing owl sensitivity to human activity. The buffer(s) shall be sufficient to ensure that nesting behavior is not adversely affected by the construction activity. A monitoring report shall be prepared and submitted to the County for review and approval prior to reinitiating construction activities within the buffer area(s), and construction within the designated buffer area(s) shall not proceed until written authorization is received from California Department of Fish and Wildlife (CDFW). The monitoring report shall summarize the results of the owl monitoring, describe construction restrictions currently in place, and confirm that construction activities can	Prior to site grubbing or grading	Issuance of grading permit	Riverside County EDA			

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Initial Study / Mitigated Negative Declaration: Mitigation Monitoring Reporting Program

Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	proceed within the buffer area(s) without jeopardizing the survival of the owl(s). Any relocation efforts must be coordinated with the CDFW. This measure shall be implemented to the satisfaction of Riverside County and, as applicable, the CDFW.						
BIO-2	A qualified biologist shall conduct a pre-construction nesting bird survey within three days prior to vegetation- or ground-disturbing activities if such activities are proposed during the nesting season (February 1 through September 15). The survey shall include 100 percent coverage of the project site. If no active avian nests are found during survey, no further work in this regard is required. If an active avian nest is discovered during survey, vegetation- and/or ground-disturbing activities shall be redirected around the nest(s). As determined by Riverside County, the qualified biologist shall delineate the boundaries of any such buffer area. The buffer shall be sufficient to ensure that nesting behavior is not adversely affected by the vegetation- and/or ground-disturbing activity. If such activities are delayed or suspended for more than seven days after the survey, the site shall be resurveyed. Should eggs or fledglings be discovered in any native nest, these resources cannot be disturbed until the young have hatched and fledged (matured to a stage that they can leave the nest on their own). Once the qualified biologist has determined that young birds have successfully fledged or the nest has otherwise become inactive, a monitoring report shall be prepared and submitted to Riverside County for review and approval prior to reinitiating vegetation- and/or ground-disturbing activities within the buffer area. The monitoring report shall summarize the results of the nest monitoring, describe construction restrictions currently in place, and confirm that construction activities can	Prior to site grading	Issuance of grading permit	Riverside County EDA			

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Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	proceed within the buffer area without jeopardizing the survival of the young birds. This measure shall be implemented to the satisfaction of Riverside County.						
Cultural Resources Mitigation Measures							
TCR-1	Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified archaeologist to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources. The Project Archaeologist and the Tribal monitor(s) shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals, mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Project Archaeologist and the Tribal monitor(s), shall have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors. The developer/permit holder shall submit a fully executed copy of the contract to Riverside County Economic Development Agency (EDA) to ensure compliance with this condition of approval. Upon verification, County EDA shall clear this condition. In addition, the Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and County EDA, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe	Prior to grading and during grading	Issuance of grading permit or halt grading activity in vicinity of find	Riverside County EDA			

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Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with County EDA as provided for in California Public Resources Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: a. Project grading and development scheduling; b. The Project archeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with County EDA, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; c. The protocols and stipulations that the contractor, County EDA, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be						

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Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	subject to a cultural resources evaluation. This measure shall be implemented to the Satisfaction of the County.						
TCR-3	Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required or the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. Riverside County Economic Development Agency (EDA) shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, County EDA shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s). This measure shall be implemented to the Satisfaction of the County.	Prior to final inspection	Submit applicable reports	Riverside County EDA			
TCR-4	If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within 24 hours. Subsequently, the Native American Heritage Commission shall identify the "most likely descendant." The most likely descendant shall then make recommendations and engage in consultation	During grading	Halt grading activity in vicinity of find	Riverside County EDA			

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Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. This measure shall be implemented to the satisfaction of the County.						
TCR-5	It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code 6254 (r). This measure shall be implemented to the Satisfaction of the County.	During grading	Halt grading activity in vicinity of find	Riverside County EDA			
Geology and Soils Mitigation Measures							
GEO-1	Prior to the issuance of grading permits, Riverside County shall verify that the following mitigation is included in all grading plans: If any suspected paleontological resources (fossils) are discovered during ground-disturbing activities, the construction supervisor shall halt work within a 60-foot radius around the find and establish an exclusionary buffer. Construction personnel shall not collect or move any suspected paleontological materials or further disturb any soils within the exclusionary buffer, but construction activity may continue unimpeded on other portions of the project site. Construction activity shall not resume within the exclusionary buffer until a qualified paleontologist can assess the significance of the find. If the paleontologist determines the find is not a paleontological resource, no further evaluation shall be required within the exclusionary buffer, and construction activity shall be allowed to resume therein. However, if	Prior to grading and during grading	Issuance of grading permit	Riverside County EDA			

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Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	the paleontologist determines the find is a paleontological resource, construction activity shall not resume within the exclusionary buffer in order to assess its significance pursuant to the California Environmental Quality Act. Collected resources shall be prepared to the point of curation, identified to the lowest taxonomic level possible, catalogued, and curated into the permanent collections of an accredited scientific institution. All subsequent ground-disturbing activities shall be monitored at the discretion of the paleontologist. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program. In the event that paleontological resources are encountered when a paleontological monitor is not on site, work in the immediate area of the find shall be redirected, and the qualified paleontologist shall be contacted to assess the find for significance. If the find is determined to be significant, it shall be collected from the field, and the paleontologist shall make recommendations for monitoring, curation, and reporting. This measure shall be implemented to the satisfaction of Riverside County.						
Hazardous Materials Mitigation Measure							
HAZ-1	In the event any unidentified subsurface feature, oil, or chemical-stained soil is discovered prior to or during project grading, activity in the vicinity of the unidentified material shall be halted, and a qualified professional shall be retained to evaluate whether the feature or material warrants further assessment or remediation. The results of any testing shall be provided to the County. In the event the material is determined not to be hazardous, no	During grading	Halt ground disturbing activity in vicinity of occurrence	Riverside County DEH			

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Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	further action is required. In the event the material is deemed to be hazardous, removal/remediation shall be conducted pursuant to applicable statutory and regulatory requirements. A qualified professional retained by the project proponent must carry out this work and report directly to the Riverside County Department of Environmental Health Hazardous Materials Division, Environmental Protection and Oversight Division. Prior to the commencement of construction activities, the proponent shall submit evidence to the County for review and approval that any such hazardous material has been appropriately removed/remediated. This measure shall be implemented to the satisfaction of Riverside County.						
Transportation Mitigation Measure							
TRA-1	Prior to project occupancy, the project proponent shall restripe the eastbound approach at Winchester Road (Highway 79) at Max Gilliss Boulevard/Thompson Road to provide a second left turn lane. This measure shall be implemented to the satisfaction of the County.	Prior to project occupancy	Restripe the eastbound approach at Winchester Road (Highway 79) at Max Gilliss Boulevard/Thompson Road	Riverside County TLMA			
Tribal Cultural Resources Mitigation Measure							
TCR-1	Prior to issuance of a grading permit the project applicant shall retain a Riverside County qualified archaeologist to monitor all ground disturbing activities in an effort to identify any unknown archaeological resources. The Project Archaeologist and the Tribal monitor(s) shall manage and oversee monitoring for all initial ground disturbing activities and excavation of each portion of the project site including clearing, grubbing, tree removals,	Prior to grading and during grading	Issuance of grading permit or halt grading activity in vicinity of find	Riverside County EDA			

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Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	mass or rough grading, trenching, stockpiling of materials, rock crushing, structure demolition and etc. The Project Archaeologist and the Tribal monitor(s), shall have the authority to temporarily divert, redirect or halt the ground disturbance activities to allow identification, evaluation, and potential recovery of cultural resources in coordination with any required special interest or tribal monitors. The developer/permit holder shall submit a fully executed copy of the contract to Riverside County Economic Development Agency (EDA) to ensure compliance with this condition of approval. Upon verification, County EDA shall clear this condition. In addition, the Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and County EDA, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with County EDA as provided for in California Public Resources Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: a. Project grading and development scheduling; b. The Project archeologist and the Consulting Tribes(s) shall attend the pre-grading meeting with County EDA, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The						

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Initial Study / Mitigated Negative Declaration: Mitigation Monitoring Reporting Program

Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	Training will include a brief review of the cultural sensitivity of the project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; c. The protocols and stipulations that the contractor, County EDA, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation. This measure shall be implemented to the Satisfaction of the County.						
TCR-2	Tribal monitor(s) shall be required on-site during all ground-disturbing activities. The Tribal Monitor(s) shall have the authority to temporarily divert, redirect or halt the ground-disturbance activities to allow recovery of cultural resources, in coordination with the Project Archaeologist. This measure shall be implemented to the Satisfaction of the County.	During grading	Issuance of grading permit or halt grading activity in vicinity of find	Riverside County EDA			

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Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
TCR-3	Prior to final inspection, the developer/permit holder shall prompt the Project Archeologist to submit two (2) copies of the Phase III Data Recovery report (if required or the Project) and the Phase IV Cultural Resources Monitoring Report. The Phase IV report shall include evidence of the required cultural/historical sensitivity training for the construction staff held during the pre-grade meeting. Riverside County Economic Development Agency (EDA) shall review the reports to determine adequate mitigation compliance. Provided the reports are adequate, County EDA shall clear this condition. Once the report(s) are determined to be adequate, two (2) copies shall be submitted to the Eastern Information Center (EIC) at the University of California Riverside (UCR) and one (1) copy shall be submitted to the Consulting Tribe(s) Cultural Resources Department(s). This measure shall be implemented to the Satisfaction of the County.	Prior to final inspection	Submit applicable reports	Riverside County EDA			
TCR-4	If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to Public Resource Code Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission shall be contacted within 24 hours. Subsequently, the Native American Heritage Commission shall identify the "most likely descendant." The most likely descendant shall then make recommendations and engage in consultation concerning the treatment of the remains as provided in Public Resources Code Section 5097.98. This measure shall be implemented to the Satisfaction of the County.	During grading	Issuance of grading permit or halt grading activity in vicinity of find	Riverside County EDA			

FRENCH VALLEY LIBRARY PROJECT

Initial Study / Mitigated Negative Declaration: Mitigation Monitoring Reporting Program

Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
TCR-5	It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or associated grave goods shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, pursuant to the specific exemption set forth in California Government Code 6254 (r)., parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code 6254 (r). This measure shall be implemented to the Satisfaction of the County	During grading	Issuance of grading permit or halt grading activity in vicinity of find	Riverside County EDA			
TCR-6	If during ground disturbance activities, unique cultural resources are discovered that were not assessed by the archaeological report(s) and/or environmental assessment conducted prior to project approval, the following procedures shall be followed. Unique cultural resources are defined, for this condition only, as being multiple artifacts in close association with each other, but may include fewer artifacts if the area of the find is determined to be of significance due to its sacred or cultural importance as determined in consultation with the Native American Tribe(s). i. All ground disturbance activities within 100 feet of the discovered cultural resources shall be halted until a meeting is convened between the contractor, the archaeologist, the tribal representative(s) and County Economic Development Agency (EDA) to discuss the significance of the find. ii. At the meeting, the significance of the discoveries shall be discussed and after consultation with the tribal representative(s) and the archaeologist, a decision shall be made, with the concurrence of County EDA, as to the appropriate mitigation	During grading	Issuance of grading permit or halt grading activity in vicinity of find	Riverside County EDA			

FRENCH VALLEY LIBRARY PROJECT

Initial Study / Mitigated Negative Declaration: Mitigation Monitoring Reporting Program

Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	(documentation, recovery, avoidance, etc.) for the cultural resources. iii. Grading of further ground disturbance shall not resume within the area of the discovery until an agreement has been reached by all parties as to the appropriate mitigation. Work shall be allowed to continue outside of the buffer area and will be monitored by additional Tribal monitors if needed. iv. Treatment and avoidance of the newly discovered resources shall be consistent with the Cultural Resources Management Plan and Monitoring Agreements entered into with the appropriate tribes. This may include avoidance of the cultural resources through project design, in-place preservation of cultural resources located in native soils and/or reburial on the Project property so they are not subject to further disturbance in perpetuity as identified in Non-Disclosure of Reburial Condition. v. If the find is determined to be significant and avoidance of the site has not been achieved, a Phase III data recovery plan shall be prepared by the project archaeologist, in consultation with the Tribe, and shall be submitted to the Developer for their review and approval prior to implementation of the said plan. vi. Pursuant to Calif. Pub. Res. Code § 21083.2(b) avoidance is the preferred method of preservation for archaeological resources and cultural resources. If the developer and the Tribe(s) cannot agree on the significance or the mitigation for the archaeological or cultural resources, these issues will be presented to County EDA for decision. EDA shall make the determination based on the provisions of the						

FRENCH VALLEY LIBRARY PROJECT
Initial Study / Mitigated Negative Declaration: Mitigation Monitoring Reporting Program

Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	California Environmental Quality Act with respect to archaeological resources, recommendations of the project archeologist and shall take into account the cultural and religious principles and practices of the Tribe. Notwithstanding any other rights available under the law, the decision of County EDA shall be appealable to the County Board of Supervisors." This measure shall be implemented to the Satisfaction of the County.						
TCR-7	In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to County Economic Development Agency (EDA): i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resources. ii. Reburial of the resources on the Project property. The measures for reburial shall include, at least, the following: Measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed, with an exception that sacred items, burial goods and Native American human remains are excluded. Any reburial process shall be culturally appropriate. Listing of contents and location of the reburial shall be	During grading	Issuance of grading permit or halt grading activity in vicinity of find	Riverside County EDA			

FRENCH VALLEY LIBRARY PROJECT

Initial Study / Mitigated Negative Declaration: Mitigation Monitoring Reporting Program

Mitigation Measures		Monitoring Timing / Frequency	Action Indicating Compliance	Monitoring Agency	Verification of Compliance		
					Initials	Date	Remarks
	included in the confidential Phase IV report. The Phase IV Report shall be filed with the County EDA under a confidential cover and not subject to Public Records Request. iii. If preservation in place or reburial is not feasible then the resources shall be curated in a culturally appropriate manner at a Riverside County curation facility that meets Federal Standards per 36 Code of Federal Regulations 800 Part 79 for the Curation of Archaeological Resources ensuring access and use pursuant to the Guidelines. The collection and associated records shall be transferred, including title, and are to be accompanied by payment of the fees necessary for permanent curation. Evidence of curation in the form of a letter from the curation facility stating that subject archaeological materials have been received and that all fees have been paid, shall be provided by the Developer to the County EDA. There shall be no destructive or invasive testing on sacred items, burial goods and Native American human remains. Results concerning finds of any inadvertent discoveries shall be included in the Phase IV monitoring report. This measure shall be implemented to the Satisfaction of the County.						

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APPENDIX A

CALIFORNIA EMISSIONS ESTIMATOR MODEL (CALEEMOD)

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French Valley Library

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Library	25.00	1000sqft	1.88	25,000.00	0
Parking Lot	85.00	Space	0.76	34,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	528.75	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor is based on SCE 2020 forecast in City's General Plan, 33% RPS, Cap and Trade, and reduction in SF6.

Land Use - Project site is 2.64 acres

Construction Phase - Anticipated construction schedule of 333-days duration between 3/17/2020 to 2/12/2021.

Vehicle Trips - Project Trip Generation was obtained from Traffic Impact Analysis (Ganddini Group Oct. 2019).

Energy Use -

Construction Off-road Equipment Mitigation - Fugitive dust control with on-site watering at least three times daily.

Water Mitigation - Project would utilize low-flow water features and efficienct irrigation system.

Waste Mitigation - Implement 75% recycling services.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	210.00
tblConstructionPhase	PhaseEndDate	2/26/2021	2/12/2021
tblConstructionPhase	PhaseEndDate	1/29/2021	1/15/2021
tblConstructionPhase	PhaseEndDate	2/12/2021	1/29/2021
tblConstructionPhase	PhaseStartDate	2/13/2021	2/1/2021
tblConstructionPhase	PhaseStartDate	1/30/2021	1/18/2021
tblLandUse	LotAcreage	0.57	1.88
tblProjectCharacteristics	CH4IntensityFactor	0.029	0
tblProjectCharacteristics	CO2IntensityFactor	702.44	528.75
tblProjectCharacteristics	N2OIntensityFactor	0.006	0
tblVehicleTrips	WD_TR	56.24	72.05

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2503	1.9402	1.6362	3.1000e-003	0.0561	0.0992	0.1554	0.0196	0.0950	0.1145	0.0000	262.9954	262.9954	0.0473	0.0000	264.1772
2021	0.1404	0.1548	0.1565	2.8000e-004	2.9600e-003	7.9000e-003	0.0109	7.9000e-004	7.4900e-003	8.2800e-003	0.0000	23.9026	23.9026	4.9400e-003	0.0000	24.0261
Maximum	**0.2503**	**1.9402**	**1.6362**	**3.1000e-003**	**0.0561**	**0.0992**	**0.1554**	**0.0196**	**0.0950**	**0.1145**	**0.0000**	**262.9954**	**262.9954**	**0.0473**	**0.0000**	**264.1772**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2503	1.9402	1.6362	3.1000e-003	0.0427	0.0992	0.1419	0.0132	0.0950	0.1082	0.0000	262.9952	262.9952	0.0473	0.0000	264.1770
2021	0.1404	0.1548	0.1565	2.8000e-004	2.9600e-003	7.9000e-003	0.0109	7.9000e-004	7.4900e-003	8.2800e-003	0.0000	23.9025	23.9025	4.9400e-003	0.0000	24.0261
Maximum	**0.2503**	**1.9402**	**1.6362**	**3.1000e-003**	**0.0427**	**0.0992**	**0.1419**	**0.0132**	**0.0950**	**0.1082**	**0.0000**	**262.9952**	**262.9952**	**0.0473**	**0.0000**	**264.1770**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**22.76**	**0.00**	**8.09**	**31.06**	**0.00**	**5.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-17-2020	6-16-2020	0.6968	0.6968
2	6-17-2020	9-16-2020	0.6894	0.6894
3	9-17-2020	12-16-2020	0.6818	0.6818
4	12-17-2020	3-16-2021	0.3778	0.3778
		Highest	0.6968	0.6968

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1047	1.0000e-005	1.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7300e-003	2.7300e-003	1.0000e-005	0.0000	2.9100e-003
Energy	4.3800e-003	0.0398	0.0335	2.4000e-004		3.0300e-003	3.0300e-003		3.0300e-003	3.0300e-003	0.0000	107.0574	107.0574	8.3000e-004	7.9000e-004	107.3150
Mobile	0.4364	3.6476	4.8133	0.0205	1.4883	0.0149	1.5032	0.3988	0.0140	0.4128	0.0000	1,895.9311	1,895.9311	0.1094	0.0000	1,898.6665
Waste						0.0000	0.0000		0.0000	0.0000	4.6729	0.0000	4.6729	0.2762	0.0000	11.5768
Water						0.0000	0.0000		0.0000	0.0000	0.2482	5.7029	5.9510	0.0255	6.0000e-004	6.7676
Total	**0.5455**	**3.6874**	**4.8481**	**0.0207**	**1.4883**	**0.0180**	**1.5062**	**0.3988**	**0.0170**	**0.4158**	**4.9210**	**2,008.6941**	**2,013.6151**	**0.4119**	**1.3900e-003**	**2,024.3288**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1047	1.0000e-005	1.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7300e-003	2.7300e-003	1.0000e-005	0.0000	2.9100e-003
Energy	4.3800e-003	0.0398	0.0335	2.4000e-004		3.0300e-003	3.0300e-003		3.0300e-003	3.0300e-003	0.0000	107.0574	107.0574	8.3000e-004	7.9000e-004	107.3150
Mobile	0.4364	3.6476	4.8133	0.0205	1.4883	0.0149	1.5032	0.3988	0.0140	0.4128	0.0000	1,895.9311	1,895.9311	0.1094	0.0000	1,898.6665
Waste						0.0000	0.0000		0.0000	0.0000	1.1682	0.0000	1.1682	0.0690	0.0000	2.8942
Water						0.0000	0.0000		0.0000	0.0000	0.1985	5.0155	5.2140	0.0204	4.8000e-004	5.8672
Total	**0.5455**	**3.6874**	**4.8481**	**0.0207**	**1.4883**	**0.0180**	**1.5062**	**0.3988**	**0.0170**	**0.4158**	**1.3667**	**2,008.0067**	**2,009.3734**	**0.1997**	**1.2700e-003**	**2,014.7459**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**72.23**	**0.03**	**0.21**	**51.52**	**8.63**	**0.47**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/17/2020	3/19/2020	5	3	
2	Grading	Grading	3/20/2020	3/27/2020	5	6	
3	Building Construction	Building Construction	3/28/2020	1/15/2021	5	210	
4	Paving	Paving	1/18/2021	1/29/2021	5	10	
5	Architectural Coating	Architectural Coating	2/1/2021	2/12/2021	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0.76

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 37,500; Non-Residential Outdoor: 12,500; Striped Parking Area: 2,040 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	25.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4800e-003	0.0299	0.0169	4.0000e-005		1.1700e-003	1.1700e-003		1.0700e-003	1.0700e-003	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	**2.4800e-003**	**0.0299**	**0.0169**	**4.0000e-005**	**2.3900e-003**	**1.1700e-003**	**3.5600e-003**	**2.6000e-004**	**1.0700e-003**	**1.3300e-003**	**0.0000**	**3.2290**	**3.2290**	**1.0400e-003**	**0.0000**	**3.2551**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.1000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1104	0.1104	0.0000	0.0000	0.1104
Total	**6.0000e-005**	**4.0000e-005**	**4.1000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1104**	**0.1104**	**0.0000**	**0.0000**	**0.1104**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.3000e-004	0.0000	9.3000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4800e-003	0.0299	0.0169	4.0000e-005		1.1700e-003	1.1700e-003		1.0700e-003	1.0700e-003	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	**2.4800e-003**	**0.0299**	**0.0169**	**4.0000e-005**	**9.3000e-004**	**1.1700e-003**	**2.1000e-003**	**1.0000e-004**	**1.0700e-003**	**1.1700e-003**	**0.0000**	**3.2290**	**3.2290**	**1.0400e-003**	**0.0000**	**3.2551**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	4.1000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1104	0.1104	0.0000	0.0000	0.1104
Total	**6.0000e-005**	**4.0000e-005**	**4.1000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1104**	**0.1104**	**0.0000**	**0.0000**	**0.1104**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0197	0.0000	0.0197	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7700e-003	0.0640	0.0298	6.0000e-005		2.9700e-003	2.9700e-003		2.7300e-003	2.7300e-003	0.0000	5.4333	5.4333	1.7600e-003	0.0000	5.4773
Total	**5.7700e-003**	**0.0640**	**0.0298**	**6.0000e-005**	**0.0197**	**2.9700e-003**	**0.0226**	**0.0101**	**2.7300e-003**	**0.0128**	**0.0000**	**5.4333**	**5.4333**	**1.7600e-003**	**0.0000**	**5.4773**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.0300e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2759	0.2759	1.0000e-005	0.0000	0.2761
Total	**1.4000e-004**	**1.0000e-004**	**1.0300e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2759**	**0.2759**	**1.0000e-005**	**0.0000**	**0.2761**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.6700e-003	0.0000	7.6700e-003	3.9400e-003	0.0000	3.9400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7700e-003	0.0640	0.0298	6.0000e-005		2.9700e-003	2.9700e-003		2.7300e-003	2.7300e-003	0.0000	5.4333	5.4333	1.7600e-003	0.0000	5.4773
Total	**5.7700e-003**	**0.0640**	**0.0298**	**6.0000e-005**	**7.6700e-003**	**2.9700e-003**	**0.0106**	**3.9400e-003**	**2.7300e-003**	**6.6700e-003**	**0.0000**	**5.4333**	**5.4333**	**1.7600e-003**	**0.0000**	**5.4773**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	1.0000e-004	1.0300e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2759	0.2759	1.0000e-005	0.0000	0.2761
Total	**1.4000e-004**	**1.0000e-004**	**1.0300e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2759**	**0.2759**	**1.0000e-005**	**0.0000**	**0.2761**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2276	1.7346	1.4823	2.4900e-003		0.0943	0.0943		0.0904	0.0904	0.0000	206.6062	206.6062	0.0419	0.0000	207.6545
Total	**0.2276**	**1.7346**	**1.4823**	**2.4900e-003**		**0.0943**	**0.0943**		**0.0904**	**0.0904**	**0.0000**	**206.6062**	**206.6062**	**0.0419**	**0.0000**	**207.6545**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8300e-003	0.1035	0.0203	2.6000e-004	6.2800e-003	5.9000e-004	6.8700e-003	1.8100e-003	5.6000e-004	2.3700e-003	0.0000	24.4658	24.4658	1.9600e-003	0.0000	24.5147
Worker	0.0114	8.0100e-003	0.0855	2.5000e-004	0.0273	1.7000e-004	0.0275	7.2600e-003	1.6000e-004	7.4200e-003	0.0000	22.8749	22.8749	5.7000e-004	0.0000	22.8892
Total	**0.0143**	**0.1115**	**0.1058**	**5.1000e-004**	**0.0336**	**7.6000e-004**	**0.0344**	**9.0700e-003**	**7.2000e-004**	**9.7900e-003**	**0.0000**	**47.3407**	**47.3407**	**2.5300e-003**	**0.0000**	**47.4039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2276	1.7346	1.4823	2.4900e-003		0.0943	0.0943		0.0904	0.0904	0.0000	206.6059	206.6059	0.0419	0.0000	207.6542
Total	**0.2276**	**1.7346**	**1.4823**	**2.4900e-003**		**0.0943**	**0.0943**		**0.0904**	**0.0904**	**0.0000**	**206.6059**	**206.6059**	**0.0419**	**0.0000**	**207.6542**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8300e-003	0.1035	0.0203	2.6000e-004	6.2800e-003	5.9000e-004	6.8700e-003	1.8100e-003	5.6000e-004	2.3700e-003	0.0000	24.4658	24.4658	1.9600e-003	0.0000	24.5147
Worker	0.0114	8.0100e-003	0.0855	2.5000e-004	0.0273	1.7000e-004	0.0275	7.2600e-003	1.6000e-004	7.4200e-003	0.0000	22.8749	22.8749	5.7000e-004	0.0000	22.8892
Total	**0.0143**	**0.1115**	**0.1058**	**5.1000e-004**	**0.0336**	**7.6000e-004**	**0.0344**	**9.0700e-003**	**7.2000e-004**	**9.7900e-003**	**0.0000**	**47.3407**	**47.3407**	**2.5300e-003**	**0.0000**	**47.4039**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0113	0.0882	0.0801	1.4000e-004		4.4900e-003	4.4900e-003		4.3100e-003	4.3100e-003	0.0000	11.4207	11.4207	2.2500e-003	0.0000	11.4769
Total	**0.0113**	**0.0882**	**0.0801**	**1.4000e-004**		**4.4900e-003**	**4.4900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**11.4207**	**11.4207**	**2.2500e-003**	**0.0000**	**11.4769**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	5.1300e-003	9.9000e-004	1.0000e-005	3.5000e-004	1.0000e-005	3.6000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.3419	1.3419	1.0000e-004	0.0000	1.3444
Worker	5.9000e-004	4.0000e-004	4.3300e-003	1.0000e-005	1.5100e-003	1.0000e-005	1.5200e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.2222	1.2222	3.0000e-005	0.0000	1.2229
Total	**7.2000e-004**	**5.5300e-003**	**5.3200e-003**	**2.0000e-005**	**1.8600e-003**	**2.0000e-005**	**1.8800e-003**	**5.0000e-004**	**2.0000e-005**	**5.2000e-004**	**0.0000**	**2.5640**	**2.5640**	**1.3000e-004**	**0.0000**	**2.5673**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0113	0.0882	0.0801	1.4000e-004		4.4900e-003	4.4900e-003		4.3100e-003	4.3100e-003	0.0000	11.4207	11.4207	2.2500e-003	0.0000	11.4768
Total	**0.0113**	**0.0882**	**0.0801**	**1.4000e-004**		**4.4900e-003**	**4.4900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**11.4207**	**11.4207**	**2.2500e-003**	**0.0000**	**11.4768**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	5.1300e-003	9.9000e-004	1.0000e-005	3.5000e-004	1.0000e-005	3.6000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000	1.3419	1.3419	1.0000e-004	0.0000	1.3444
Worker	5.9000e-004	4.0000e-004	4.3300e-003	1.0000e-005	1.5100e-003	1.0000e-005	1.5200e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.2222	1.2222	3.0000e-005	0.0000	1.2229
Total	**7.2000e-004**	**5.5300e-003**	**5.3200e-003**	**2.0000e-005**	**1.8600e-003**	**2.0000e-005**	**1.8800e-003**	**5.0000e-004**	**2.0000e-005**	**5.2000e-004**	**0.0000**	**2.5640**	**2.5640**	**1.3000e-004**	**0.0000**	**2.5673**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3200e-003	0.0532	0.0589	9.0000e-005		2.9100e-003	2.9100e-003		2.6900e-003	2.6900e-003	0.0000	7.7524	7.7524	2.4600e-003	0.0000	7.8138
Paving	1.0000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.3200e-003**	**0.0532**	**0.0589**	**9.0000e-005**		**2.9100e-003**	**2.9100e-003**		**2.6900e-003**	**2.6900e-003**	**0.0000**	**7.7524**	**7.7524**	**2.4600e-003**	**0.0000**	**7.8138**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.2000e-004	2.3600e-003	1.0000e-005	8.2000e-004	0.0000	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6666	0.6666	2.0000e-005	0.0000	0.6670
Total	**3.2000e-004**	**2.2000e-004**	**2.3600e-003**	**1.0000e-005**	**8.2000e-004**	**0.0000**	**8.3000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.6666**	**0.6666**	**2.0000e-005**	**0.0000**	**0.6670**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3200e-003	0.0532	0.0589	9.0000e-005		2.9100e-003	2.9100e-003		2.6900e-003	2.6900e-003	0.0000	7.7524	7.7524	2.4600e-003	0.0000	7.8138
Paving	1.0000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.3200e-003**	**0.0532**	**0.0589**	**9.0000e-005**		**2.9100e-003**	**2.9100e-003**		**2.6900e-003**	**2.6900e-003**	**0.0000**	**7.7524**	**7.7524**	**2.4600e-003**	**0.0000**	**7.8138**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.2000e-004	2.3600e-003	1.0000e-005	8.2000e-004	0.0000	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6666	0.6666	2.0000e-005	0.0000	0.6670
Total	**3.2000e-004**	**2.2000e-004**	**2.3600e-003**	**1.0000e-005**	**8.2000e-004**	**0.0000**	**8.3000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.6666**	**0.6666**	**2.0000e-005**	**0.0000**	**0.6670**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1206					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.6300e-003	9.0900e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	1.2766	1.2766	9.0000e-005	0.0000	1.2788
Total	**0.1217**	**7.6300e-003**	**9.0900e-003**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**9.0000e-005**	**0.0000**	**1.2788**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	7.0000e-005	7.9000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2222	0.2222	1.0000e-005	0.0000	0.2223
Total	**1.1000e-004**	**7.0000e-005**	**7.9000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2222**	**0.2222**	**1.0000e-005**	**0.0000**	**0.2223**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1206					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.6300e-003	9.0900e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	1.2766	1.2766	9.0000e-005	0.0000	1.2788
Total	**0.1217**	**7.6300e-003**	**9.0900e-003**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**9.0000e-005**	**0.0000**	**1.2788**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	7.0000e-005	7.9000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2222	0.2222	1.0000e-005	0.0000	0.2223
Total	**1.1000e-004**	**7.0000e-005**	**7.9000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2222**	**0.2222**	**1.0000e-005**	**0.0000**	**0.2223**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4364	3.6476	4.8133	0.0205	1.4883	0.0149	1.5032	0.3988	0.0140	0.4128	0.0000	1,895.9311	1,895.9311	0.1094	0.0000	1,898.6665
Unmitigated	0.4364	3.6476	4.8133	0.0205	1.4883	0.0149	1.5032	0.3988	0.0140	0.4128	0.0000	1,895.9311	1,895.9311	0.1094	0.0000	1,898.6665

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Library	1,801.25	1,163.75	637.25	3,897,844	3,897,844
Parking Lot	0.00	0.00	0.00		
Total	1,801.25	1,163.75	637.25	3,897,844	3,897,844

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Library	16.60	8.40	6.90	52.00	43.00	5.00	44	44	12
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Library	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038
Parking Lot	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	63.7127	63.7127	0.0000	0.0000	63.7127
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	63.7127	63.7127	0.0000	0.0000	63.7127
NaturalGas Mitigated	4.3800e-003	0.0398	0.0335	2.4000e-004		3.0300e-003	3.0300e-003		3.0300e-003	3.0300e-003	0.0000	43.3448	43.3448	8.3000e-004	7.9000e-004	43.6023
NaturalGas Unmitigated	4.3800e-003	0.0398	0.0335	2.4000e-004		3.0300e-003	3.0300e-003		3.0300e-003	3.0300e-003	0.0000	43.3448	43.3448	8.3000e-004	7.9000e-004	43.6023

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Library	812250	4.3800e-003	0.0398	0.0335	2.4000e-004		3.0300e-003	3.0300e-003		3.0300e-003	3.0300e-003	0.0000	43.3448	43.3448	8.3000e-004	7.9000e-004	43.6023
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.3800e-003**	**0.0398**	**0.0335**	**2.4000e-004**		**3.0300e-003**	**3.0300e-003**		**3.0300e-003**	**3.0300e-003**	**0.0000**	**43.3448**	**43.3448**	**8.3000e-004**	**7.9000e-004**	**43.6023**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Library	812250	4.3800e-003	0.0398	0.0335	2.4000e-004		3.0300e-003	3.0300e-003		3.0300e-003	3.0300e-003	0.0000	43.3448	43.3448	8.3000e-004	7.9000e-004	43.6023
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**4.3800e-003**	**0.0398**	**0.0335**	**2.4000e-004**		**3.0300e-003**	**3.0300e-003**		**3.0300e-003**	**3.0300e-003**	**0.0000**	**43.3448**	**43.3448**	**8.3000e-004**	**7.9000e-004**	**43.6023**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Library	253750	60.8586	0.0000	0.0000	60.8586
Parking Lot	11900	2.8541	0.0000	0.0000	2.8541
Total		**63.7127**	**0.0000**	**0.0000**	**63.7127**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Library	253750	60.8586	0.0000	0.0000	60.8586
Parking Lot	11900	2.8541	0.0000	0.0000	2.8541
Total		**63.7127**	**0.0000**	**0.0000**	**63.7127**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1047	1.0000e-005	1.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7300e-003	2.7300e-003	1.0000e-005	0.0000	2.9100e-003
Unmitigated	0.1047	1.0000e-005	1.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7300e-003	2.7300e-003	1.0000e-005	0.0000	2.9100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0925					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7300e-003	2.7300e-003	1.0000e-005	0.0000	2.9100e-003
Total	**0.1047**	**1.0000e-005**	**1.4100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.7300e-003**	**2.7300e-003**	**1.0000e-005**	**0.0000**	**2.9100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0925					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.7300e-003	2.7300e-003	1.0000e-005	0.0000	2.9100e-003
Total	**0.1047**	**1.0000e-005**	**1.4100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.7300e-003**	**2.7300e-003**	**1.0000e-005**	**0.0000**	**2.9100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.2140	0.0204	4.8000e-004	5.8672
Unmitigated	5.9510	0.0255	6.0000e-004	6.7676

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Library	0.782223 / 1.22348	5.9510	0.0255	6.0000e-004	6.7676
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.9510**	**0.0255**	**6.0000e-004**	**6.7676**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Library	0.625778 / 1.14884	5.2140	0.0204	4.8000e-004	5.8672
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.2140**	**0.0204**	**4.8000e-004**	**5.8672**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.1682	0.0690	0.0000	2.8942
Unmitigated	4.6729	0.2762	0.0000	11.5768

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Library	23.02	4.6729	0.2762	0.0000	11.5768
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**4.6729**	**0.2762**	**0.0000**	**11.5768**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Library	5.755	1.1682	0.0690	0.0000	2.8942
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**1.1682**	**0.0690**	**0.0000**	**2.8942**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

French Valley Library

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Library	25.00	1000sqft	1.88	25,000.00	0
Parking Lot	85.00	Space	0.76	34,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	528.75	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor is based on SCE 2020 forecast in City's General Plan, 33% RPS, Cap and Trade, and reduction in SF6.

Land Use - Project site is 2.64 acres

Construction Phase - Anticipated construction schedule of 333-days duration between 3/17/2020 to 2/12/2021.

Vehicle Trips - Project Trip Generation was obtained from Traffic Impact Analysis (Ganddini Group Oct. 2019).

Energy Use -

Construction Off-road Equipment Mitigation - Fugitive dust control with on-site watering at least three times daily.

Water Mitigation - Project would utilize low-flow water features and efficienct irrigation system.

Waste Mitigation - Implement 75% recycling services.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	210.00
tblConstructionPhase	PhaseEndDate	2/26/2021	2/12/2021
tblConstructionPhase	PhaseEndDate	1/29/2021	1/15/2021
tblConstructionPhase	PhaseEndDate	2/12/2021	1/29/2021
tblConstructionPhase	PhaseStartDate	2/13/2021	2/1/2021
tblConstructionPhase	PhaseStartDate	1/30/2021	1/18/2021
tblLandUse	LotAcreage	0.57	1.88
tblProjectCharacteristics	CH4IntensityFactor	0.029	0
tblProjectCharacteristics	CO2IntensityFactor	702.44	528.75
tblProjectCharacteristics	N2OIntensityFactor	0.006	0
tblVehicleTrips	WD_TR	56.24	72.05

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.4430	21.3719	16.0935	0.0304	6.6641	0.9908	7.6550	3.3971	0.9160	4.3087	0.0000	2,839.6773	2,839.6773	0.7697	0.0000	2,851.9838
2021	24.3631	17.0204	15.6523	0.0303	0.3435	0.8207	1.1641	0.0926	0.7863	0.8788	0.0000	2,828.3743	2,828.3743	0.5455	0.0000	2,840.2797
Maximum	**24.3631**	**21.3719**	**16.0935**	**0.0304**	**6.6641**	**0.9908**	**7.6550**	**3.3971**	**0.9160**	**4.3087**	**0.0000**	**2,839.6773**	**2,839.6773**	**0.7697**	**0.0000**	**2,851.9838**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.4430	21.3719	16.0935	0.0304	2.6672	0.9908	3.6580	1.3430	0.9160	2.2545	0.0000	2,839.6773	2,839.6773	0.7697	0.0000	2,851.9838
2021	24.3631	17.0204	15.6523	0.0303	0.3435	0.8207	1.1641	0.0926	0.7863	0.8788	0.0000	2,828.3743	2,828.3743	0.5455	0.0000	2,840.2797
Maximum	**24.3631**	**21.3719**	**16.0935**	**0.0304**	**2.6672**	**0.9908**	**3.6580**	**1.3430**	**0.9160**	**2.2545**	**0.0000**	**2,839.6773**	**2,839.6773**	**0.7697**	**0.0000**	**2,851.9838**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.04**	**0.00**	**45.32**	**58.86**	**0.00**	**39.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5742	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Energy	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
Mobile	3.3245	23.0705	34.1210	0.1390	9.6988	0.0953	9.7941	2.5951	0.0894	2.6845		14,183.3895	14,183.3895	0.7655		14,202.5262
Total	**3.9227**	**23.2888**	**34.3156**	**0.1403**	**9.6988**	**0.1119**	**9.8107**	**2.5951**	**0.1060**	**2.7011**		**14,445.2186**	**14,445.2186**	**0.7706**	**4.8000e-003**	**14,465.9126**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5742	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Energy	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
Mobile	3.3245	23.0705	34.1210	0.1390	9.6988	0.0953	9.7941	2.5951	0.0894	2.6845		14,183.3895	14,183.3895	0.7655		14,202.5262
Total	**3.9227**	**23.2888**	**34.3156**	**0.1403**	**9.6988**	**0.1119**	**9.8107**	**2.5951**	**0.1060**	**2.7011**		**14,445.2186**	**14,445.2186**	**0.7706**	**4.8000e-003**	**14,465.9126**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/17/2020	3/19/2020	5	3	
2	Grading	Grading	3/20/2020	3/27/2020	5	6	
3	Building Construction	Building Construction	3/28/2020	1/15/2021	5	210	
4	Paving	Paving	1/18/2021	1/29/2021	5	10	
5	Architectural Coating	Architectural Coating	2/1/2021	2/12/2021	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0.76

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 37,500; Non-Residential Outdoor: 12,500; Striped Parking Area: 2,040 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	25.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**1.5908**	**0.7771**	**2.3678**	**0.1718**	**0.7149**	**0.8867**		**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0407	0.0241	0.3226	8.8000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		88.1276	88.1276	2.2600e-003		88.1840
Total	**0.0407**	**0.0241**	**0.3226**	**8.8000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**5.0000e-004**	**0.0242**		**88.1276**	**88.1276**	**2.2600e-003**		**88.1840**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.6204	0.0000	0.6204	0.0670	0.0000	0.0670			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.6204**	**0.7771**	**1.3975**	**0.0670**	**0.7149**	**0.7819**	**0.0000**	**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0407	0.0241	0.3226	8.8000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		88.1276	88.1276	2.2600e-003		88.1840
Total	**0.0407**	**0.0241**	**0.3226**	**8.8000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**5.0000e-004**	**0.0242**		**88.1276**	**88.1276**	**2.2600e-003**		**88.1840**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.5523**	**0.9902**	**7.5425**	**3.3675**	**0.9110**	**4.2784**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0509	0.0301	0.4032	1.1100e-003	0.1118	6.8000e-004	0.1125	0.0296	6.2000e-004	0.0303		110.1595	110.1595	2.8200e-003		110.2301
Total	**0.0509**	**0.0301**	**0.4032**	**1.1100e-003**	**0.1118**	**6.8000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**110.1595**	**110.1595**	**2.8200e-003**		**110.2301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**2.5554**	**0.9902**	**3.5456**	**1.3133**	**0.9110**	**2.2243**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0509	0.0301	0.4032	1.1100e-003	0.1118	6.8000e-004	0.1125	0.0296	6.2000e-004	0.0303		110.1595	110.1595	2.8200e-003		110.2301
Total	**0.0509**	**0.0301**	**0.4032**	**1.1100e-003**	**0.1118**	**6.8000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**110.1595**	**110.1595**	**2.8200e-003**		**110.2301**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089		2,288.8877	2,288.8877	0.4646		2,300.5014
Total	**2.2879**	**17.4336**	**14.8972**	**0.0250**		**0.9482**	**0.9482**		**0.9089**	**0.9089**		**2,288.8877**	**2,288.8877**	**0.4646**		**2,300.5014**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0279	1.0289	0.1882	2.6100e-003	0.0640	5.8500e-003	0.0699	0.0184	5.6000e-003	0.0240		275.3909	275.3909	0.0207		275.9073
Worker	0.1272	0.0752	1.0080	2.7700e-003	0.2794	1.6900e-003	0.2811	0.0741	1.5600e-003	0.0757		275.3986	275.3986	7.0600e-003		275.5751
Total	**0.1551**	**1.1042**	**1.1963**	**5.3800e-003**	**0.3435**	**7.5400e-003**	**0.3510**	**0.0926**	**7.1600e-003**	**0.0997**		**550.7896**	**550.7896**	**0.0277**		**551.4824**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089	0.0000	2,288.8877	2,288.8877	0.4646		2,300.5014
Total	**2.2879**	**17.4336**	**14.8972**	**0.0250**		**0.9482**	**0.9482**		**0.9089**	**0.9089**	**0.0000**	**2,288.8877**	**2,288.8877**	**0.4646**		**2,300.5014**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0279	1.0289	0.1882	2.6100e-003	0.0640	5.8500e-003	0.0699	0.0184	5.6000e-003	0.0240		275.3909	275.3909	0.0207		275.9073
Worker	0.1272	0.0752	1.0080	2.7700e-003	0.2794	1.6900e-003	0.2811	0.0741	1.5600e-003	0.0757		275.3986	275.3986	7.0600e-003		275.5751
Total	**0.1551**	**1.1042**	**1.1963**	**5.3800e-003**	**0.3435**	**7.5400e-003**	**0.3510**	**0.0926**	**7.1600e-003**	**0.0997**		**550.7896**	**550.7896**	**0.0277**		**551.4824**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831		2,288.9355	2,288.9355	0.4503		2,300.1935
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**		**2,288.9355**	**2,288.9355**	**0.4503**		**2,300.1935**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0234	0.9254	0.1651	2.5900e-003	0.0640	1.7600e-003	0.0658	0.0184	1.6800e-003	0.0201		273.2510	273.2510	0.0196		273.7397
Worker	0.1185	0.0675	0.9243	2.6700e-003	0.2794	1.6500e-003	0.2811	0.0741	1.5200e-003	0.0756		266.1877	266.1877	6.3500e-003		266.3464
Total	**0.1419**	**0.9929**	**1.0894**	**5.2600e-003**	**0.3435**	**3.4100e-003**	**0.3469**	**0.0926**	**3.2000e-003**	**0.0958**		**539.4388**	**539.4388**	**0.0259**		**540.0861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831	0.0000	2,288.9355	2,288.9355	0.4503		2,300.1935
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**	**0.0000**	**2,288.9355**	**2,288.9355**	**0.4503**		**2,300.1935**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0234	0.9254	0.1651	2.5900e-003	0.0640	1.7600e-003	0.0658	0.0184	1.6800e-003	0.0201		273.2510	273.2510	0.0196		273.7397
Worker	0.1185	0.0675	0.9243	2.6700e-003	0.2794	1.6500e-003	0.2811	0.0741	1.5200e-003	0.0756		266.1877	266.1877	6.3500e-003		266.3464
Total	**0.1419**	**0.9929**	**1.0894**	**5.2600e-003**	**0.3435**	**3.4100e-003**	**0.3469**	**0.0926**	**3.2000e-003**	**0.0958**		**539.4388**	**539.4388**	**0.0259**		**540.0861**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.1991					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2624**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.1991					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2624**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.1205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**24.3394**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0237	0.0135	0.1849	5.3000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		53.2376	53.2376	1.2700e-003		53.2693
Total	**0.0237**	**0.0135**	**0.1849**	**5.3000e-004**	**0.0559**	**3.3000e-004**	**0.0562**	**0.0148**	**3.0000e-004**	**0.0151**		**53.2376**	**53.2376**	**1.2700e-003**		**53.2693**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.1205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**24.3394**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0237	0.0135	0.1849	5.3000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		53.2376	53.2376	1.2700e-003		53.2693
Total	**0.0237**	**0.0135**	**0.1849**	**5.3000e-004**	**0.0559**	**3.3000e-004**	**0.0562**	**0.0148**	**3.0000e-004**	**0.0151**		**53.2376**	**53.2376**	**1.2700e-003**		**53.2693**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.3245	23.0705	34.1210	0.1390	9.6988	0.0953	9.7941	2.5951	0.0894	2.6845		14,183.3895	14,183.3895	0.7655		14,202.5262
Unmitigated	3.3245	23.0705	34.1210	0.1390	9.6988	0.0953	9.7941	2.5951	0.0894	2.6845		14,183.3895	14,183.3895	0.7655		14,202.5262

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Library	1,801.25	1,163.75	637.25	3,897,844	3,897,844
Parking Lot	0.00	0.00	0.00		
Total	1,801.25	1,163.75	637.25	3,897,844	3,897,844

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Library	16.60	8.40	6.90	52.00	43.00	5.00	44	44	12
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Library	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038
Parking Lot	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
NaturalGas Unmitigated	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Library	2225.34	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0240**	**0.2182**	**0.1833**	**1.3100e-003**		**0.0166**	**0.0166**		**0.0166**	**0.0166**		**261.8050**	**261.8050**	**5.0200e-003**	**4.8000e-003**	**263.3608**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Library	2.22534	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0240**	**0.2182**	**0.1833**	**1.3100e-003**		**0.0166**	**0.0166**		**0.0166**	**0.0166**		**261.8050**	**261.8050**	**5.0200e-003**	**4.8000e-003**	**263.3608**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5742	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Unmitigated	0.5742	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0661					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0500e-003	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Total	**0.5742**	**1.0000e-004**	**0.0113**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0241**	**0.0241**	**6.0000e-005**		**0.0257**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0661					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0500e-003	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Total	**0.5742**	**1.0000e-004**	**0.0113**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0241**	**0.0241**	**6.0000e-005**		**0.0257**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

French Valley Library

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Library	25.00	1000sqft	1.88	25,000.00	0
Parking Lot	85.00	Space	0.76	34,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	528.75	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor is based on SCE 2020 forecast in City's General Plan, 33% RPS, Cap and Trade, and reduction in SF6.

Land Use - Project site is 2.64 acres

Construction Phase - Anticipated construction schedule of 333-days duration between 3/17/2020 to 2/12/2021.

Vehicle Trips - Project Trip Generation was obtained from Traffic Impact Analysis (Ganddini Group Oct. 2019).

Energy Use -

Construction Off-road Equipment Mitigation - Fugitive dust control with on-site watering at least three times daily.

Water Mitigation - Project would utilize low-flow water features and efficienct irrigation system.

Waste Mitigation - Implement 75% recycling services.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	210.00
tblConstructionPhase	PhaseEndDate	2/26/2021	2/12/2021
tblConstructionPhase	PhaseEndDate	1/29/2021	1/15/2021
tblConstructionPhase	PhaseEndDate	2/12/2021	1/29/2021
tblConstructionPhase	PhaseStartDate	2/13/2021	2/1/2021
tblConstructionPhase	PhaseStartDate	1/30/2021	1/18/2021
tblLandUse	LotAcreage	0.57	1.88
tblProjectCharacteristics	CH4IntensityFactor	0.029	0
tblProjectCharacteristics	CO2IntensityFactor	702.44	528.75
tblProjectCharacteristics	N2OIntensityFactor	0.006	0
tblVehicleTrips	WD_TR	56.24	72.05

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.4419	21.3729	15.9330	0.0300	6.6641	0.9908	7.6550	3.3971	0.9161	4.3087	0.0000	2,800.9894	2,800.9894	0.7694	0.0000	2,813.3311
2021	24.3627	17.0148	15.5043	0.0299	0.3435	0.8207	1.1642	0.0926	0.7863	0.8789	0.0000	2,790.7071	2,790.7071	0.5450	0.0000	2,802.6476
Maximum	**24.3627**	**21.3729**	**15.9330**	**0.0300**	**6.6641**	**0.9908**	**7.6550**	**3.3971**	**0.9161**	**4.3087**	**0.0000**	**2,800.9894**	**2,800.9894**	**0.7694**	**0.0000**	**2,813.3311**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.4419	21.3729	15.9330	0.0300	2.6672	0.9908	3.6580	1.3430	0.9161	2.2545	0.0000	2,800.9894	2,800.9894	0.7694	0.0000	2,813.3311
2021	24.3627	17.0148	15.5043	0.0299	0.3435	0.8207	1.1642	0.0926	0.7863	0.8789	0.0000	2,790.7071	2,790.7071	0.5450	0.0000	2,802.6476
Maximum	**24.3627**	**21.3729**	**15.9330**	**0.0300**	**2.6672**	**0.9908**	**3.6580**	**1.3430**	**0.9161**	**2.2545**	**0.0000**	**2,800.9894**	**2,800.9894**	**0.7694**	**0.0000**	**2,813.3311**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.04**	**0.00**	**45.32**	**58.86**	**0.00**	**39.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5742	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Energy	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
Mobile	2.7973	22.9663	30.1200	0.1280	9.6988	0.0965	9.7953	2.5951	0.0906	2.6857		13,076.2754	13,076.2754	0.8004		13,096.2855
Total	**3.3955**	**23.1846**	**30.3145**	**0.1293**	**9.6988**	**0.1131**	**9.8120**	**2.5951**	**0.1072**	**2.7023**		**13,338.1045**	**13,338.1045**	**0.8055**	**4.8000e-003**	**13,359.6719**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.5742	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Energy	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
Mobile	2.7973	22.9663	30.1200	0.1280	9.6988	0.0965	9.7953	2.5951	0.0906	2.6857		13,076.2754	13,076.2754	0.8004		13,096.2855
Total	**3.3955**	**23.1846**	**30.3145**	**0.1293**	**9.6988**	**0.1131**	**9.8120**	**2.5951**	**0.1072**	**2.7023**		**13,338.1045**	**13,338.1045**	**0.8055**	**4.8000e-003**	**13,359.6719**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/17/2020	3/19/2020	5	3	
2	Grading	Grading	3/20/2020	3/27/2020	5	6	
3	Building Construction	Building Construction	3/28/2020	1/15/2021	5	210	
4	Paving	Paving	1/18/2021	1/29/2021	5	10	
5	Architectural Coating	Architectural Coating	2/1/2021	2/12/2021	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0.76

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 37,500; Non-Residential Outdoor: 12,500; Striped Parking Area: 2,040 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	25.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**1.5908**	**0.7771**	**2.3678**	**0.1718**	**0.7149**	**0.8867**		**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0399	0.0249	0.2609	7.9000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		79.0589	79.0589	1.9600e-003		79.1080
Total	**0.0399**	**0.0249**	**0.2609**	**7.9000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**5.0000e-004**	**0.0242**		**79.0589**	**79.0589**	**1.9600e-003**		**79.1080**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.6204	0.0000	0.6204	0.0670	0.0000	0.0670			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.6204**	**0.7771**	**1.3975**	**0.0670**	**0.7149**	**0.7819**	**0.0000**	**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0399	0.0249	0.2609	7.9000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		79.0589	79.0589	1.9600e-003		79.1080
Total	**0.0399**	**0.0249**	**0.2609**	**7.9000e-004**	**0.0894**	**5.4000e-004**	**0.0900**	**0.0237**	**5.0000e-004**	**0.0242**		**79.0589**	**79.0589**	**1.9600e-003**		**79.1080**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.5523**	**0.9902**	**7.5425**	**3.3675**	**0.9110**	**4.2784**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0498	0.0311	0.3262	9.9000e-004	0.1118	6.8000e-004	0.1125	0.0296	6.2000e-004	0.0303		98.8236	98.8236	2.4500e-003		98.8849
Total	**0.0498**	**0.0311**	**0.3262**	**9.9000e-004**	**0.1118**	**6.8000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**98.8236**	**98.8236**	**2.4500e-003**		**98.8849**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**2.5554**	**0.9902**	**3.5456**	**1.3133**	**0.9110**	**2.2243**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0498	0.0311	0.3262	9.9000e-004	0.1118	6.8000e-004	0.1125	0.0296	6.2000e-004	0.0303		98.8236	98.8236	2.4500e-003		98.8849
Total	**0.0498**	**0.0311**	**0.3262**	**9.9000e-004**	**0.1118**	**6.8000e-004**	**0.1125**	**0.0296**	**6.2000e-004**	**0.0303**		**98.8236**	**98.8236**	**2.4500e-003**		**98.8849**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089		2,288.8877	2,288.8877	0.4646		2,300.5014
Total	**2.2879**	**17.4336**	**14.8972**	**0.0250**		**0.9482**	**0.9482**		**0.9089**	**0.9089**		**2,288.8877**	**2,288.8877**	**0.4646**		**2,300.5014**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0294	1.0235	0.2204	2.5100e-003	0.0640	5.9200e-003	0.0700	0.0184	5.6600e-003	0.0241		265.0428	265.0428	0.0230		265.6174
Worker	0.1246	0.0778	0.8154	2.4800e-003	0.2794	1.6900e-003	0.2811	0.0741	1.5600e-003	0.0757		247.0590	247.0590	6.1400e-003		247.2124
Total	**0.1540**	**1.1014**	**1.0358**	**4.9900e-003**	**0.3435**	**7.6100e-003**	**0.3511**	**0.0926**	**7.2200e-003**	**0.0998**		**512.1017**	**512.1017**	**0.0291**		**512.8298**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089	0.0000	2,288.8877	2,288.8877	0.4646		2,300.5014
Total	**2.2879**	**17.4336**	**14.8972**	**0.0250**		**0.9482**	**0.9482**		**0.9089**	**0.9089**	**0.0000**	**2,288.8877**	**2,288.8877**	**0.4646**		**2,300.5014**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0294	1.0235	0.2204	2.5100e-003	0.0640	5.9200e-003	0.0700	0.0184	5.6600e-003	0.0241		265.0428	265.0428	0.0230		265.6174
Worker	0.1246	0.0778	0.8154	2.4800e-003	0.2794	1.6900e-003	0.2811	0.0741	1.5600e-003	0.0757		247.0590	247.0590	6.1400e-003		247.2124
Total	**0.1540**	**1.1014**	**1.0358**	**4.9900e-003**	**0.3435**	**7.6100e-003**	**0.3511**	**0.0926**	**7.2200e-003**	**0.0998**		**512.1017**	**512.1017**	**0.0291**		**512.8298**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831		2,288.9355	2,288.9355	0.4503		2,300.1935
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**		**2,288.9355**	**2,288.9355**	**0.4503**		**2,300.1935**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.9174	0.1953	2.4900e-003	0.0640	1.8100e-003	0.0659	0.0184	1.7300e-003	0.0202		262.9732	262.9732	0.0218		263.5178
Worker	0.1163	0.0698	0.7461	2.4000e-003	0.2794	1.6500e-003	0.2811	0.0741	1.5200e-003	0.0756		238.7984	238.7984	5.5200e-003		238.9363
Total	**0.1411**	**0.9873**	**0.9414**	**4.8900e-003**	**0.3435**	**3.4600e-003**	**0.3469**	**0.0926**	**3.2500e-003**	**0.0958**		**501.7716**	**501.7716**	**0.0273**		**502.4541**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831	0.0000	2,288.9355	2,288.9355	0.4503		2,300.1935
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**	**0.0000**	**2,288.9355**	**2,288.9355**	**0.4503**		**2,300.1935**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0248	0.9174	0.1953	2.4900e-003	0.0640	1.8100e-003	0.0659	0.0184	1.7300e-003	0.0202		262.9732	262.9732	0.0218		263.5178
Worker	0.1163	0.0698	0.7461	2.4000e-003	0.2794	1.6500e-003	0.2811	0.0741	1.5200e-003	0.0756		238.7984	238.7984	5.5200e-003		238.9363
Total	**0.1411**	**0.9873**	**0.9414**	**4.8900e-003**	**0.3435**	**3.4600e-003**	**0.3469**	**0.0926**	**3.2500e-003**	**0.0958**		**501.7716**	**501.7716**	**0.0273**		**502.4541**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.1991					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2624**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.1991					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2624**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.1205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**24.3394**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0233	0.0140	0.1492	4.8000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		47.7597	47.7597	1.1000e-003		47.7873
Total	**0.0233**	**0.0140**	**0.1492**	**4.8000e-004**	**0.0559**	**3.3000e-004**	**0.0562**	**0.0148**	**3.0000e-004**	**0.0151**		**47.7597**	**47.7597**	**1.1000e-003**		**47.7873**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.1205					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**24.3394**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0233	0.0140	0.1492	4.8000e-004	0.0559	3.3000e-004	0.0562	0.0148	3.0000e-004	0.0151		47.7597	47.7597	1.1000e-003		47.7873
Total	**0.0233**	**0.0140**	**0.1492**	**4.8000e-004**	**0.0559**	**3.3000e-004**	**0.0562**	**0.0148**	**3.0000e-004**	**0.0151**		**47.7597**	**47.7597**	**1.1000e-003**		**47.7873**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.7973	22.9663	30.1200	0.1280	9.6988	0.0965	9.7953	2.5951	0.0906	2.6857		13,076.2754	13,076.2754	0.8004		13,096.2855
Unmitigated	2.7973	22.9663	30.1200	0.1280	9.6988	0.0965	9.7953	2.5951	0.0906	2.6857		13,076.2754	13,076.2754	0.8004		13,096.2855

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Library	1,801.25	1,163.75	637.25	3,897,844	3,897,844
Parking Lot	0.00	0.00	0.00		
Total	1,801.25	1,163.75	637.25	3,897,844	3,897,844

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Library	16.60	8.40	6.90	52.00	43.00	5.00	44	44	12
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Library	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038
Parking Lot	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
NaturalGas Unmitigated	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Library	2225.34	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0240**	**0.2182**	**0.1833**	**1.3100e-003**		**0.0166**	**0.0166**		**0.0166**	**0.0166**		**261.8050**	**261.8050**	**5.0200e-003**	**4.8000e-003**	**263.3608**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Library	2.22534	0.0240	0.2182	0.1833	1.3100e-003		0.0166	0.0166		0.0166	0.0166		261.8050	261.8050	5.0200e-003	4.8000e-003	263.3608
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0240**	**0.2182**	**0.1833**	**1.3100e-003**		**0.0166**	**0.0166**		**0.0166**	**0.0166**		**261.8050**	**261.8050**	**5.0200e-003**	**4.8000e-003**	**263.3608**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5742	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Unmitigated	0.5742	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0661					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0500e-003	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Total	**0.5742**	**1.0000e-004**	**0.0113**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0241**	**0.0241**	**6.0000e-005**		**0.0257**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0661					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0500e-003	1.0000e-004	0.0113	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0241	0.0241	6.0000e-005		0.0257
Total	**0.5742**	**1.0000e-004**	**0.0113**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0241**	**0.0241**	**6.0000e-005**		**0.0257**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX B1

HABITAT ASSESSMENT FOR WESTERN RIVERSIDE COUNTY MULTIPLE SPECIES HABITAT CONSERVATION PLAN NARROW ENDEMIC PLANT SPECIES AREA AND CRITERIA AREA PLANT SPECIES SURVEY AREA SPECIES

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CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

May 3, 2019

Ms. Maribel Hyer, Senior Real Property Agent
County of Riverside Economic Development Agency
3403 Tenth Street, Suite 400
Riverside, California 92501

CFP Riverside, LLC
18336 Minnetonka Boulevard, Suite C
Deephaven, Minnesota 55391

UMB Bank as Trustee

Subject: Habitat Assessment for MSHCP Narrow Endemic Plant Species Area (NEPSSA) and Criteria Area Plant Species Survey Area (CASSA) Species for the French Valley Library Project (LSA Project No. RED1901)

Dear Ms. Hyer:

LSA was retained by the County of Riverside Economic Development Agency to conduct a habitat assessment for Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Narrow Endemic Plant Species Area (NEPSSA) and Criteria Area Plant Species Survey Area (CASSA) species for the French Valley Library Project site (Accessor's Parcel Number 480-160-021-2). The site is located at the east corner of Winchester Road and Sky View Road in the unincorporated community of French Valley, Riverside County, California (attached Figure 1).

It is determined that the site does not provide suitable habitat for NEPSSA or CASSA species.

BACKGROUND

The project site is within NEPSSA 4 and CASSA 4. Projects within NEPSSA 4 require habitat assessments or surveys (if suitable habitat is present) for the following plant species:

- Munz's onion (*Allium munzii*);
- San Diego ambrosia (*Ambrosia pumila*);
- Many-stemmed dudleya (*Dudleya multicaulis*);
- Spreading navarretia (*Navarretia fossalis*);
- California Orcutt grass (*Orcuttia californica*); and
- Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*).

Projects within CASSA 4 require habitat assessments or surveys (if suitable habitat is present) for the following plant species:

1500 Iowa Avenue, Suite 200, Riverside, California 92507 951.781.9310 www.lsa.net

- Parish's brittlescale (*Atriplex parishii*);
- Davidson's saltscale (*Atriplex serenana* var. *davidsonii*);
- Thread-leaved brodiaea (*Brodiaea filifolia*);
- Smooth tarplant (*Centromadia pungens* ssp. *laevis*);
- Round-leaved filaree (*Erodium macrophyllum*);
- Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*); and
- Little mousetail (*Myosurus minimus*).

Habitat requirements for these species are summarized in attached Tables A and B.

METHODS

The habitat assessment was conducted during the rainy season as indicated by the MSHCP for vernal pool plant species. The assessment included a review of aerial photographs to look for areas of ponding that could provide habitat for vernal pool plants. Information on mapped soils was taken from *Soil Survey of Western Riverside Area, California* (Soil Conservation Service, 1971, Washington, DC). Stan Spencer, an LSA botanist, visited the project site on February 12, 2019, between 11:45 a.m. and 2:00 p.m., to assess site conditions, including characteristics of soil, topography, hydrology, and vegetation relative to habitat requirements for the survey species listed above.

French Valley area precipitation for the 2018–2019 wet season and normal season values were taken from the WeatherCurrents.com web site (http://weathercurrents.com/frenchvalley/). Season-to-date precipitation in the French Valley area at the time of the site visit was 8.96 inches, compared to a total average season precipitation of 9.01 inches.

RESULTS

Physical Site Conditions and Soils

Mapped soils in the study area include the following:

- PtB: Porterville clay, moderately deep, slightly saline-alkali, 0 to 5 percent slopes;
- WyC2: Wyman loam, 2 to 8 percent slopes, eroded;
- YbC: Yokohl loam, 2 to 8 percent slopes; and
- YbE3: Yokohl loam, 8 to 25 percent slopes, severely eroded.

Soil mapping is shown in attached Figure 2. The Porterville clay is only in the extreme north corner of the site. Soils observed in this area during the site visit are gravelly and loamy, not clay, and were likely imported for construction of the road. The remaining mapped soils are also loamy. There are no alkali soils in the study area as evidenced by soil mapping and the general absence of plant species adapted to alkali soils as well as the absence of other surface indicators of alkalinity. Based on a review of aerial imagery, the entire study area except for the immediate road edge and the east edge of the site along the creek has been graded within the last 10 years. The grading has lowered

the elevation by several feet in places, exposing subsoils, including layers of clay that have been invaded by non-native species.

Vegetation

Subsequent to grading, the site has been invaded by non-native species. Most of it is now dominated by shortpod mustard (*Hirschfeldia incana*), redstem stork's bill (*Erodium cicutarium*), tree tobacco (*Nicotiana glauca*), Mediterranean tamarisk (*Tamarix ramosissima*), and black mustard (*Brassica nigra*). A small area along the northeast edge is dominated by mule fat (*Baccharis salicifolia*), a native species, and by Spanish false fleabane (*Pulicaria paludosa*), a non-native species.

HABITAT SUITABILITY

An evaluation of site habitat suitability for each of the NEPSSA and CASSA species listed above is provided in attached Tables A and B. Due to the absence of exposed mapped clay soils, alkali soils, and indicated native plant communities, as well as grading of most of the study area within the past few years, the site does not provide suitable habitat for any of these species.

If you have any questions concerning the report, I can be contacted at (951) 781-9310 or stan.spencer@lsa.net.

Sincerely,

LSA ASSOCIATES, INC.

Stanley C. Spencer, Ph.D.
Associate, Senior Botanist

Attachments: Table A: MSHCP Narrow Endemic Plant Species of NEPSSA 4
Table B: MSHCP Criteria Area Plant Species of CASSA 4
Figure 1: Study Area
Figure 2: Soils

cc: Michelle Murphy-Mariscal, MSHCP Biological Monitoring Program

Table A: MSHCP Narrow Endemic Plant Species of NEPSSA 4

Species	MSHCP Habitat	Habitat and Blooming Period	Occurrence Probability
Munz's onion *Allium munzii*	Clay soils on mesic exposures or seasonally moist microsites in grassy openings of coastal sage scrub, chaparral, juniper woodland or valley and foothill grassland. The MSHCP account for this species states that "Munz's onion is found on clay and cobbly clay soils which include the following series: Altamont, Auld, Bosanko, Claypit, and Porterville." The account also mentions that "one population (Bachelor Mountain) is reported to be associated with pyroxenite outcrops instead of clay." However, weathering of pyroxenite generally results in a clay soil. It is therefore expected that any Munz's onion population associated with pyroxenite outcrops would be in clay soils.	Perennial bulb April–May	**Absent**. No exposed mapped clay soils. Site graded within last 10 years. Exposed clay subsoils have been invaded by non-native species and would not be spontaneously colonized by this species under these conditions. Suitable native plant communities are not present.
San Diego ambrosia *Ambrosia pumila*	Open floodplain terraces on Garretson gravelly fine sandy loams, or in the watershed margins of vernal pools or alkali playas on Las Posas loam in close proximity to Willow silty alkaline soils. Occurs in sparse annual vegetation.	Perennial Generally non-flowering	**Absent**. Indicated soils not present; no vernal pools or alkali playas.
Many-stemmed dudleya *Dudleya multicaulis*	Clay soils in barrens, rocky places, and ridgelines, as well as thinly vegetated openings in chaparral, coastal sage scrub, and southern needlegrass grasslands on clay soils. Visible population size varies considerably year-to-year depending on rainfall patterns. The MSHCP account for this species states that "Many-stemmed dudleya is associated with openings in chaparral, coastal sage scrub, and grasslands underlain by clay and cobbly clay soils of the following series: Altamont, Auld, Bosanko, Claypit, and Porterville."	Perennial May - June	**Absent**. No exposed mapped clay soils. Site graded within last 10 years. Exposed clay subsoils have been invaded by non-native species and would not be spontaneously colonized by this species under these conditions. Suitable native plant communities are not present.
Spreading navarretia *Navarretia fossalis*	Saline alkaline soils of vernal pools and depressions and ditches in areas that once supported vernal pools. The MSHCP account for this species states that it "is primarily restricted to the alkali floodplains of the San Jacinto River, Mystic Lake and Salt Creek in association with Willows, Domino and Traver soils" and that "in western Riverside County, spreading navarretia has been found in relatively undisturbed and moderately disturbed vernal pools, within a larger vernal floodplains dominated by annual alkali grassland or alkali playa."	Annual May–June	**Absent**. No vernal pools or similar habitats; no alkali areas.

Table A: MSHCP Narrow Endemic Plant Species of NEPSSA 4

Species	MSHCP Habitat	Habitat and Blooming Period	Occurrence Probability
California Orcutt grass *Orcuttia californica*	Alkaline soils and southern basaltic clay pan in vernal pools. The MSHCP account for this species states that, in Riverside County, it "is found in southern basaltic clay pan vernal pools at the Santa Rosa Plateau, and alkaline vernal pools as at Skunk Hollow and at Salt Creek west of Hemet."	Annual April–June	**Absent**. No vernal pools; no alkali areas.
Wright's trichocoronis *Trichocoronis wrightii* var. *wrightii*	Alkali soils in alkali playa, alkali annual grassland, and alkali vernal pools. The MSHCP account for this species states that "Wright's trichocoronis is restricted to highly alkaline, silty-clay soils in association with Traver, Domino, and Willows soils …"	Annual May–September	**Absent**. No alkali playa, alkali annual grassland, or vernal pools.

Table B: MSHCP Criteria Area Plant Species of CASSA 4

Species	MSHCP Habitat	Habitat and Blooming Period	Occurrence Probability
Parish's brittlescale *Atriplex parishii*	Domino, Willows and Traver soils in alkali vernal pools, alkali annual grassland, alkali playa, and alkali scrub components of alkali vernal plains.	Annual June–October	**Absent**. Indicated soils and alkali habitats not present.
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	Domino, Willows and Traver soils in alkali vernal pools, alkali annual grassland, alkali playa, and alkali scrub components of alkali vernal plains.	Annual May–October	**Absent**. Indicated soils and alkali habitats not present.
Thread-leaved brodiaea *Brodiaea filifolia*	Clay or alkaline silty-clay soils in semi-alkaline mudflats, vernal pools, mesic southern needlegrass grassland, mixed native–non-native grassland and alkali grassland.	Perennial bulb March–June	**Absent**. No suitable soils or plant communities present
Smooth tarplant *Centromadia pungens* ssp. *laevis*	Primarily alkaline soils in alkali scrub, alkali playas, riparian woodland, watercourses, and alkaline grasslands. The MSHCP account for this species states that "Suitable habitat for the smooth tarplant includes alkali scrub, alkali playas, and grasslands with alkaline affinities … smooth tarplant is restricted to clay and alkaline, silty-clay soils."	Annual April–November	**Absent**. No suitable soils or alkali habitats present; not known from general project vicinity.
Round-leaved filaree *Erodium macrophyllum*	Clay soils in open cismontane woodland (e.g. oak, juniper woodlands) and valley and foothill grassland. The MSHCP account for this species states that it is restricted to "very friable clay soils. … Within the Plan Area, two of the mapped localities occur on Bosanko clay soils" and that "this species tends to be associated primarily with wild oats (*Avena fatua*)."	Annual/biennial March–May	**Absent**. No exposed mapped clay soils. Site graded within last 10 years. Exposed clay subsoils have been invaded by non-natives and would not be spontaneously colonized by this species under these conditions. Suitable native plant communities are not present.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	Traver, Domino or (usually) Willows soils in alkali scrub, alkali playas, vernal pools, and alkali grasslands.	Annual February–June	**Absent**. Indicated soils and alkali habitats not present.
Little mousetail *Myosurus minimus*	Alkaline soils in vernal pools and vernal plains. The MSHCP account for this species states that it "little mousetail is found in areas that have semiregular inundation."	Annual April–May	**Absent**. No vernal pools or vernal plains; no alkali areas.

LSA

LEGEND

APN 480-160-021

Biological Study Area

FIGURE 1

N

0 125 250

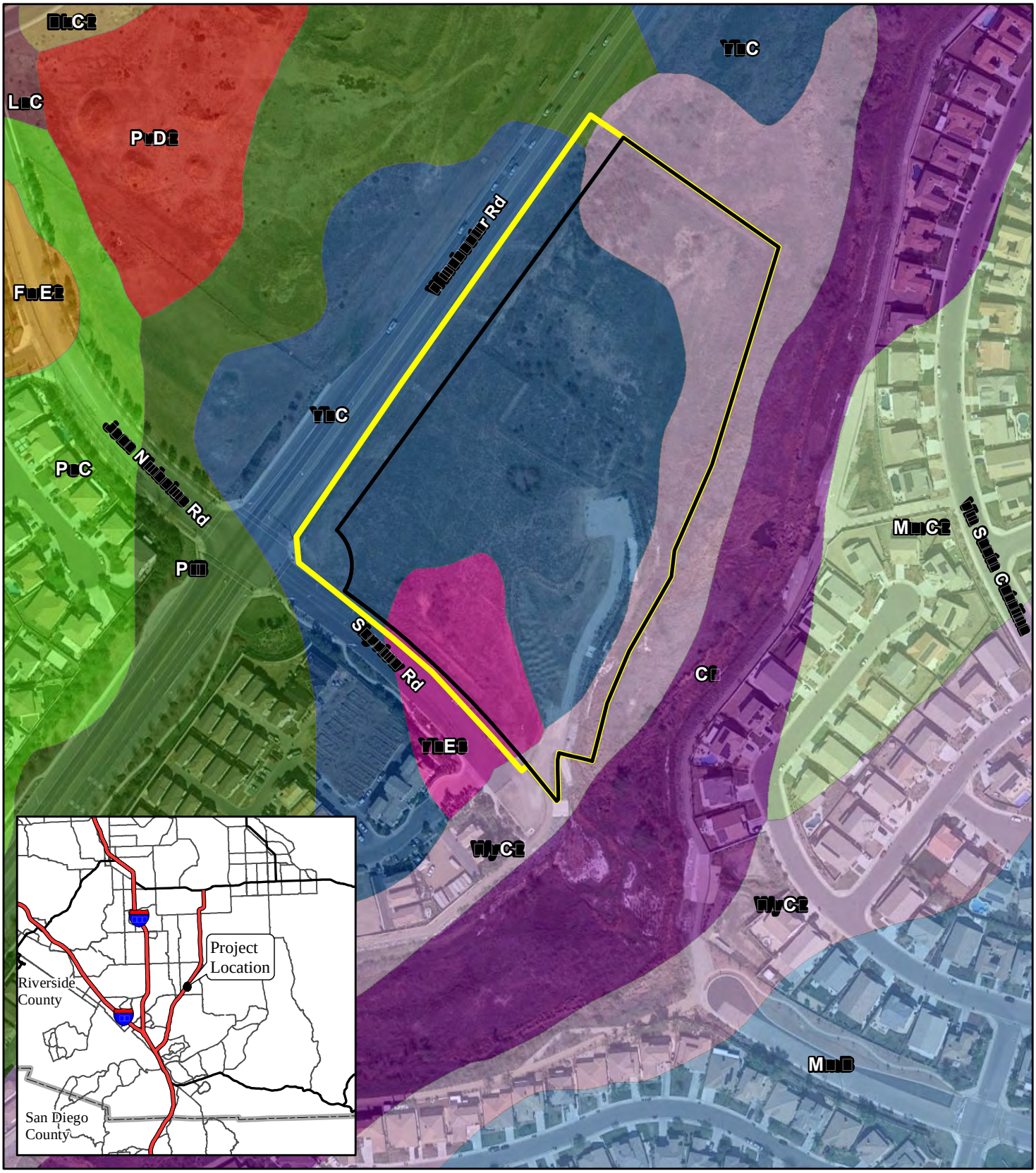
FEET

French Valley Library

Study Area

SOURCE: County of Riverside (2/19), Google (8/18)

I:\RED1901\GIS\MXD\StudyArea_r1.mxd (2/13/2019)



LSA

LEGEND

APN 480-160-021

Biological Study Area

Soils

BkC2
Cf
FwE2
LaC
MmB
MmC2
PsC
PtB
PvD2
WyC2
YbC
YbE3

N

0 125 250

FEET

FIGURE 2

French Valley Library

Soils

SOURCE: County of Riverside (2/19), Google (8/18)

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APPENDIX B2

BURROWING OWL SURVEY REPORT

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CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

May 22, 2019

Ms. Maribel Hyer, Senior Real Property Agent
County of Riverside, Economic Development Agency
3403 Tenth Street, Suite 400
Riverside, California 92501

CFP Riverside, LLC
18336 Minnetonka Boulevard, Suite C
Deephaven, Minnesota 55391

TRUSTEE:
Ashraf Almurdaah
Vice President
U.S. Bank National Association
633 W. 5th Street, 24th Floor
Los Angeles, California 90071

Subject: Results of a Burrowing Owl Survey for the French Valley Library Project (LSA Project No. RED1901.01)

Dear Ms. Hyer:

This report documents the results of a burrowing owl (*Athene cunicularia*) survey for the French Valley Library Project site (Accessor's Parcel Number 480-160-021-2). The approximately 13-acre parcel is located at the east corner of Winchester Road and Sky View Road in the unincorporated community of French Valley, Riverside County, California (attached Figure 1).

The survey results were negative for burrowing owl.

BACKGROUND

Burrowing owls are found in open, dry grasslands; agricultural and range lands; desert habitats; and grass, forb, and shrub stages of pinyon and ponderosa pine habitats. They nest in abandoned burrows of ground squirrels or other animals, in pipes, rock and debris piles, and in other similar features.

Burrowing owls and their nests and eggs are protected from "take" under Sections 3503, 3503.5, and 3800 of the California Fish and Game Code. Activities that cause destruction of active nests, or that cause nest abandonment and subsequent death of eggs or young, may constitute violations of this law.

1500 Iowa Avenue, Suite 200, Riverside, California 92507 951.781.9310 www.lsa.net

SURVEY AREA

The area surveyed with transects (Figure 2) is approximately 13 acres and includes areas of potentially suitable habitat within the Biological Study Area (BSA) as well as within accessible portions of a 150-meter buffer area. The topography of this area is generally flat with elevation ranging from approximately 1,360 to 1,380 feet above mean sea level. Areas of potentially suitable habitat consisted of non-native grassland dominated by shortpod mustard (*Hirschfeldia incana*), redstem stork's bill (*Erodium cicutarium*), common fiddleneck (*Amsinckia intermedia*), and ripgut brome (*Bromus diandrus*). Stands of cattail (*Typha* sp.), mule fat (*Baccharis salicifolia*), black mustard (*Brassica nigra*), shortpod mustard, Mediterranean tamarisk (*Tamarix ramosissima*), and tree tobacco (*Nicotiana glauca*) were unsuitable due to vegetation height and density and were not surveyed.

METHODS

The survey was conducted according to the *County of Riverside Guidelines for Burrowing Owl Surveys* (revised March 29, 2006). The survey was conducted by walking approximately 20-meter transects throughout areas of suitable habitat to look for burrowing owls, potential burrows (burrows greater than 11 centimeters (cm) in diameter and 150 cm in depth), and burrowing owl sign. Stan Spencer, LSA biologist, conducted the survey on April 16, 2019, from 7:15 to 9:15 a.m. The temperature was 60 degrees, with 96 percent cloud cover and wind speeds below 3 miles per hour. Areas of potentially suitable habitat within 150 meters of the BSA (Figure 2) that were visible from the BSA but for which access was not provided were viewed through binoculars.

RESULTS

Wildlife species detected during the survey include American crow (*Corvus brachyrhynchos*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), bushtit (*Psaltriparus minimus*), common raven (*Corvus corax*), common yellowthroat (*Geothlypis trichas*), lesser goldfinch (*Carduelis psaltria*), mourning dove (*Zenaida macroura*), red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), western wood-pewee (*Contopus sordidulus*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*).

No burrowing owls, burrowing owl sign, or burrows or similar features suitable for burrowing owl occupation were found to be present on site. Because of the absence of potential burrows, no additional survey visits for this presence/absence survey are required. Since portions of the site are otherwise suitable for burrowing owl, however, and burrowing owl could occupy the site prior to construction, a pre-construction burrowing owl survey will be required.

If you have any questions concerning the report, I can be contacted at (951) 781-9310 or stan.spencer@lsa.net.

Sincerely,

LSA ASSOCIATES, INC.

Stanley C. Spencer, Ph.D.
Associate/Biologist

Attachments: Figure 1: Study Area
Figure 2: Survey and Vegetation Map
Figure 3: Site Photographs

LSA

LEGEND

APN 480-160-021

Biological Study Area

FIGURE 1

N

0 125 250

FEET

French Valley Library

Study Area

SOURCE: County of Riverside (2/19), Google (8/18)

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LSA

FIGURE 2

LEGEND

- Biological Study Area
- 20-Meter Transects
- 150-Meter Buffer
- Photo Locations

Vegetation Visible During Survey

- Cattail Stand
- Mule Fat Stand
- Mustard Stand
- Non-native Grassland
- Tamarix Stand
- Tree Tobacco Stand
- Willow Scrub

0 150 300
FEET

French Valley Library

Survey and Vegetation Map

SOURCE: County of Riverside (2/19), Google (8/18)

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Photograph 1. View of survey area, looking northwest.

Photograph 2. View of survey area, looking west.

Photograph 3. View of survey area, looking southwest.

Photograph 4. View of survey area, looking northwest.

LSA

FIGURE 3

French Valley Library
Site Photographs

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APPENDIX C

CULTURAL RESOURCES ASSESSMENT

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PHASE I CULTURAL RESOURCES ASSESSMENT

EDA LIBRARIES PROJECT – FRENCH VALLEY SITE

UNINCORPORATED COMMUNITY OF FRENCH VALLEY

RIVERSIDE COUNTY, CALIFORNIA

LSA

June 14, 2019

PHASE I CULTURAL RESOURCES ASSESSMENT

EDA LIBRARIES PROJECT – FRENCH VALLEY SITE

UNINCORPORATED COMMUNITY OF FRENCH VALLEY

RIVERSIDE COUNTY, CALIFORNIA

Prepared for:

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Riverside, California 92507
(951) 781-9310

Project No. RED1901.03

LSA

June 14, 2019

EXECUTIVE SUMMARY

LSA is under contract to Riverside County Economic Development Agency (EDA) to conduct a Phase I Cultural Resources Assessment for the EDA Libraries Project – French Valley Site (project) in the unincorporated community of French Valley, Riverside County, California. The assessment included a records search through the Eastern Information Center (EIC) at University of California, Riverside; background research; a field survey; and this report. All work has been completed per the requirements of the California Environmental Quality Act of 1970 (CEQA). This report presents the results of the cultural resource study.

Work for this project included a cultural resources records search, field surveys, and this report. No cultural resources were identified in the project site as a result of the records search, background research, or field survey. However, despite the severe disturbance of the project site, the site is bracketed by prehistoric and historic resources. As such, there is a moderate potential for subsurface cultural residues that may be of local interest and monitoring of ground-disturbing activities is recommended.

In the unlikely event that human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County coroner has made a determination of origin and disposition pursuant to State Public Resources Code Section 5097.98. The County coroner must be notified of the find immediately. If the remains are determined to be Native American, the County coroner would notify the Native American Heritage Commission (NAHC), which would determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

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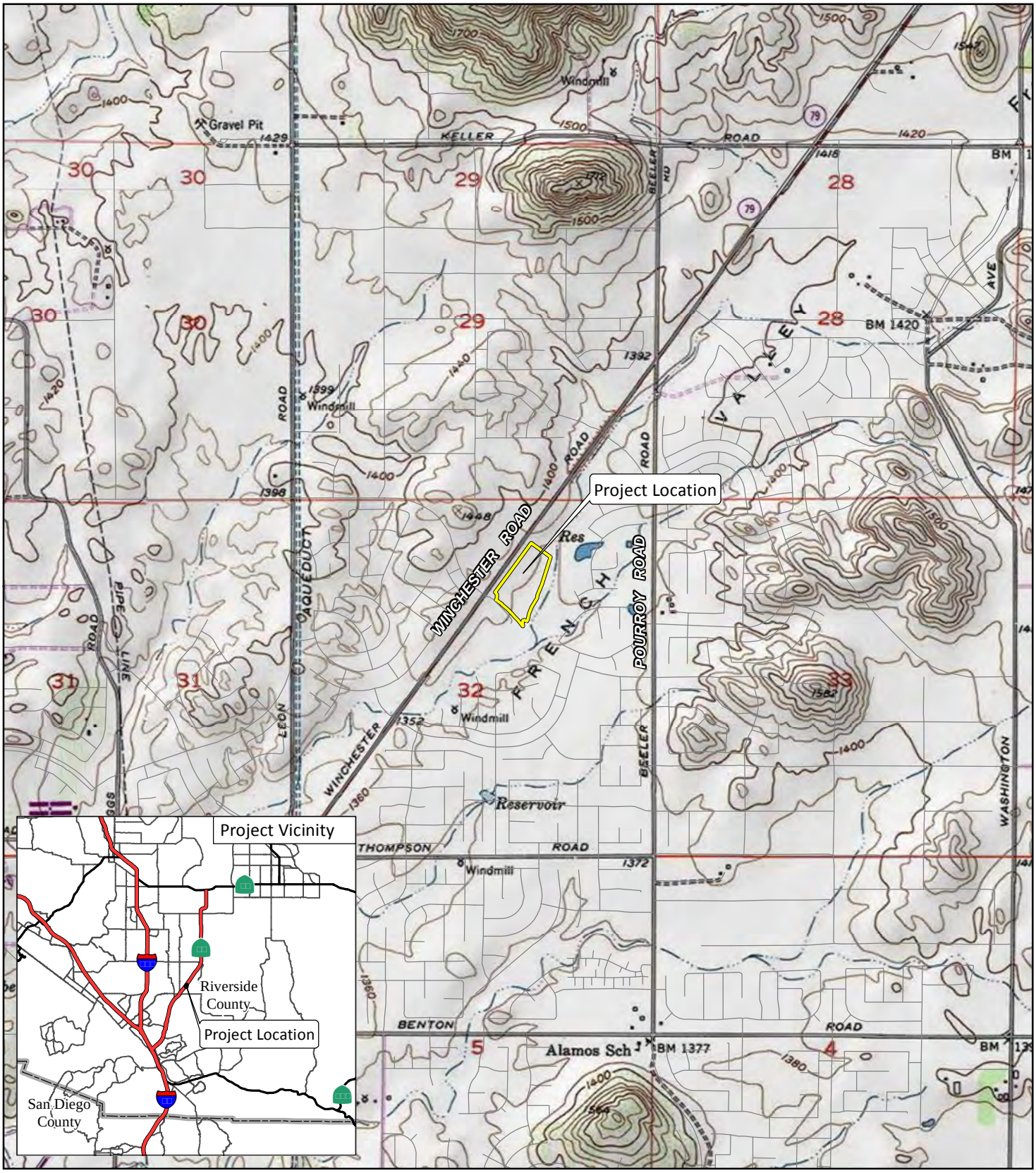
FIGURE

INTRODUCTION

LSA is under contract to Riverside County Economic Development Agency (EDA) to conduct a Phase I Cultural Resources Assessment for the EDA Libraries Project – French Valley Site (project) in the unincorporated community of French Valley, Riverside County, California. The assessment included a records search through the Eastern Information Center (EIC) at University of California, Riverside; background research; a field survey; and this report. The proposed project involves the construction of a new library building with associated sidewalks, parking, and landscaping, as well as a coffee house and two retail buildings.

The project site is located in Section 32 of Township 6 South, Range 2 West, San Bernardino Baseline and Meridian, as depicted on the United States Geological Survey (USGS) *Bachelor Mountain, California* 7.5-minute topographic quadrangle (USGS 1978; Figure 1).

All work has been completed per the requirements of the California Environmental Quality Act of 1970 (CEQA; as amended January 1, 2019); Public Resources Code (PRC) Division 13 (Environmental Quality), Chapter 2.6, Sections 21083.2 (Archaeological Resources) and 21084.1 (Historical Resources); the *State CEQA Guidelines* (as amended December 1, 2018); and the California Code of Regulations (CCR), Title 14, Chapter 3, Article 5, Section 15064.5 (Determining the Significance of Impacts on Historical and Unique Archaeological Resources). Sites determined important under CEQA are eligible for listing in the California Register of Historical Resources (California Register).



LSA

FIGURE 1

N

0 1000 2000
FEET

EDA Libraries Project - French Valley Site

Regional and Project Location

SOURCE: USGS 7.5' Quad - Bachelor Mtn. (1973), Romoland (1979), Murrieta (1979), Winchester (1979); ESRI Streetmap, 2013.

I:\OMW1801.P\Reports\Cultural\fig1_RegLoc_480-160-021.mxd (4/17/2019)

BACKGROUND

NATURAL SETTING

The natural setting of the project vicinity is presented based on the underlying theoretical assumption that humans and human societies are in continual interaction with the physical environment. Being an integral and major part of the ecological system, humans adapt to the environment through technological and behavioral changes. Locations of archaeological sites are based on the constraints of these adaptations, whether it is proximity to a particular resource, topographical restrictions, or shelter and protection. Sites will also contain an assemblage of artifacts and ecofacts consistent with the particular interaction.

The project site is at an elevation of approximately 1,375 feet above mean sea level. It is located at the northern end of the Peninsular Ranges Geomorphic Province, a 900-mile-long northwest-southeast trending structural block that extends from the Transverse Ranges to the tip of Baja California and includes the Los Angeles Basin (California Geological Survey 2002; Norris and Webb 1976). Natural sediments of the project site consist of young alluvial channel deposits dating from the Holocene and latest Pleistocene, as well as very old alluvial valley deposits dating from the middle to early Pleistocene (Morton and Kennedy 2003). The young alluvial channel deposits consist of unconsolidated sand, silt, and clay-bearing alluvium and the very old alluvial valley deposits consist of moderately to well-indurated, reddish-brown, mostly very dissected gravel, sand, silt, and clay-bearing alluvium (Morton and Kennedy 2003). The current land cover for the project site is classified as wheat and valley foothill riparian (DataBasin 2011). The closest natural water source to the project site is an unnamed stream along the eastern boundary of the site.

CULTURAL SETTING

Prehistory

Chronologies of prehistoric cultural change in Southern California area have been attempted numerous times, and several are reviewed in Moratto (2004). No single description is universally accepted as the various chronologies are based primarily on material developments identified by researchers familiar with sites in a particular region and variation exists essentially due to the differences in those items found at the sites. Small differences occur over time and space, which combine to form patterns that are variously interpreted.

Currently, two primary regional culture chronology syntheses are commonly referenced in the archaeological literature. The first, Wallace (1955), describes four cultural horizons or time periods: Horizon I – Early Man (9000–6000 BC), Horizon II – Milling Stone Assemblages (6000–3000 BC), Horizon III – Intermediate Cultures (3000 BC–AD 500), and Horizon IV – Late Prehistoric Cultures (AD 500–historic contact). This chronology was refined (Wallace 1978) using absolute chronological dates obtained after 1955.

The second cultural chronology (Warren 1968) is based broadly on Southern California prehistoric cultures and was also revised (Warren 1984; Warren and Crabtree 1986). Warren's (1984) chronology includes five periods in prehistory: Lake Mojave (7000–5000 BC), Pinto (5000–2000 BC),

Gypsum (2000 BC–AD 500), Saratoga Springs (AD 500–1200), and Protohistoric (AD 1200–historic contact). Changes in settlement pattern and subsistence focus are viewed as cultural adaptations to a changing environment, which begins with gradual environmental warming in the late Pleistocene, continues with the desiccation of the desert lakes, followed by a brief return to pluvial conditions, and concludes with a general warming and drying trend, with periodic reversals that continue to the present (Warren and Crabtree 1986).

Ethnography

The project area is situated within the traditional boundaries of the Luiseño (Bean and Shipek 1978). Prior to the Spanish occupation of California, the territory of the Luiseño extended along the coast from Agua Hedionda Creek to the south, Aliso Creek to the northwest, and the Elsinore Valley and Palomar Mountain to the east. These territorial boundaries were somewhat fluid and changed through time. They encompassed an extremely diverse environment that included coastal beaches, lagoons and marshes, inland river valleys and foothills, and mountain groves of oaks and evergreens (Bean and Shipek 1978). The Luiseño were first encountered by the Spanish missionaries in the late 18th century.

The Luiseño lived in small communities, which were the focus of family life. Patrilineally linked, extended families occupied each village (Kroeber 1976; Bean and Shipek 1978). Luiseño villages were politically independent and were administered by a chief who inherited his position from his father. Luiseño villages generally were located in valley bottoms, along streams, or along coastal strands near mountain ranges sheltered in coves or canyons, near a water source, and in a location that was easily defended.

The Luiseño took advantage of the varied resources available. Luiseño subsistence was based primarily on seeds (e.g., acorns, grass seed, manzanita, sunflower, sage, chía, and pine nuts) that were dried and ground to be cooked into a mush. Their diet also included game animals (e.g., deer, rabbit, jackrabbit, wood rat, mice, antelope, and many types of birds) (Bean and Shipek 1978). They established seasonal camps along the coast and near bays and estuaries to gather shellfish and hunt waterfowl; and they utilized fire for crop management and engaged in communal rabbit drives (Bean and Shipek 1978).

The first written accounts of the Luiseño are attributed to the mission fathers. Later documentation was authored by Sparkman (1908), Kroeber (1976), White (1963), Oxendine (1983), and others.

History

In California, the historic era is generally divided into three periods: the Spanish Period (1769–1821), the Mexican Period (1821–1848), and the American Period (1848–present). One of the first non-Native Americans to travel through the area currently known as Riverside County was Juan Bautista de Anza, who led an expedition in 1774. In the late 1700s, three Spanish mission fathers (one each from the San Gabriel, San Juan Capistrano, and San Luis Rey Missions) began to colonize land and use the valley of Riverside County for growing grain and raising cattle (County of Riverside 2019). Beginning in 1834, the missions and mission lands were secularized and transferred as “grants” to Californians who were citizens of Mexico. When California became a territory of the United States in 1848, a steady flow of settlers began coming into the area now known as Riverside County, and the

County was officially formed in May of 1893 (County of Riverside 2019). The area which would become French Valley was settled by French and French-speaking Swiss immigrants in the latter half of the 19th century (Gunther 1984). The community included grain farmers and cattle and horse ranchers. French Valley, the community in which the project is located, is a census-designated place in Riverside County.

METHODS

BACKGROUND RESEARCH

LSA consulted various sources to identify previously recorded cultural resources and cultural resource studies in or adjacent to the project site, as well as to assess the potential for subsurface archaeological cultural resources. The work consisted of records searches, literature reviews, and additional background research.

Records Search

A records search was conducted at the EIC on May 9, 2019 (Appendix A). The records search included a review of the following State and federal inventories for the project site and a 1 mile radius around the project site:

- *Directory of Properties in the Historic Property Data File* (California Office of Historic Preservation [California OHP] 2012). The directory includes the listings of the National Register of Historic Places (National Register), National Historic Landmarks, the California Register, California Historical Landmarks, and California Points of Historical Interest;
- *California Historical Landmarks* (California OHP 1996);
- *Points of Historical Interest* (California OHP 1992);
- *Five Views: An Ethnic Historic Site Survey for California* (California OHP 1988); and
- *California Inventory of Historic Resources* (California OHP 1976).

Additional Background Research

LSA also reviewed historic aerial photographs and topographic maps available online (NETR 2019).

FIELD SURVEY

On May 24, 2019, LSA Archaeologist Riordan Goodwin conducted a pedestrian field survey of the project site by walking transects spaced approximately 10 meters. Rodent back dirt was inspected for archaeological materials such as flaked and ground stone items, ceramics, and bone.

RESULTS

BACKGROUND RESEARCH

Records Search

The results of the May 9, 2019, records search indicate that two previous cultural resources studies have included portions of the project site, both of which were survey reports (Drover 1990; Tabares et al. 2003). An additional 35 studies have been conducted within 1 mile of the project site. These 35 studies included 28 surveys, a site evaluation, a Historic Property Survey Report, and five monitoring reports.

Previous cultural resources work in the project vicinity recorded 25 cultural resources within 1 mile of the project site. Seventeen of the resources date to the prehistoric period and eight of the resources date to the historic period. The closest cultural resource to the project site is P-33-15047, a prehistoric site consisting of one mortar and two milling slicks (Keller 2006). Site P-33-15047 is approximately 500 feet north of the project site. The next closest cultural resource to the project site is P-33-3842, a prehistoric site consisting of manos, mano fragments, metate fragments, and debitage (Drover and Smith 1990). Site P-33-3842 is approximately 750 feet east of the project site. No cultural resources have been previously recorded within the project site.

Additional Background Research

The earliest historic-period aerial photograph of the project site dates to 1938, at which time the project site was undeveloped and an unnamed stream existed along the eastern boundary of the site. The site has remained undeveloped since then, while the surrounding area has been developed since between 2005 and 2009. No buildings or structures have been on the project site during the historic period and the unnamed stream is still present today. The oldest available topographic map including the project site dates to 1943 and the most recent available topographic map dates to 2015. According to the available topographic maps, the project site has always been undeveloped, without any historic or modern structures or buildings.

FIELD SURVEY

During the pedestrian field survey conducted by Riordan Goodwin on May 24, 2019, ground visibility throughout the project site was less than 50 percent with the northwestern corner of the project site obscured by impenetrable vegetation. The majority of the project site is severely disturbed by grading activities: the southern portion of the site being graded pads, the northern portion is a retention basin, and the eastern edge is a gravel access road. The visible sediments of the project site consist of a sandy-clay loam mixture and sandy alluvium, and vegetation includes buckwheat, fiddleneck, mustard, star thistle, tamarisk, tree tobacco, white sage, and xeric grasses. Multiple alignments of gravel-filled sandbags and sparse modern refuse were noted on the surface. No archaeological resources were identified.

SUMMARY AND RECOMMENDATIONS

Work for this project included a cultural resources records search, field surveys, and this report. No cultural resources were identified in the project site as a result of the records search, background research, or field survey. However, despite the severe disturbance of the project site, the site is bracketed by prehistoric and historic resources. As such, there is a moderate potential for subsurface cultural residues that may be of local interest and monitoring of ground-disturbing activities is recommended.

In the unlikely event that human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County coroner has made a determination of origin and disposition pursuant to State Public Resources Code Section 5097.98. The County coroner must be notified of the find immediately. If the remains are determined to be Native American, the County coroner would notify the Native American Heritage Commission (NAHC), which would determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

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APPENDIX A

RECORDS SEARCH BIBLIOGRAPHIES

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-33-001105	CA-RIV-001105	Other - SBCM 807	Other	Prehistoric	AP06	1965 (A. Haenszel, n/a); 1980 (Schroth, Archaeological Resource Management Corp.); 1990 (C.E. Drover and D.M. Smith, Christopher Drover); 2012 (Stacie Wilson and Stephanie Klock, AECOM)	RI-00752, RI-02580, RI-02582, RI-04497, RI-09736
P-33-001270	CA-RIV-001270			Prehistoric		1978 (S. Bouscaren); 1980 (Scroth, Archaeological Resource Management Corp.); 1990 (C.E. Drover and D.M. Smith, Christopher Drover 13522 Malena Dr. Tustin Ca 92680); 1999 (Larry J. Pierson, Brian F. Smith and Associates)	RI-00752, RI-02580, RI-02582, RI-04497, RI-09736
P-33-003840	CA-RIV-003840	Other - DV 2		Prehistoric		1990 (C.E. Drover and D.M. Smith, Christopher Drover, Tustin, CA.); 1991 (J. Keller, Jean A. Keller, Temecula, CA.)	RI-02580, RI-02581, RI-02582, RI-05085, RI-05109, RI-08751
P-33-003841	CA-RIV-003841	Other - DV 3		Prehistoric		1990 (C.E. Drover and D.M. Smith, Christopher Drover, Tustin, CA.)	RI-02580, RI-04634, RI-05457, RI-08751
P-33-003842	CA-RIV-003842	Other - DV 4		Prehistoric		1990 (C.E. Drover and D.M. Smith, Christopher Drover, Tustin, CA.)	RI-02580, RI-02582
P-33-003843	CA-RIV-003843	Other - SRI-9981; Other - DV 5		Prehistoric		1990 (C.E. Drover and D.M. Smith, Christopher Drover, Tustin, CA.); 2011 (Scott Kremkau, SRI)	RI-02580, RI-02582, RI-07875
P-33-003844	CA-RIV-003844	National Register - 7; Other - DV 6		Historic		1990 (C.E. Drover and D.M. Smith, Christopher Drover, Tustin, CA.); 1999 (Larry J. Pierson, Brian F. Smith & Associates, San Diego, CA.)	RI-02580, RI-02582, RI-04497, RI-09736
P-33-003845	CA-RIV-003845	Other - DV 7		Prehistoric		; 1990 (C.E. Drover and D.M. Smith, Christopher Drover, Tustin, CA.)	RI-02580, RI-02582, RI-04497, RI-09736
P-33-003846	CA-RIV-003846	Other - DV 8		Prehistoric		1990 (C.E. Drover and D.M. Smith, Christopher Drover, Tustin, CA.)	RI-02580, RI-02582, RI-07875, RI-09736
P-33-005133	CA-RIV-005133	Other - Thompson-Cummins Farmstead; Voided - 33-009759	Building, Structure	Historic		1993 (Jerry Schaefer, Drew Palette, Pam Palette, Russ Collett, Collin O'Neil, Brian F. Mooney Associates); 2000 (J. Buysse, Brian F. Smith & Associates)	RI-03719, RI-07477, RI-08751

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-33-006334				Historic		1983 (J. Warner, Riverside County Historical Comm.)	RI-04593
P-33-007997	CA-RIV-005946			Historic		1995 (S. Williams, C. Inoway, B. Texier, INFOTEC Research, Inc.)	RI-05829
P-33-008932	CA-RIV-006339		Site	Prehistoric			
P-33-008933	CA-RIV-006340		Site	Prehistoric			
P-33-009478	CA-RIV-006378H		Site	Historic			RI-07875, RI-09736
P-33-009760				Historic		2000; 2007 (Brown, Joan); 2007 (Tsunoda, Koji, Jones & Stokes)	RI-04150, RI-06775, RI-07477
P-33-011224			Site	Prehistoric	AP04		RI-09736, RI-09854
P-33-011225		Other - SRI-9982; Other - CETAP 4-s-2		Prehistoric		2001 (William Sawyer, Caroline Braker, LSA Associates, Inc.); 2011 (Scott Kremkau, SRI)	RI-09736
P-33-011227			Site	Prehistoric			RI-04708, RI-05447
P-33-011230		Other - SRI-355; Other - CETAP 4-I-2		Prehistoric		2001 (William Sawyer and Caroline Braker, LSA Associates, Inc.); 2011 (Scott Kremkau, SRI)	RI-09736
P-33-011232		Other - SRI-9978; Other - CETAP 4-I-4		Prehistoric		2001 (William Sawyer, Caroline Braker, LSA Associates, Inc.)	RI-09736
P-33-011233		Other - CETAP 4-I-5 H; Other - SRI-9983		Historic		2001 (W. Sawyer/C. Braker, LSA Associates); 2005 (M. Robinson, Jones & Stokes); 2011 (Scott Kremkau, SRI)	
P-33-011234		Other - CETAP 4-I-6		Historic		2001 (W. Sawyer/C. Braker, LSA Associates); 2005 (M. Robinson, Jones & Stokes); 2012 (Stacie Wilson and Stephanie Klock, SRI)	
P-33-015047	CA-RIV-008008	Other - SRI-9984; Other - Su 1		Prehistoric		2006 (Keller, Jean A., Author); 2011 (Scott Kremkau, SRI); 2012 (Stacie Wilson and Stephanie Klock, AECOM)	
P-33-017628		Other - CRM TECH 2292-Iso-1		Prehistoric		2008 (Daniel Ballester, CRM TECH)	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-00313	NADB-R - 1080372; Voided - MF-0287	1978	Stephen Bouscaren	Enviromental Impact Evaluation: Archaeological Assessment of a Portion of the Winchester Area, Riverside County, California	Archaeological Research Unit, U.C. Riverside	
RI-00754	NADB-R - 1084771; Submitter - RCT-401-1; Voided - MF-0674	1994	Deborah McLean	Negative Archaeological Survey Report:Replacement of Exising Timber-Stringer Bridge at Washington Street and French Valley Stream Crossing	LSA Associates	
RI-02200	NADB-R - 1082629; Voided - MF-2384; Voided - RI-08168	1987	Christopher E. Drover	A CULTURAL RESOURCE ASSESSMENT - SABA I COMMERCIAL DEVELOPMENT	AUTHOR(S)	
RI-02580	NADB-R - 1083063; Voided - MF-2800	1990	DROVER, CHRISTOPHER E.	A CULTURAL RESOURCE ASSESSMENT, DUTCH VILLAGE PROJECT, FRENCH VALLEY, RIVERSIDE COUNTY, CALIFORNIA.	AUTHOR(S)	33-001105, 33-001270, 33-002257, 33-003839, 33-003840, 33-003841, 33-003842, 33-003843, 33-003844, 33-003845, 33-003846
RI-02581	NADB-R - 1083717; Voided - MF-2800	1991	KELLER, JEAN A.	SITE EVALUATION OF CA-RIV-3840, RIVERSIDE COUNTY, CALIFORNIA	AUTHOR(S)	33-003840
RI-02582	NADB-R - 1084764; Voided - MF-2800	1990	DROVER, C. E.	A CULTURAL RESOURCE ASSESSMENT: WINCHESTER 1800, FRENCH VALLEY, RIVERSIDE COUNTY, CALIFORNIA	AUTHOR	33-001105, 33-001270, 33-003840, 33-003842, 33-003843, 33-003844, 33-003845, 33-003846
RI-03623	NADB-R - 1084361; Voided - MF-3910	1993	KELLER, JEAN A.	A PHASE I ARCHAEOLOGICAL ASSESSMENT OF COMPREHENSIVE GENERAL PLAN AMENDMENT 370: 42.22 ACRES OF LAND NEAR TEMECULA, RIVERSIDE COUNTY, CA.	AUTHOR	
RI-04150	NADB-R - 1085613	2000	SMITH, BRIAN F. and JOHNNA L. BUYSSE	AN ARCHAEOLOGICAL/HISTORICAL STUDY FOR THE FRENCH VALLEY SPECIFIC PLAN/EIR, FRENCH VALLEY, COUNTY OF RIVERSIDE, SPECIFIC PLAN NO. 312/EIR NO. 411, GENERAL PLAN AMENDMENT NO. 472	BRIAN F. SMITH AND ASSOCIATES	33-009759, 33-009760, 33-009777, 33-009778, 33-009779
RI-04404	NADB-R - 1085736; Voided - MF-4913	2000	JONES AND STOKES ASSOCIATES, INC.	FINAL CULTURAL RESOURCES INVENTORY REPORT FOR THE WILLIAMS COMMUNICATIONS, INC., FIBER OPTIC CABLE SYSTEM INSTALLATION PROJECT, RIVERSIDE TO SAN DIEGO, CALIFORNIA VOL I-IV.	JONES AND STOKES ASSOCIATES, INC.	33-000816, 33-000817, 33-000862, 33-001845, 33-002970, 33-003081, 33-003839, 33-004202, 33-004624, 33-004744, 33-004768, 33-007587, 33-007601, 33-008105, 33-008172, 33-009772, 33-009773, 33-009774, 33-009775, 33-009776

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RI-04463	NADB-R - 1085806	1989	MACKO, MICHAEL E.	ARCHAEOLOGICAL SRUVEY REPORT OF AMCOR PROPERTIES, INC. 600-ACRE FRENCH VALLEY SPECIFIC LAND USE PLAN, RIVERSIDE COUNTY, CALIFORNIA	MACKO ARCHAEOLOGICAL CONSULTING	33-009777
RI-04498	NADB-R - 1085859	2001	KELLER, JEAN A.	A PHASE I CULTURAL RESOURCES ASSESSMENT OF TENTATIVE TRACT MAP NO. 29202, 30.0 ACRES OF LAND NEAR THE CITY OF MURRIETA, RIVERSIDE COUNTY, CALIFORNIA	AUTHOR	
RI-04593	NADB-R - 1085953	1999	SMITH, BRIAN F. and LARRY J. PIERSON	AN ARCHAEOLOGICAL/HISTORICAL STUDY FOR THE BROOKFIELD PROJECT, FRENCH VALLEY, COUNTY OF RIVERSIDE	BRIAN F. SMITH AND ASSOCIATES	33-006334, 33-007797
RI-04635	NADB-R - 1085994	2003	KELLER, JEAN A.	A PHASE I CULTURAL RESOURCES ASSESSMENT, TENTATIVE TRACT MAP 30430, 40.16 ACRES OF LAND NEAR THE CITY OF MURRIETA, RIVERSIDE COUNTY, CALIFORNIA	AUTHOR	
RI-04709	NADB-R - 1086076; Submitter - BEH432	2004	DUKE, CURT and NAT LAWSON	CULTURAL RESOURCE ASSESSMENT, FRENCH VALLEY ASSEMBLAGE, NEAR MENIFEE, RIVERSIDE COUNTY, CALIFORNIA	LSA ASSOCIATES, INC., RIVERSIDE	
RI-04790	NADB-R - 1086152	2003	TABARES, NATASHA, SHERRI GUST, and MARY PAT HICKSON	ARCHAEOLOGICAL ASSESSMENT REPORT AND MITIGTION PLAN FOR THE SKYVIEW PROJECT, WINCHESTER, RIVERSIDE COUNTY, CALIFORNIA	COGSTONE RESOURCE MANAGEMENT INC.	
RI-04935	NADB-R - 1086297; Submitter - 02-03-03-721	2003	MCKENNA ET AL.	A PHASE I CULTURAL RESOURCES SURVY OF ASSESSOR PARCEL 467-240-035 AND 467-240-036, COMPRISING 20 ACRES IN RIVERSIDE COUNTY, CALIFORNIA	MCKENNA ET AL.	
RI-04936	NADB-R - 1086298; Submitter - 08-03-09-799	2003	MCKENNA, JEANETTE A.	A PHASE I CULUTRAL RESOURCES SURVEY OF ASSESSOR PARCELS 467-160-047 AND 467-160-012, COMPRISING 20 ACRES IN RIVERSIDE COUNTY, CALIFORNIA	MCKENNA ET AL.	
RI-05085	NADB-R - 1086447	2004	HARRIS, NINA	LETTER REPORT: ARCHAEOLOGICAL MONITORING OF CONSTRUCTION ACTIVITIES AT BRINDISI TRACT #31067, TEMECULA, CALIFORNIA	APPLIED EARTH WORKS	33-003840

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RI-05109	NADB-R - 1086471	2004	EVERETTE, TIM	ARCHAEOLOGICAL MONITORING OF CONSTRUCTION ACTIVITIES FOR PARCEL #5 OF TRACT NO. 31007	APPLIED EARTH WORKS	33-003840
RI-05456	NADB-R - 1086819	2004	DICE, MICHAEL	AN ARCHAEOLOGICAL RESOURCE EVALUATION AND PALEONTOLOGICAL RECORDS SEARCH AT APN 958-040-001 (TENTATIVE TRACT #29214), COUNTY OF RIVERSIDE, CA	MICHAEL BRANDMAN ASSOCIATES	
RI-06046	NADB-R - 1087409; Submitter - 7979-109	2004	TENNYSON, MATTHEW	CULTURAL RESOURCES RECONNAISSANCE OF THE VEREECKEN PROPERTY, WINCHESTER HILLS, RIVERSIDE COUNTY, CALIFORNIA	SWCA ENVIRONMENTAL CONSULTANTS	
RI-06775	Other - 00054.07	2007	Jordan, Stacey C.	Archaeological Survey Report for Southern California Edison Company DSP-Appaloosa 12KV O/O Auld Substation Project, Riverside County, California, (WO#6077-5388, AI#5-5335)	Jones & Stokes	33-009760
RI-06903		1994	McLean, Deborah	Negative HSPR Report: Bridge Replacement on Washington Street over French Valley Stream, Riverside County	LSA Associates, Inc.	
RI-07270		2007	Robert S. White and Laura S. White	Phase I Cultural Resources Assessment of Appproximately 26 Acres Parcel as Shown on TTM 33751 Located Adjacent to Leon and Winchester Roads in French Valley, Unincorporated Riverside County,	Archaeological Associates	
RI-07436		2007	Barros de Philip	Phase I Archaeological Assessment of a 20-Acre Parcel in French Valley at the Corner of Thompson and Pourroy Roads in Riverside County, California	Professional Archaeological Services	
RI-07477	Submitter - SWCA Project No. 10283-111, SWCA Cultural Resources Report No. 2007-221	2007	Tuma, Michael W. and Joan Brown	Archaeological Monitoring for the Spencer's Crossing Phase I Project, Near the City of Murrieta, Riverside County, California	SWCA Environmental Consultants, Mission Viejo, CA	33-005133, 33-009760
RI-07838	Submitter - CRM TECH Contract No. 2244B	2008	Bodmer, Clarence, Thomas Melzer, and Laura Shaker	Phase I Archaeological Assessment: Winchester 20 Project, Assessor's Parcel Nos. 480-170-002, 963-100-001, 963-10-002, near the City of Murietta, Riverside County, California	CRM TECH	

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RI-08014		2004	Sherri Gust	Phase I Archaeological and Paleontological Resources Survey And Assessment Of Tentative Tract Map No. 32171	Principle Invesitgator, Archaeology and Paleontology	
RI-08037		2004	Kim Scott and Sherri Gust	Phase I Archaeological & Paleontological Resources Survey & Assessment of Assessors Parcel Number 467-160-016	UltraSystems Environmental, Irvine, California	
RI-08056	Submitter - LA3421A	2008	Wayne Bonner	Letter Report: Cultural Resource Records Search and Site Visit Results for Royal Street Communications California, LLC	Michael Brandman Associates, Irvine, California	
RI-08602	Caltrans - EA 08-464600; Other - EA 08-464600	2010	Mark Robinson	Supplemental Archaeological Survey Report State Route 79 Widening Report Between Thompson Road and Domenigoni Parkway Riverside County, California	ICF Jones & Stoke	
RI-08715		2011	Joan George	Letter Report: Cultural Resources Monitoring for Eastern Municipal Water District's Leon Road Recycled Water Booster Station Project	Applied EarthWorks	
RI-08808		2011	Wayne H. Bonner and Sarah A. Williams	Letter Report: Cultural Reources Records Search and Site Visit Results for T-Mobile USA IE24280-A	Michael Brandman Associates	
RI-08955	Submitter - Project No. 60247921.300	2015	Stacie Wilson, Jill Gibson, and Theodore G. Cooley	Cultural Resources Survey Report For The Proposed Southern California Edison Valley South 115 KV Subtransmission Project, Riverside County, California	AECOM	33-001074, 33-001175, 33-004008, 33-004012, 33-011250, 33-011254, 33-011449, 33-012439, 33-012443, 33-012444, 33-013299, 33-013871, 33-014370, 33-014389, 33-015313, 33-015314, 33-015743, 33-016709, 33-016975, 33-021021, 33-021022, 33-021023, 33-021024, 33-021025, 33-021026, 33-021027, 33-021028, 33-021029, 33-021030, 33-021031, 33-021032
RI-09070		2013	Tracy A. Stropes and Brian F. Smith	PHASE I ARCHAEOLOGICAL ASSESSMENT FOR THE YATES ROAD PROJECT (TTM 36437) COUNTY OF RIVERSIDE APNs 467-390-001 through -016	Brian F. Smith and Associates, Inc.	
RI-09417		2015	Brian F. Smith	Cultural Resources Monitoring Report for the Blessed Teresa of Calcutta Catholic Parish Project, PP24903, Winchester, Riverside County, California	Brian F. Smith and Associates, Inc.	

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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
RI-09854		2009	Sherri Gust and Amy Glover	Phase I Cultural Resources Assessment Report for the Blessed Teresa of Calcutta Catholic Church Project in Ruverside County, California	Cogstone	33-011224

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APPENDIX D

GEOTECHNICAL EVALUATION REPORT

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TWINING
Engineering a Better Tomorrow

Geotechnical Evaluation Report

Proposed French Valley Public Library
31526 Skyview Road (APN 480-160-021)
Winchester, California

Prepared for:

CFP Riverside, LLC
18336 Minnetonka Boulevard, Suite C
Deephaven, Minnesota 55391

October 18, 2019
Project No.: 190759.3

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October 18, 2019
Project No.: 190759.3

Mr. Steve Collins
President
CFP Riverside, LLC
18336 Minnetonka Boulevard, Suite C
Deephaven, Minnesota 55391

Subject: **Geotechnical Evaluation Report**
Proposed French Valley Public Library
31526 Skyview Road (APN 480-160-021)
Winchester, California

Dear Mr. Collins,

In accordance with your request and authorization, we are presenting the results of our geotechnical investigation for the Proposed French Valley Public Library project located at 31526 Skyview Road in Winchester, California (APN 480-160-021). The purpose of our investigation has been to evaluate the subsurface conditions at the site and to provide geotechnical engineering recommendations for the construction of the proposed project. This report was prepared in accordance with the requirements of the 2016 California Building Code.

Based on our findings, the proposed project is geotechnically feasible, provided that the recommendations in this report are incorporated into the design and are implemented during construction of the project.

We appreciate the opportunity to be of service on this project. Should you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned.

Respectfully submitted,
TWINING, INC.

REGISTERED PROFESSIONAL ENGINEER
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Liangcai He, PhD, RCE 73280, GE 3033
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1. INTRODUCTION

This report presents the results of the geotechnical investigation performed by Twining, Inc. (Twining) for the Proposed French Valley Public Library project located at 31526 Skyview Road in Winchester, California. A description of the site and the proposed development is provided in the following section. The objectives of this study have been to evaluate subsurface conditions at the site and to provide geotechnical recommendations for design and construction of the proposed development, including recommendations for foundations and earthwork.

2. PROJECT DESCRIPTION

The proposed project is to construct a single-story public library branch approximately 25,000 square feet on a portion of Assessor's Parcel Number (APN) 480-160-021 located at 31526 Skyview Road in Winchester, California. The location of the site is depicted on Figure 1 – Site Location Map. The approximate site coordinates are latitude 33.608773°N and longitude 117.108073°W, and the site is located on the Bachelor Mountain, California 7½-Minute Quadrangle, based on the United States Geological Survey (USGS) topographic map (USGS 2018).

The site is currently unpaved and unoccupied. It is bounded on the east by a creek and related rip rap embankment, a flood control easement, and a 100-year floodplain; on the south by Skyview Road, on the west and north by Winchester Road (Highway 79).

Proposed structures will consist of reinforced masonry block walls and structural steel and/or wood-framed truss roof systems and will be supported on reinforced concrete shallow foundations. It is also proposed to include other appurtenant improvements such as parking spaces, a stormwater infiltration basin, hardscape, light poles, and utility pipelines. The size and depth of the infiltration basin are to be determined.

The site plan and borings performed during this evaluation are shown in Figure 2 – Site Plan and Boring Location Map.

The site plan shows that a portion of the proposed building footprint will be built on an approximately 10-foot-high slope. A cut-and-fill transition is anticipated to occur below the building pad, due to the existing surface conditions discussed in Section 4.2 of this report. Approximately 10 feet of engineered fill will be placed to create a uniform building pad, which will create 2H:1V (horizontal : vertical) fill slopes up to 10 feet high along the north and east sides of the pad.

3. SCOPE OF WORK

Our scope of work included review of background information, pre-field activities and field exploration, laboratory testing, engineering analyses and report preparation. These tasks are described in the following subsections.

3.1. Literature Review

We reviewed readily available background data including published geologic maps, topographic maps, seismic hazard maps and literature, and flood hazard maps relevant to the subject site. Relevant information has been incorporated into this report.

3.2. Pre-Field Activities and Field Exploration

Before starting our exploration program, we performed a geotechnical site reconnaissance to observe the general surficial conditions at the site and to select field exploration locations. After exploration locations were delineated, Underground Service Alert was notified of the planned locations a minimum of 72 hours prior to excavation. The approximate locations of the borings are shown on Figure 2, Site Plan and Exploration Location Map.

The field exploration was conducted on September 30, 2019 and consisted of drilling, testing, sampling, and logging 4 exploratory hollow-stem-auger (HSA) borings (B-1 through B-4) and percolation testing in four hand-auger borings (P-1 through P-4). The HSA borings (B-1 through B-4) were advanced to approximate depths of 16.5 to 51.5 feet below ground surface (bgs) using a CME-85 truck-mounted drill rig equipped with 8-inch-diameter HSAs. The hand-auger borings (P-1 through P-4) were drilled to approximately 5 feet bgs for percolation testing. The approximate locations of the borings are shown on Figure 2, Site Plan and Boring Location Map.

Drive samples of the soils were obtained from the HSA borings using a Standard Penetration Test (SPT) sampler without room for liner and a modified California split spoon sampler. The samplers were driven using a 140-pound automatic hammer falling approximately 30 inches. The blow-counts to drive the samplers were recorded, and subsurface conditions encountered in the borings were logged by a Twining field engineer. Soil samples obtained from the borings were transported to Twining Laboratories for examination and testing.

Percolation tests were performed in the 5-foot hand-auger borings (P-1 through P-4) according to the boring percolation test guidance provided in the Riverside County Design Handbook for Low Impact Development Best Management Practices. Testing was performed to provide estimates of infiltration rate of the site soils for use in preliminary design of the stormwater infiltration facility.

Upon completion of drilling or percolation testing, the borings were backfilled by the drilling subcontractor using drilled soil cuttings.

Detailed descriptions of the field exploration, soils encountered during drilling, and the percolation tests are presented in Appendix A – Field Exploration.

3.3. Geotechnical Laboratory Testing

Laboratory tests were performed on selected samples obtained from the borings to aid in the soil classification and to evaluate the engineering properties of site soils. The following tests were performed in general accordance with ASTM standards:

- In-situ moisture and density;
- #200 Wash
- Atterberg Limits;
- Expansion Index;
- Maximum density and optimum moisture;
- Direct shear;
- Consolidation;
- R-Value; and

- Corrosivity.

Detailed laboratory test procedures and results are presented in Appendix B – Laboratory Testing.

3.4. Engineering Analyses and Report Preparation

We compiled and analyzed the data collected from our field exploration and laboratory testing. We performed engineering analyses based on our literature review and data from field exploration and laboratory testing programs. Our analyses included the following:

- Site geology, and subsurface conditions;
- Groundwater conditions;
- Geologic hazards and seismic design parameters;
- Liquefaction potential and seismic settlement;
- Soil corrosion potential;
- Soil collapse and expansion potential;
- Site preparation and earthwork;
- Foundation design parameters including bearing capacity, settlement, and lateral resistance;
- Modulus of subgrade reaction for slab design;
- Pole foundations for light poles, street lights and similar structures;
- Pavement section recommendations; and
- Stormwater infiltration rates.

We prepared this report to present our conclusions and recommendations from this investigation.

4. SITE GEOLOGY AND SUBSURFACE CONDITIONS

4.1. Regional Geology

According to the Morton Geologic Map of the Bachelor Mountain quadrangle (Morton, 2003), the site is underlain by very old alluvial valley deposits that are early to middle Pleistocene in age (geologic map symbol: $Qvov_a$) consisting of moderately to well-indurated, reddish-brown, mostly very dissected gravel, sand, silt, and clay-veering alluvium. A portion of the geologic map is reproduced as Figure 3 – Regional Geologic Map.

4.2. Surface and Subsurface Conditions

The site was vacant and unpaved at the time of our field exploration. Based on our review of aerial photos (Figure 4), it appears that the north portion of the site was cut between 2009 and 2011 to approximately 1,364 feet to 1,371 feet above mean sea level (msl), about 10 feet below adjacent ground surface with an average elevation of approximately 1375 feet msl. There are large trees along the slopes formed by the cut.

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During our field investigation, we noticed a depressed area occupied by large trees in the proposed parking lot area in the southern portion of the site between boring P-1 and the proposed building, and another depressed area in the proposed infiltration facility area in the north portion of the site. In 2011, the depressed areas appeared as ponds on the 2011 aerial photo (Figure 4).

Subsurface conditions encountered during the field exploration consisted of interbedded layers of silt, clay, silty sand and clayey sand in the upper 20 feet and predominantly clay below 20 feet. The silt and clay layers were very stiff to hard, and the silty and clayey sand layers were dense to very dense.

4.3. Groundwater Conditions

During drilling, groundwater was encountered at approximately 30 to 45 feet bgs in our borings. In about two hours after the end of drilling, the water level rose to about 16 feet bgs, or approximate elevation 1,358 feet msl.

Historically high groundwater level at the project site is 10 to 20 feet bgs based on the Seismic Hazard Zone Report 120 of California Geological Survey (CGS) for the Bachelor Mountain quadrangle (CGS, 2018). Based on groundwater level data measured in 1968 in wells adjacent to the site in the California Water Data Library (CWDL), the groundwater level at the site in 1968 appeared at approximate elevation 1,355 feet msl. It may be assumed that the historic high groundwater at the site is 10 feet bgs or at elevation 1,365 feet msl.

Groundwater conditions may vary across the site due to stratigraphic and hydrologic conditions and may change over time as a consequence of seasonal and meteorological fluctuations, or of activities by humans at this and nearby sites.

5. GEOLOGIC HAZARD AND SEISMIC DESIGN CONSIDERATIONS

The site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered high during the design life of the proposed development. The hazards associated with seismic activity in the vicinity of the site area discussed in the following sections.

5.1. Surface Fault Rupture

As shown on Figure 5, the project site is not located within a State of California Earthquake Fault Zone (formerly known as a Special Studies Zone) or an area with the potential for earthquake-induced landslides (CGS, 2018). The nearest known active faults belong to the Elsinore fault zone located about 6.4 miles southwest of the site. Based on our review of geologic and seismologic literature and our site evaluation, it is our opinion that the likelihood of surface fault rupture and earthquake-induced landslides at the site during the life of the proposed improvements is low.

5.2. Landslides

The area of the project site is not within an area with the potential for earthquake-induced landslides. Considering the site is relatively flat and not close to significant slopes, the potential for earthquake-induced landslides to occur at the site is considered very low.

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5.3. Liquefaction and Seismic Settlement Potential

The project site is not within a zone of required investigation for liquefaction according to CGS (2018). The Riverside Liquefaction Map shows liquefaction susceptibility of the site is low. Considering these results, the site subsurface conditions discussed above, and the site seismic shaking intensity discussed below, liquefaction potential at the site is considered low, and seismically induced settlement is negligible.

5.4. CBC Seismic Design Parameters

Based on the 2006 CGS Site Classification Map, the average shear wave velocity in the top 30 meters (or approximately 100 feet) of the soil profile ($V_{s,30}$) at the site is about 349 meters per second (or approximately 1,145 feet per second). Based on global $V_{s,30}$ from topographic slope (Wald & Allen 2008), the site $V_{s,30}$ is about 303 meters per second (or approximately 994 feet per second). The site $V_{s,30}$ values and the subsurface conditions discussed above suggest the site seismic class is D consisting of a stiff soil profile.

Our recommendations for seismic design parameters have been developed in accordance with the 2016 California Building Code (2016 CBC) and ASCE 7-10 (ASCE, 2010) standards. Table 1 presents the seismic design parameters for the site.

Table 1 – 2016 California Building Code Design Parameters

Design Parameters	Value
Site Class	D
Mapped Spectral Acceleration Parameter at Period of 0.2-Second, S_s (g)	1.5
Mapped Spectral Acceleration Parameter at Period 1-Second, S_1 (g)	0.6
Site Coefficient, F_a	1.0
Site Coefficient, F_v	1.5
Adjusted MCE_R[1] Spectral Response Acceleration Parameter, S_{MS} (g)	1.5
Adjusted MCE_R[1] Spectral Response Acceleration Parameter, S_{M1} (g)	0.9
Design Spectral Response Acceleration Parameter, S_{DS} (g)	1.0
Design Spectral Response Acceleration Parameter, S_{D1} (g)	0.6
Peak Ground Acceleration, PGA_M[2] (g)	0.544
Seismic Design Category	D

Notes: [1] Risk-Targeted Maximum Considered Earthquake
[2] Peak Ground Acceleration adjusted for site effects

Using the USGS Seismic Hazard Interactive Reaggregation Tool, a modal moment earthquake magnitude of 7.7 and a modal seismic source distance of 6.4 miles (10.3 kilometers) were obtained for a peak acceleration of 0.68 g at the site, which corresponds to a probability of exceedance of 2% in 50 years.

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6. GEOTECHNICAL ENGINEERING RECOMMENDATIONS

Based on the results of our literature review and the field exploration, laboratory testing, and engineering analyses, it is our opinion that the proposed construction is feasible from a geotechnical standpoint, provided that the recommendations in this report are incorporated into the design plans and are implemented during construction.

6.1. General Considerations

Geotechnical engineering recommendations presented in this report for the proposed project are based on our understanding of the proposed development, subsurface conditions encountered during our field exploration, the results of laboratory testing on soil samples taken from the site, and our engineering analyses.

Key geotechnical considerations for the project are as follows:

- A cut/fill transition will occur under the building pad;
- Construction of the building pad will create a 10-foot-high 2H:1V fill slope;
- Subsurface materials consist predominantly of fine-grained soils;
- Relatively high groundwater at approximately 1,358 to 1,365 feet msl.

The following sections present our conclusions and recommendations pertaining to the engineering design for this project. If the design substantially changes, then our geotechnical engineering recommendations would be subject to revision based on our evaluation of the changes.

6.2. Soil Expansion and Collapse Potential

Based on our field exploration and laboratory test results, the risk of soil expansion and collapse is low at the site and will not adversely affect the design and construction of the project.

6.3. Corrosive Soil Evaluation

The potential for the near-surface on-site materials to corrode buried steel and concrete improvements was evaluated. Laboratory testing was performed on one selected near-surface soil to evaluate pH and electrical resistivity, as well as chloride and sulfate contents. The pH and electrical resistivity tests were performed in accordance with California Test 643, and the sulfate and chloride tests were performed in accordance with California Tests 417 and 422, respectively. These laboratory test results are presented in Appendix B.

In accordance with the County of Los Angeles (2014) criteria, corrosive soil is defined as the soil has minimum electrical resistivity less than 1,000 ohm-centimeters, or chloride concentration greater than 500 ppm, or sulfate concentration in soils greater than 2,000 ppm, or a pH less than 5.5.

6.3.1. Reinforced Concrete

Laboratory tests indicate that the soil has 205 ppm or 0.0205% of water soluble sulfate (SO_4) in soil by weight. Based on ACI 318, concrete in contact with the site soils will have a sulfate exposure class S0.

Test results indicate that the potential for chloride attack of reinforcing steel in concrete structures and pipes in contact with soil is negligible.

6.3.2. Buried Metal

A factor for evaluating corrosivity to buried metal is electrical resistivity. The electrical resistivity of a soil is a measure of resistance to electrical current. Corrosion of buried metal is directly proportional to the flow of electrical current from the metal into the soil. As resistivity of the soil decreases, the corrosivity generally increases. Test results indicate the site soils have minimum electrical resistivity value of 1,000 ohm-centimeters.

Correlations between resistivity and corrosion potential published by the National Association of Corrosion Engineers (NACE, 1984) indicate that the soils have severely corrosive potential to buried metals. As such, corrosion protection for metal in contact with site soils should be considered. Corrosion protection may include the use of epoxy or asphalt coatings. A corrosion specialist should be consulted regarding appropriate protection for buried metals and suitable types of piping.

6.4. Site Preparation and Earth Work

In general, earthwork should be performed in accordance with the recommendations presented in this report. Twining should be contacted for questions regarding the recommendations or guidelines presented herein.

6.4.1. Site Preparation

Site preparation should begin with the removal of utility lines, asphalt, concrete, vegetation, and other deleterious debris from areas to be graded. Tree stumps and roots should be removed to such a depth that organic material is not present. Clearing and grubbing should extend to the outside edges of the proposed excavation and fill areas. We recommend that unsuitable materials such as organic matter or oversized material be removed and disposed offsite. The debris and unsuitable material generated during clearing and grubbing should be removed from areas to be graded and disposed at a legal dump site away from the project area.

Tree stumps, roots, and potentially loose or soft materials are anticipated in the two depressed areas discussed in Section 4.2. The depth of removal of soil materials may be deeper in these areas in order to expose competent native soil.

6.4.2. Excavation and Subgrade Preparation

Temporary excavations for the project are expected. We anticipate that unsurcharged excavations with vertical side slopes less than 4 feet high will generally be stable; however, some sloughing of cohesionless sandy materials encountered at the site should be expected.

Where space is available, temporary, un-surcharged excavation sides over 4 feet in height should be sloped no steeper than an inclination of 1H:1V (horizontal:vertical). Where sloped excavations are created, the tops of the slopes should be barricaded so that vehicles and storage loads are away from the top edge of the excavated slopes with a distance at least equal to the height of the slopes. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes. Twining should be advised of such heavy vehicle loadings so that specific setback requirements can be established. If the temporary construction slopes are to be maintained during the rainy season, berms are recommended to be graded along the tops of the slopes in order to prevent runoff water from entering the excavation and eroding the slope faces.

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Excavations shall not undermine existing adjacent footings. We recommend that excavations for the proposed improvements do not encroach within a 1:1 plane projected from the top outside edge of any existing at-grade or below-grade existing facilities including foundations of existing structures, trenches, underground pipelines. Otherwise, shoring should be implemented to maintain foundation support of the adjacent facilities.

Undocumented fill was not encountered in our borings. However, if undocumented fill materials are encountered during excavations, those materials should be removed to the full depth of fill.

Slopes are anticipated during site grading. Fill placed on slopes should be properly benched and keyed into undisturbed native material. New fill placed against any existing approved fill slopes should be properly benched into the existing fill.

A cut/fill transition and a significant variation in the thickness of fill are anticipated across the building pad. Therefore, the pad should be over-excavated and recompacted a minimum of three feet below the bottom of footings to create a blanket of similar fill under the pad.

For minor structures and slabs-on-grade that are structurally separated from the building, the excavation should extend at least 2 feet below the finished grade or at least 1 feet below the bottom of the footing of the minor structures and slabs-on-grade, whichever is greater. Excavation for pavements and hardscape should be over-excavated at least 1 feet as measured from the bottom of the pavement or hardscape section.

Laterally, excavation should extend beyond the foundation limits a minimum distance equal to two feet or the depth of excavation, whichever is greater. Excavation for other improvements (e.g., concrete walkways, flatwork, pavement) should extend laterally at least two feet beyond the limits of the improvements.

The extent and depths of all removal should be evaluated by Twining's representative in the field based on the materials exposed. Should excavations expose soft or soils considered as unsuitable for use as fill by a Twining representative, additional removals may be recommended.

The exposed excavation bottom should be evaluated and approved by Twining. It should then be scarified to a minimum depth of 6 inches and moisture conditioned to achieve generally consistent moisture contents approximately 2 percent above the optimum moisture content. The scarified bottom should be compacted to at least 90 percent relative compaction in accordance with the latest version of ASTM Test Method D1557 and then evaluated and approved by Twining.

Fill and backfill materials should be compacted fill in accordance with Sections 6.4.3 and 6.4.4 of this report. Prior to placement of any fill, the geotechnical engineer or their representative should review the bottom of the excavation for conformance with the recommendations of this report.

Personnel from Twining should observe the excavations so that any necessary modifications based on variations in the encountered soil conditions can be made. All applicable safety requirements and regulations, including CalOSHA requirements, should be met. Stability of temporary excavations is the responsibility of the contractor.

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6.4.3. Materials for Fill

In general, most on-site soils are considered as suitable for use as engineered fill. All fill soils should be free of organics, debris, rocks or lumps over three inches in largest dimension, other deleterious material, and not more than 40 percent larger than ¾ inch. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or may be disposed offsite.

Any imported fill material should consist of granular soil having a “very low” expansion potential (i.e., expansion index of 20 or less). Import material should also have low corrosion potential (that is, chloride content less than 500 parts per million [ppm], soluble sulfate content of less than 0.1 percent, and pH of 5.5 or higher).

All fill soils should be evaluated and approved by a Twining representative prior to importing or filling.

6.4.4. Compacted Fill

Unless otherwise recommended, the exposed excavation bottom to receive fill should be prepared in accordance with Section 6.4.2 of this report. Prior to placement of compacted fill, the contractor should request Twining to evaluate the exposed excavation bottoms.

Compacted fill should be placed in horizontal lifts of approximately 8 to 10 inches in loose thickness, depending on the equipment used. Prior to compaction, each lift should be moisture conditioned, mixed, and then compacted by mechanical methods. The moisture content should be approximately 2 percent above the optimum moisture content. Fill materials should be compacted to a minimum relative compaction of 95 percent within the upper one foot below new vehicle trafficked pavement sections, and 90 percent in all other areas. The relative compaction should be determined by ASTM D1557. Successive lifts should be treated in the same manner until the desired finished grades are achieved.

6.4.5. Excavation Bottom Stability

In general, we anticipate that bottoms of the excavations will be stable and should provide suitable support for the proposed improvements. Conditions of the excavation bottom should be evaluated by Twining during the scarification and re-compaction efforts. If unstable bottom conditions are encountered, remedial measures would be required to stabilize the bottom. Soft bottom conditions can be identified by surface yielding under rubber-tired equipment loading and the inability to achieve proper compaction.

Unstable bottom conditions may be mitigated by over-excavation of the bottom to suitable depths, and/or replacement with a minimum 1-foot-thick aggregate base underlain by geogrid (Tensar TX7 or equivalent).

As an alternative, excavation bottom stabilization may be achieved by cement treatment for the upper 15 inches below the bottom according to Section 6.4.6 of this report.

Recommendations for stabilizing excavation bottoms should be based on evaluation in the field by the geotechnical consultant at the time of construction.

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6.4.6. Cement Treatment

Cement treatment, if needed, should be performed according the following processes under the guidance of a Twining Geotechnical engineer:

- Upon achieving rough grade, cement powder is spread on the surface at a rate that is dependent upon the thickness of the treated section. We recommend cement-treatment by 5 to 7 percent cement (by dry weight). The cement powder is then dry mixed with the pulverizer into the subgrade to a depth of at least 12 inches below the rough grade surface. From the time the material is wet mixed, the material should be fully compacted within no more than 2 hours.

- Compaction is performed using a large sheepsfoot compactor. Depending on the type of equipment, a section as thick as 18 inches can be compacted in one lift. The type of equipment proposed for use should be approved by the engineer based on the lift thickness prior to bringing the equipment on site. The cement-treated section should be compacted to 92 percent of the maximum density as determined by ASTM D 1557.

- Upon completion of compaction with the sheepsfoot compactor, the surface is bladed and finish-rolled with a smooth drum roller.

- The surface of the treated material is wetted at least twice daily (possibly more depending on weather) to promote hydration of the cement.

- For at least 24 hours, traffic on the surface after completion of compaction should be minimized to the maximum extent possible and heavy construction equipment traffic should be completely avoided to prevent breakdown of the treated material prior to the curing process being completed. After 24 hours, the surface can be proof-rolled and checked for yielding under heavy rubber-tire vehicle loads (such as a fully-loaded water truck). If the surface indicates signs of yielding or instability, an additional 24 hours of cure time should be implemented while again minimizing traffic loading

6.4.7. Backfill for Utility Trench

Utility trench excavations to receive backfill shall be free of trash, debris or other unsatisfactory materials at the time of backfill placement.

At locations where the trench bottom is yielding or otherwise unstable, pipe support may be improved by placing 12 inches of ¾-inch crushed rock as defined in Section 200-1.2 of the "Greenbook" Standard Specifications for Public Works Construction. Remedial earthwork at the trench bottom should be performed where oversize materials (rocks or clods greater than 3 inches) are present. Removal of oversize materials to a depth of 6 inches below the bottom of the pipeline and replacement with fill compacted to at least 90% relative compaction is recommended. Alternatively, ¾-inch crushed rock may be used.

The trench should be bedded with clean sand extending to at least one foot over the top of pipe. Pipe bedding as specified in SSPWC can be used. Bedding material should consist of clean sand having a sand equivalent (SE) of 30 or greater. Alternative materials meeting the intent of the bedding specifications are also acceptable. Samples of materials proposed for use as bedding should be provided to the engineer for inspection and testing before the material is imported for use on the project. The onsite materials can only be used following the requirement of "Greenbook" bedding specification when the SE is not less than 30. The pipe bedding

material should be placed over the full width of the trench. After placement of the pipe, the bedding should be brought up uniformly on both sides of the pipe to reduce the potential for unbalanced loads. No void or uncompacted areas should be left beneath the pipe haunches.

Above pipe bedding, trench backfill may be onsite soils and should not contain rocks or lumps over 3 inches in largest dimension. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or may be disposed offsite. The moisture content should be approximately 2 percent above the optimum moisture content.

Backfill may be placed and compacted by mechanical means and should be compacted to 90 percent of the laboratory maximum dry density as per ASTM Standard D1557. Where pavement is planned, the top 12 inches of subgrade soils and the overlying aggregate base should be compacted to 95 percent.

Jetting or flooding of pipe bedding and backfill material is not recommended.

6.4.8. Rippability

The earth materials underlying the site should be generally excavatable with heavy-duty earthwork equipment in good working condition. Some gravels, cobbles and man-made debris should be anticipated.

6.4.9.Construction Dewatering

As discussed earlier, groundwater was at approximately 1,358 feet msl. Construction of the project is anticipated to occur above the groundwater. The possibility to encounter groundwater is low during earthwork and foundation preparation for the proposed structures, and the need for dewatering is not anticipated for construction of structures and utility trenches.

If needed, considerations for construction dewatering should include anticipated drawdown, volume of pumping, potential for settlement of nearby structures, and groundwater discharge. Disposal of groundwater should be performed in accordance with guidelines of the Regional Water Quality Control Board.

6.5. Foundation Recommendations

Based upon the excavation/over-excavation and backfill recommendations, the proposed structures may be supported on continuous strip footings or isolated footings designed in accordance with the geotechnical recommendations presented below. Structural design of foundations should be performed by the structural engineer and should conform to the 2016 California Building Code.

6.5.1. Building Foundation Bearing Capacity and Settlement

Footings for the building should be placed on the subgrade prepared in accordance the requirements for the building pad as described in Section 6.4. Geotechnical design parameters for these footings presented in Table 2 may be used, assuming less than 25 kips on shallow spread footings and less than 5 kips per lineal foot on perimeter foundations. Twining should be contacted for footing dimensions, allowable bearing pressures, and settlements that are outside the indicated applicable ranges.

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The total lateral resistance can be taken as the sum of the friction at the base of the footing and passive resistance. The upper one foot of soil should be neglected when calculating the passive resistance. The passive resistance value may be increased by one-third when transient loads from wind or earthquake.

Table 2 - Geotechnical Design Parameters for Shallow Foundations

Minimum Footing Dimensions	• Continuous footings: 12 inches in width. • Square footings: 24 inches in width. • Minimum embedment: 12 inches measured from the lowest adjacent grade to the bottom of the footing.
Allowable Bearing Pressure	• Footings should be supported on at least 3 feet of compacted fill. • Continuous footings: an allowable bearing pressure of 2,500 pounds per square foot (psf) may be used. The allowable may be increased by 75 psf for each additional foot of width and 220 psf for each additional foot of embedment, up to a maximum allowable capacity of 3,000 psf. • Square footings: an allowable bearing pressure of 3,000 psf may be used. The allowable may be increased by 60 psf for each additional foot of width and 220 psf for each additional foot of embedment, up to a maximum allowable capacity of 4,000 psf. • The allowable bearing values may be increased by one-third for transient loads from wind or earthquake.
Estimated Static Settlement	• Approximately one inch of total settlement with differential settlement estimated to be on the order of ½ inches over 50 feet. • Most static settlement of foundation system is expected to occur immediately upon application of loading. Long term total and differential settlement is expected to be less than one inch and ½ inches, respectively.
Allowable Coefficient of Friction Below Footings	0.30
Allowable Lateral Passive Resistance	Increases with depth at a rate of 200 psf per foot (200 pcf equivalent fluid pressure)

6.6. Retaining Walls

Recommendations for wall lateral loads, backfill, and drainage are provided below. Lateral resistance may be based on 6.5 of this report. Retaining walls should be designed to have a factor of safety of 1.5 for static stability and 1.1 for stability due to transient loads from wind or seismic.

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6.6.1. Backfill and Drainage of Walls

The backfill material behind walls should consist of granular non-expansive material and be approved by the project geotechnical engineer. Based on the soil materials encountered during our exploration, some on-site soils will meet this requirement.

Wall backfill should be adequately drained. Adequate backfill drainage is essential to provide a free-drained backfill condition and to limit hydrostatic buildup behind walls. Drainage behind walls may be provided by a geosynthetic drainage composite such as TerraDrain, MiraDrain, or equivalent, attached to the outside perimeter of the wall and installed in accordance with the manufacturer's recommendations. The drainage system should meet the minimum requirements of Sections 1805.4.2 and 1805.4.3 of 2016 CBC.

6.6.2. Lateral Earth Pressure

The values presented below assume that the supported grade is level and that surcharge loads are not applied. The recommended design lateral earth pressure is calculated assuming that a drainage system will be installed behind retaining walls in accordance with Sections 1805.4.2 and 1805.4.3 of 2016 CBC and that external hydrostatic pressure will not develop behind the walls. Where wall backfill does not have adequate drainage, the full hydrostatic pressure should be added to the lateral earth pressures provided below in design.

Walls that are free to move and rotate at the top (such as cantilevered walls) and have adequate drainage may be designed for the active earth pressure equivalent to a fluid weighting 50 pcf.

Walls that are restricted to move horizontally at the top (such as by a floor deck) and have adequate drainage may be designed for the "at-rest" earth pressure equivalent to a fluid weighing 72 pcf.

Vertical surcharge loads within a 1:1 plane projected from the bottom of the wall distributed over retained soils should be considered as additional uniform horizontal pressures acting on the wall. These additional pressures can be estimated as approximately 40% and 60% of the magnitude of the vertical surcharge pressures for the "active" and "at-rest" conditions, respectively.

6.6.3. Seismic Lateral Earth Pressure

Walls retaining more than 6 feet high earth should be designed for seismic lateral earth pressure. The seismic pressure distribution may be considered a triangle with the maximum pressure at the bottom. The combination of static and incremental seismic pressures shown in the following diagram may be used for seismic design for both cantilever and restrained walls.

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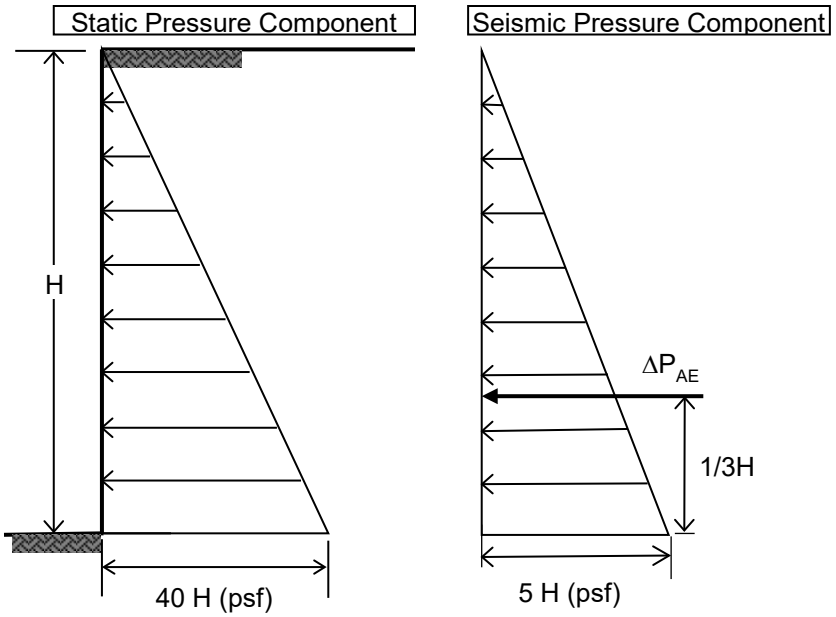

where H is in feet

Seismic Earth Pressure Distribution on Walls

6.7. Concrete Slabs

Slabs should be supported on non-expansive engineered fill in accordance with Section 6.4 of this report. For design of concrete slabs, a base modulus of subgrade reaction (*k*) of 150 pounds per cubic inch (pci) may be used provided it is modified by the formulas below based on slab dimensions.

$$k_1 = 150\ pci$$

$$k(BxB) = k_1 \left(\frac{B+1}{2B}\right)^2$$

$$k(BxL) = k_{BxB}\left(\frac{1 + 0.5\ {}^{B}/_{L}}{1.5}\right)$$

Where:

$$k_1 = Modulus\ for\ 1x1\ plate$$

$$B = Width\ of\ Square\ Foundation$$

$$L = Length\ of\ Rectangular\ Foundation$$

Floor slabs should be designed and reinforced in accordance with the structural engineer's recommendations. In moisture sensitive areas, the floor slabs should be dampproofed in accordance

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with Section 1805.2 of 2016 CBC. Specific recommendations can be provided by a waterproofing consultant.

6.8. Fence Poles and Sign Posts

The Project may involve fence poles and sign posts. Geotechnical recommendations for conditions with and without lateral constraint provided at the ground surface conditions are provided below based on 2016 CBC.

6.8.1. Non-Constrained Ground

The embedment of sign posts where no lateral constraint is provided at or above the ground surface should be calculated using Equation 18-1 of 2016 CBC (shown below) or a minimum 3 feet below the ground surface, whichever is deeper.

$$d = \frac{A}{2}\left(1 + \sqrt{1 + \frac{4.36h}{A}}\right)$$ (Equation 18-1 of 2016 CBC)

where:

A = 2.34P/(S_1 * b)

b = Diameter of round post or footing or diagonal dimension of square post or footing, feet

d = Depth of embedment in earth in feet but not over 12 feet for purpose of computing lateral pressure.

h = Distance in feet from ground surface to point of application of "P".

P = Applied lateral force in pounds.

S_1 = Allowable lateral soil-bearing pressure based on a depth of one-third the depth of embedment in pounds per square foot.

An allowable passive earth pressure of 200 pcf up to a maximum of 2,000 psf may be used for design provided the upper one foot of passive resistance is neglected in the structural design.

6.8.1. Constrained Ground

The embedment of sign posts where lateral constraint is provided at the ground surface, such as by a rigid floor or pavement, should be calculated using Equation 18-2 of 2016 CBC (shown below) or a minimum 3 feet below the ground surface, whichever is deeper.

$$d = \sqrt{\frac{4.24Ph}{S_3 b}}$$ (Equation 18-2 of 2016 CBC)

where:

b = Diameter of round post or footing or diagonal dimension of square post or footing, feet

d = Depth of embedment in earth in feet but not over 12 feet for purpose of computing lateral pressure.

h = Distance in feet from ground surface to point of application of "P".

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P = Applied lateral force in pounds.

S_3 = Allowable lateral soil-bearing pressure based on a depth of one-third the depth of embedment in pounds per square foot.

An allowable passive earth pressure of 200 pcf up to a maximum of 2,000 psf may be used for design provided the upper one foot of passive resistance is neglected in the structural design.

6.9. Flexible Pavement Design

Our pavement structural design is in accordance with Chapter 630 of the Caltrans Highway Design Manual, which is based on a relationship between the gravel equivalent (GE) of the pavement structural materials, the traffic index (TI), and the R-value of the underlying subgrade soil. Our laboratory test results indicate an R value of 12, which was used in our asphalt pavement structural calculations. On this basis, Table 3 provides recommended minimum thicknesses for hot mix asphalt (HMA) and aggregate base sections for different traffic indices. These minimum thicknesses may be adjusted based on additional R-value tests during construction.

The asphalt pavement section should be constructed on top of properly prepared subgrade in accordance with Section 6.4 of this report and aggregate base section compacted to 95 percent of the maximum dry density in accordance with ASTM D1557.

Table 3 – Recommended Minimum HMA and Base Section Thicknesses

Traffic Index	5.0	6.0	7.0
HMA Thickness (in)	4.0	4.0	5.0
Aggregate Base Thickness (in)	7.0	11.0	12.0

6.10. Rigid Pavement Design

For preliminary design of rigid pavement section, Table 4 provides minimum thicknesses for Jointed Plain Concrete Pavement (JPCP) section and Class 2 Aggregate Base (AB) section for different traffic indices. Final design of rigid pavement should be performed by the project Civil Engineer based on field observations and additional R-value tests during construction. The subgrade should be prepared in accordance with Section 6.4.2 of this report. The AB section should be compacted to 95 percent of the maximum dry density in accordance with ASTM D1557.

Table 4 – Recommended Rigid Pavement Minimum Thicknesses

Traffic Index	5.0	6.0	7.0
JPCP Thickness (in)	4	5.5	7.0
Aggregate Base Thickness (in)	4	4	4
Maximum Joint Spacing (feet)	15.0	15.0	15.0

The above pavement section is based on a minimum 28-day concrete compressive strength of 3,500 psi. Positive drainage should be provided away from all pavement areas to prevent seepage of surface and/or subsurface water into the pavement base and/or subgrade.

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6.11. Stormwater Infiltration Facility

The design of stormwater infiltration facility should be based on percolation test results with an appropriate factor of safety.

Our percolation test results may be used in preliminary design. Details of the percolation tests are presented in Appendix A. Infiltration rates with a factor of safety of 3 from our percolation tests are summarized in Table 5. The proposed infiltration facility should have a minimum setback from property lines and foundations recommended in Table 6.

However, the Riverside County requires a minimum of 10 feet between the bottom of the infiltration facility and the historical high groundwater. The historic high groundwater is about 10 feet bgs at the site, and thus site does not appear suitable for the proposed infiltration facility.

Table 5 – Infiltration Rate with a Factor of Safety of 3

Test Location	Depth of Test Borehole (feet)	Design Infiltration Rate (inch/hour)
P-1	5	Testing was abandoned due to negligible water level drop during pre-soaking
P-2	5	
P-3	5	
P-4	5	1.2

Table 6 – Recommended Minimum Infiltration Facility Setback

Setback from	Distance
Property lines	10 feet
Foundations	15 feet or outside of 1:1 plane drawn up from the bottom of foundation, whichever is greater.

6.12. Drainage Control

The control of surface water is essential to the satisfactory performance of the building and site improvements. Surface water should be controlled so that conditions of uniform moisture are maintained beneath the improvements, even during periods of heavy rainfall. The following recommendations are considered minimal:

- Ponding and areas of low flow gradients should be avoided.
- If bare soil within 5 feet of the structure is not avoidable, then a gradient of 5 percent or more should be provided sloping away from the improvement. Corresponding paved surfaces should be provided with a gradient of at least 1 percent.

- The remainder of the unpaved areas should be provided with a drainage gradient of at least 2 percent.
- Positive drainage devices, such as graded swales, paved ditches, and/or catch basins should be employed to accumulate and to convey water to appropriate discharge points.
- Concrete walks and flatwork should not obstruct the free flow of surface water.
- Brick flatwork should be sealed by mortar or be placed over an impermeable membrane.
- Area drains should be recessed below grade to allow free flow of water into the basin.
- Enclosed raised planters should be sealed at the bottom and provided with an ample flow gradient to a drainage device. Recessed planters and landscaped areas should be provided with area inlet and subsurface drain pipes.
- Planters should not be located adjacent to the structures wherever possible. If planters are to be located adjacent to the structures, the planters should be positively sealed, should incorporate a subdrain, and should be provided with free discharge capacity to a drainage device.
- Planting areas at grade should be provided with positive drainage. Wherever possible, the grade of exposed soil areas should be established above adjacent paved grades. Drainage devices and curbing should be provided to prevent runoff from adjacent pavement or walks into planted areas.
- Gutter and downspout systems should be provided to capture discharge from roof areas. The accumulated roof water should be conveyed to off-site disposal areas by a pipe or concrete swale system.

Landscape watering should be performed judiciously to preclude either soaking or desiccation of soils. The watering should be such that it just sustains plant growth without excessive watering. Sprinkler systems should be checked periodically to detect leakage and they should be turned off during the rainy season.

6.13. Slope Stability

Slope stability analyses were performed to evaluate the static and seismic stability of the fill slopes. Seismic stability was evaluated using the pseudo-static method with a horizontal seismic coefficient of 0.15. Results of the analysis shown in Appendix C indicate that the slopes have adequate factors of safety.

It should be noted that a small portion of the toe of the slope at the east corner extends to the 100-year floodplain. It is recommended that riprap be placed against the toe as a protection against the 100-year flood event.

7. DESIGN REVIEW AND CONSTRUCTION MONITORING

Geotechnical review of plans and specifications is of paramount importance in engineering practice. The poor performance of many structures has been attributed to inadequate geotechnical review of construction documents. Additionally, observation and testing of the subgrade will be important to the

performance of the proposed development. The following sections present our recommendations relative to the review of construction documents and the monitoring of construction activities.

7.1. Plans and Specifications

The design plans and specifications should be reviewed by Twining, Inc. prior to bidding and construction, as the geotechnical recommendations may need to be reevaluated in the light of the actual design configuration and loads. This review is necessary to evaluate whether the recommendations contained in this report and future reports have been properly incorporated into the project plans and specifications. Based on the work already performed, this office is best qualified to provide such review.

7.2. Construction Monitoring

Site preparation, removal of unsuitable soils, assessment of imported fill materials, fill placement, foundation installation, and other site grading operations should be observed and tested, as appropriate. The substrata exposed during the construction may differ from that encountered in the test excavations. Continuous observation by a representative of Twining, Inc. during construction allows for evaluation of the soil conditions as they are encountered and allows the opportunity to recommend appropriate revisions where necessary.

8. LIMITATIONS

The recommendations and opinions expressed in this report are based on Twining, Inc.'s review of available background documents, on information obtained from field explorations, and on laboratory testing. It should be noted that this study did not evaluate the possible presence of hazardous materials on any portion of the site. In the event that any of our recommendations conflict with recommendations provided by other design professionals, we should be contacted to aid in resolving the discrepancy.

Due to the limited nature of our field explorations, conditions not observed and described in this report may be present on the site. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation and laboratory testing can be performed upon request. It should be understood that conditions different from those anticipated in this report may be encountered during grading operations, for example, the extent of removal of unsuitable soil, and that additional effort may be required to mitigate them.

Site conditions, including groundwater elevation, can change with time as a result of natural processes or the activities of man at the subject site or at nearby sites. Changes to the applicable laws, regulations, codes, and standards of practice may occur as a result of government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Twining, Inc. has no control.

Twining's recommendations for this site are, to a high degree, dependent upon appropriate quality control of subgrade preparation, fill placement, and foundation construction. Accordingly, the recommendations are made contingent upon the opportunity for Twining to observe grading operations and foundation excavations for the proposed construction. If parties other than Twining are engaged to provide such services, such parties must be notified that they will be required to assume complete responsibility as the geotechnical engineer of record for the geotechnical phase of the project by concurring with the recommendations in this report and/or by providing alternative recommendations.

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This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Twining should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report has been prepared for the exclusive use by the client and its agents for specific application to the proposed project. Land use, site conditions, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of this report and the nature of the new project, Twining may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the Client or anyone else will release Twining from any liability resulting from the use of this report by any unauthorized party.

Twining performed its evaluation using the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical professionals with experience in this area in similar soil conditions. No other warranty, either express or implied, is made as to the conclusions and recommendations contained in this report.

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9. SELECTED REFERENCES

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TWINING

2883 East Spring Street
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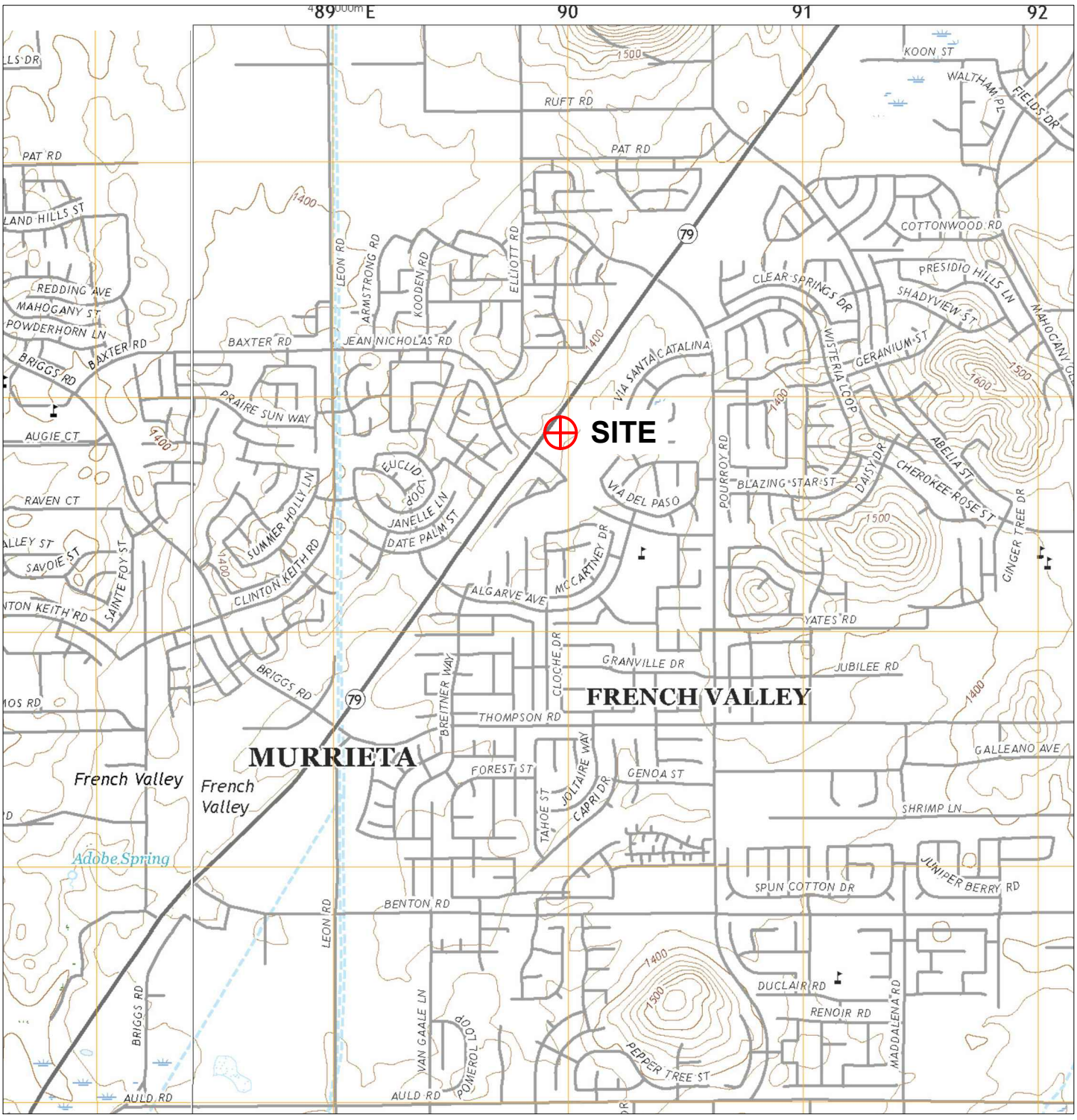
Fax 562.426.6424

FIGURES



N

SCALE IN FEET

0 2000 4000

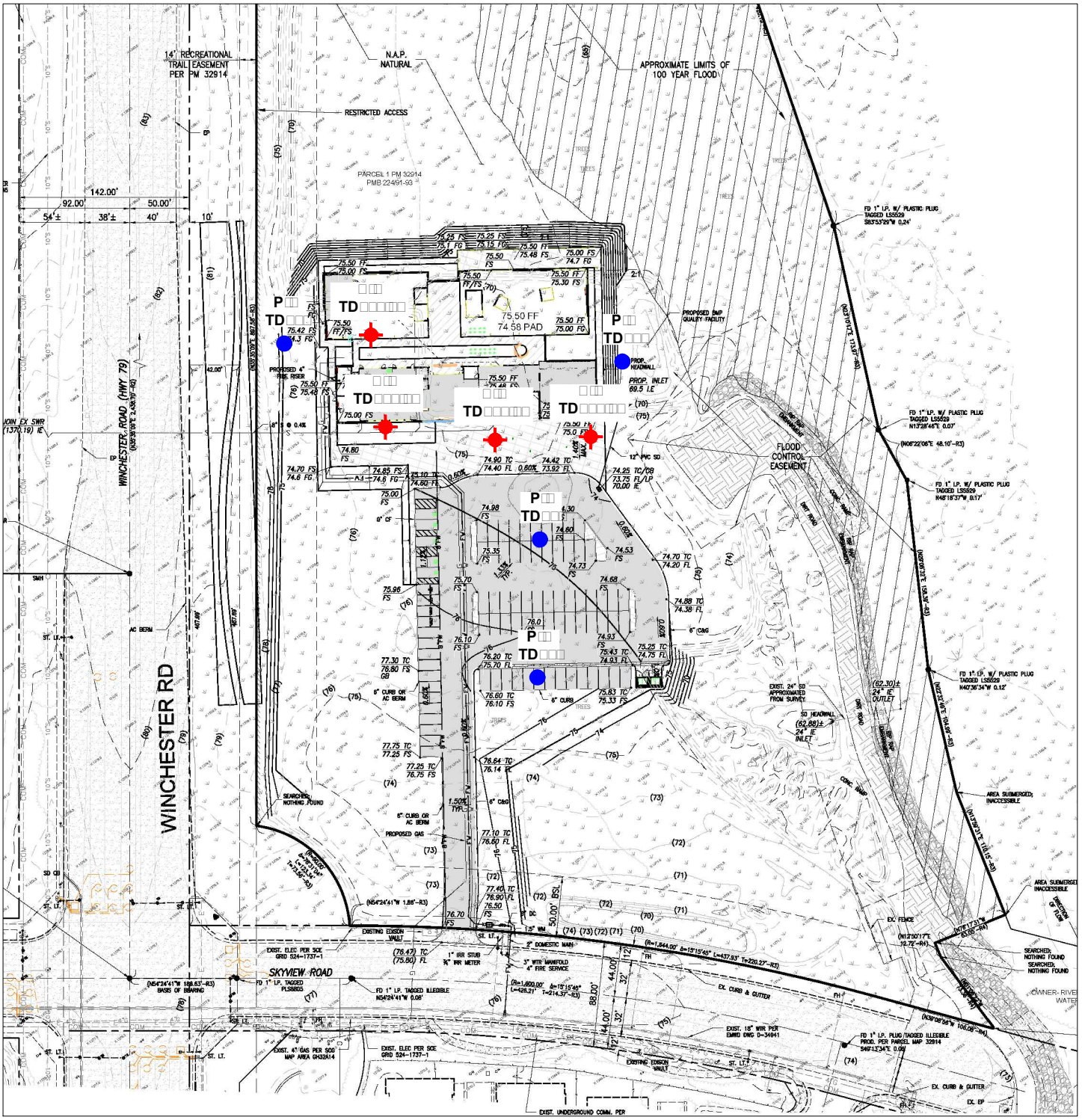
REFERENCE: USGS (2018)

TWINING

SITE LOCATION MAP

FRENCH VALLEY PUBLIC LIBRARY
31526 SKYVIEW ROAD
WINCHESTER, CALIFORNIA

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	FIGURE 1



LEGEND

TD□□□□□□ APPROXIMATE LOCATION OF BORING AND TOTAL DEPTH

P□□ TD□□□ APPROXIMATE LOCATION OF PERCOLATION TEST AND TOTAL DEPTH

SCALE IN FEET

0 120 240

REFERENCE: ARMSTRONG AND BROOKS (2019)

TWINING

SITE PLAN AND □ORING LOCATION MAP

FRENCH VALLEY PUBLIC LIBRARY
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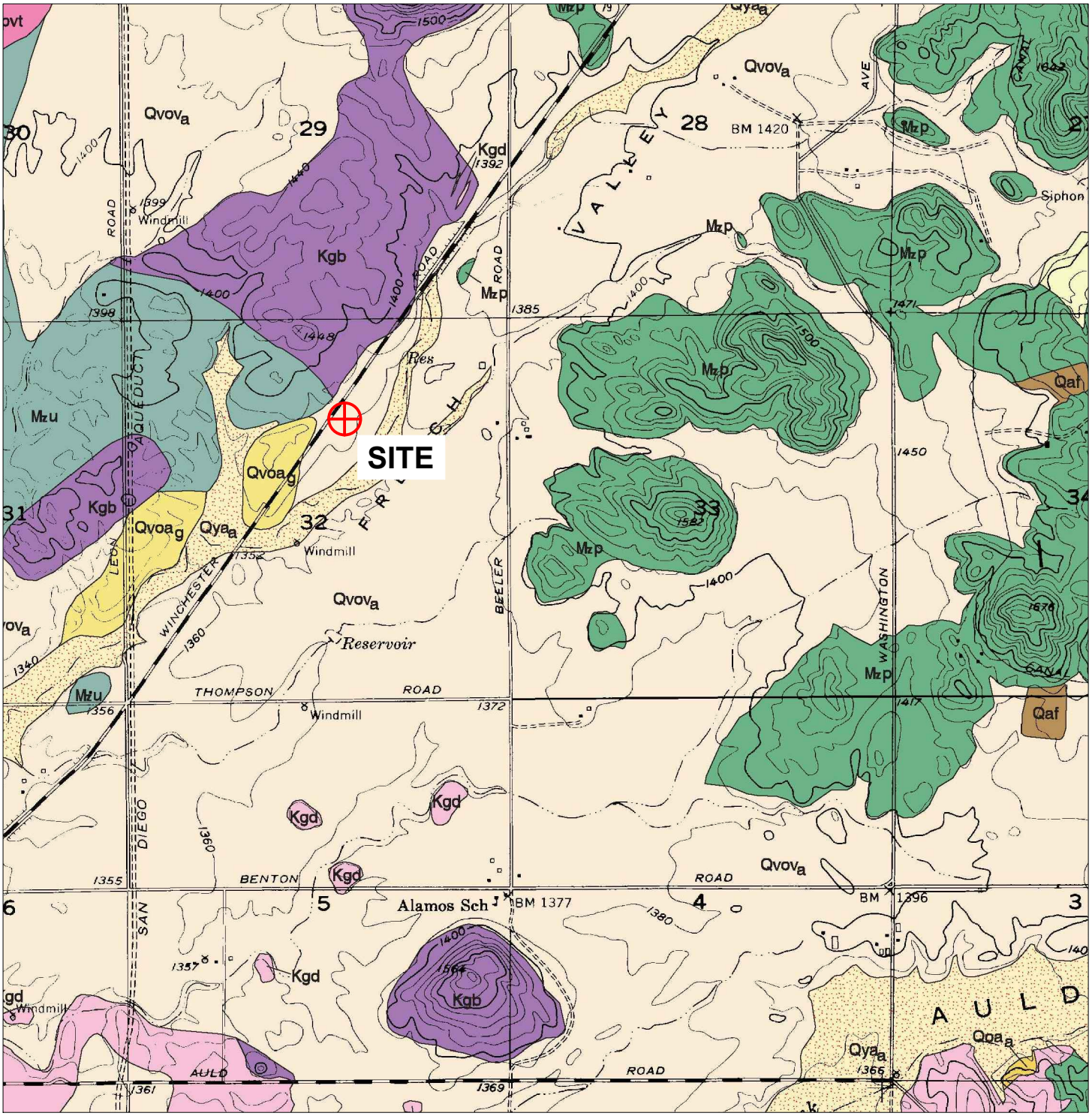
WINCHESTER, CALIFORNIA

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	2



LEGEND

Qvov	Very old alluvial valley deposits
Qvoa	Very old alluvial channel deposits
Qya	Young alluvial channel deposits
Kgb	Gabbro (Cretaceous)
Mzu	Mesozoic metasedimentary rocks
Mzp	Phyllite (Mesozoic)

SCALE IN FEET
0 2000 4000

REFERENCE: MORTON, KENNEDY, BOVARD, BURNS (2003)

TWINING

REGIONAL GEOLOGIC MAP

FRENCH VALLEY PUBLIC LIBRARY
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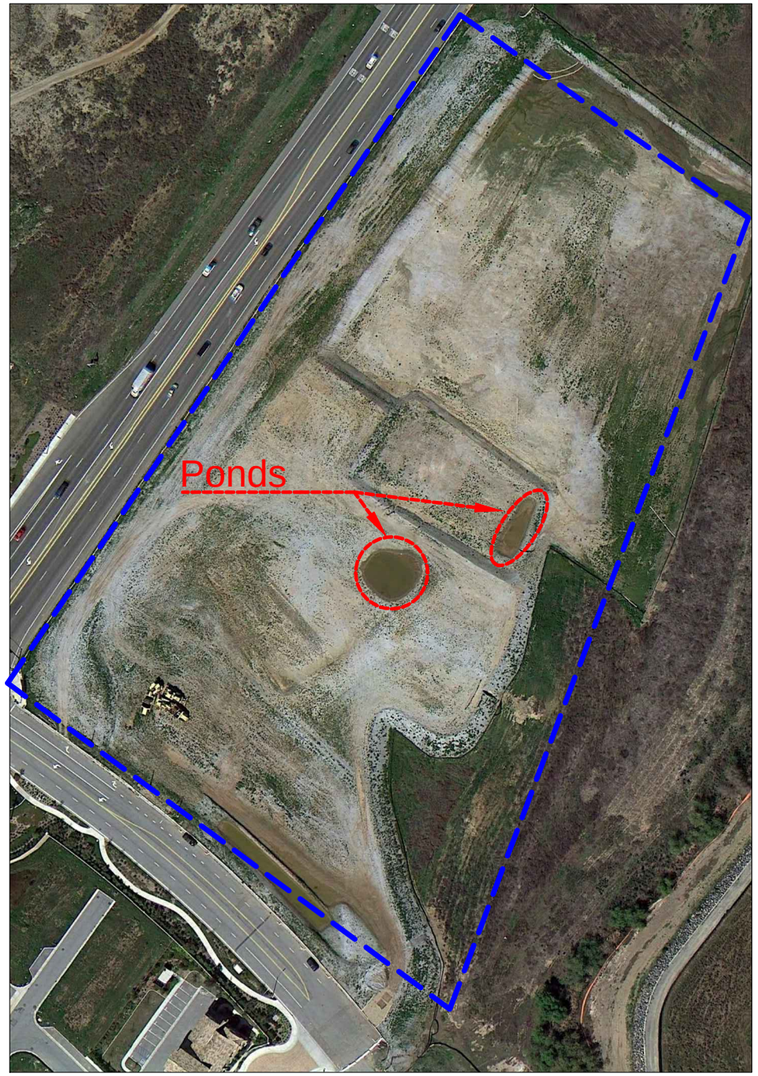
WINCHESTER, CALIFORNIA

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	3

2009



2011

2018

TWINING

APPROXIMATE PROPERTY BOUNDARIES

APPROXIMATE SCALE IN FEET

0 175 350

□ISTORICAL SITE GRADING

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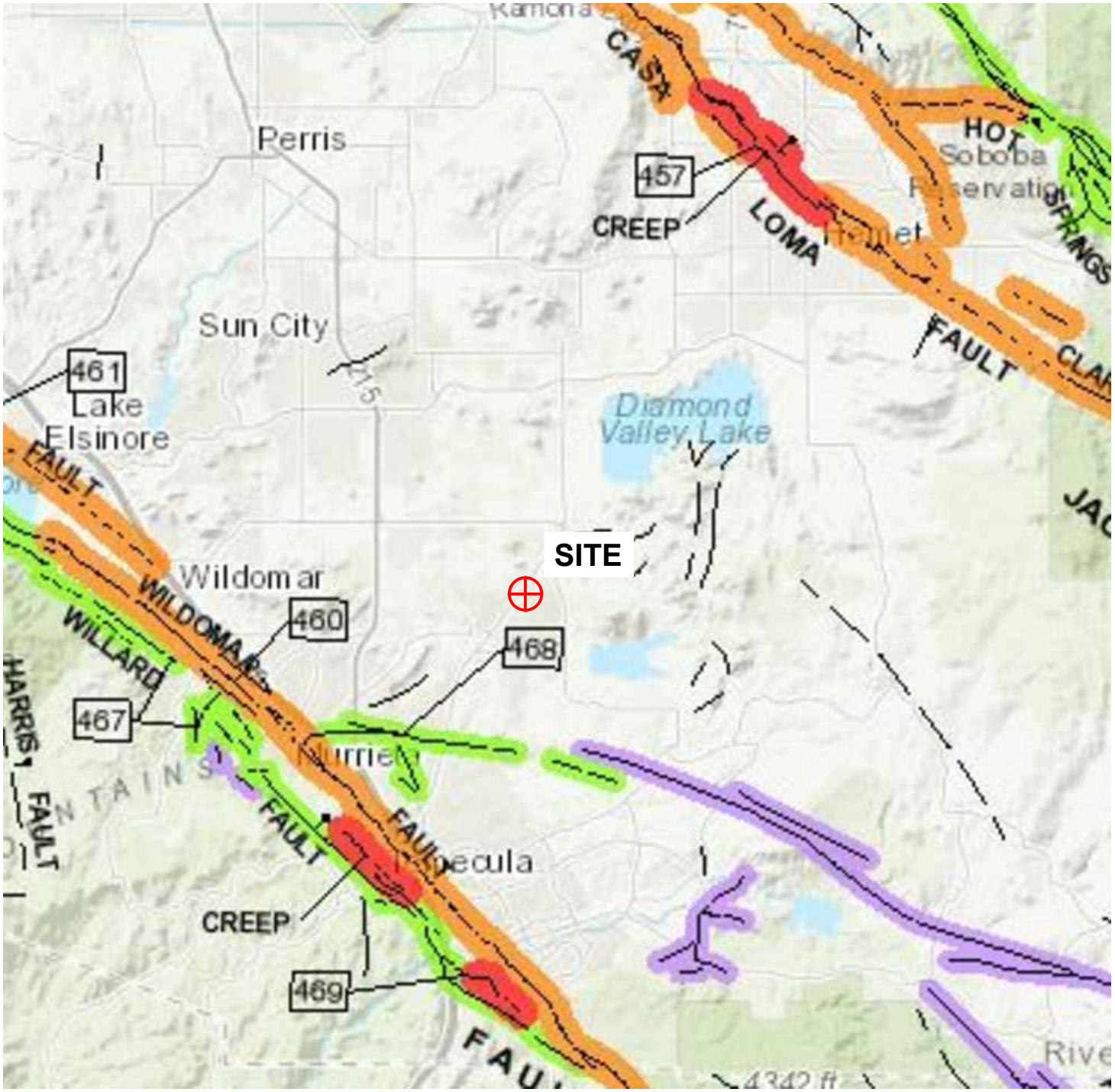
PROJECT NO.	REPORT DATE	FIGURE 4
180759.3	October 2019	



REFERENCE: JENNINGS AND BRYANT (2010)

TWINING

REGIONAL FAULT LOCATION MAP

FRENCH VALLEY PUBLIC LIBRARY
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PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	FIGURE 5

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APPENDIX A
FIELD EXPLORATION

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Appendix A
Field Exploration

General

The subsurface exploration program for the proposed project consisted of drilling, testing, sampling and logging four hollow-stem-auger (HSA) exploratory borings (B-1 through B-4) and percolation testing in four hand-auger borings (P-1 through P-4) at the site on September 30, 2019.

The HSA Borings (B-1 through B-4) were advanced to depths of approximately 16½ to 51½ feet below ground surface (bgs). Drilling operation for the HSA borings was performed using a truck-mounted CME-85 hollow-stem-auger drill rig by Baja Exploration of Escondido, California. Borings P-1 through P-4 were advanced to a depth of approximately 5 feet bgs using a 5-inch diameter hand auger.

The approximate locations of the borings are shown on Figure 2, Site Plan and Boring Location Map.

Drilling and Sampling

An explanation of the boring logs is presented as Figure A-1. The boring logs are presented as Figures A-2 through A-7. The boring logs describe the earth materials encountered, samples obtained, and show the field and laboratory tests performed. The logs also show the boring number, drilling date, and the name of the logger and drilling subcontractor. The borings were logged by an engineer using the Unified Soil Classification System. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Drive and bulk samples of representative earth materials were obtained from the borings.

Disturbed samples were obtained from selected depths using a Standard Penetration Test (SPT) sampler. This sampler consists of a 2-inch O.D., 1.4-inch I.D. split barrel shaft without room for liner. Soil samples obtained by the SPT sampler were retained in plastic bags. A California modified sampler was also used to obtain drive samples of the soils from selected depths. This sampler consists of a 3-inch outside diameter (O.D.), 2.4-inch inside diameter (I.D.) split barrel shaft. The samples were retained in brass rings for laboratory testing.

When the boring was drilled to the selected depth, the sampler was lowered to the bottom of the boring and then driven a total of 18-inches into the soil using an automatic hammer weighing 140 pounds dropped from a height of approximately 30 inches. The number of blows required to drive the samplers the final 12 inches is presented on the boring logs.

Upon completion of the borings, the boreholes were backfilled with drilled soil cuttings.

Percolation Testing

Percolation testing was performed on September 30, 2019 in the 5-foot-deep borings (P-1 through P-4) in accordance with the procedures of the Riverside County Design Handbook for Low Impact Development Best Management Practices. After installing pipe and filter rock, the boreholes were filled with water to approximately one foot bgs and presoaked for two consecutive 25-minute sessions prior to testing. At the end of each presoak session, water level change in borings P-1 through P-3 was negligible, and the testing was terminated. In P-4, water level change in boring was less than 6 inches.

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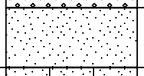
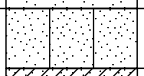
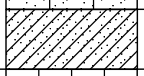
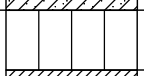
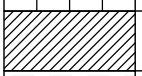
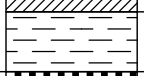
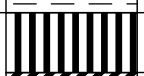
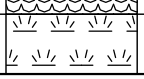
After presoaking, the boreholes were filled with water to depths approximately 0.9 to 1.9 feet bgs. Measurements were recorded at 10-minute intervals for a total of 7 readings. The last reading was used to determine the percolation rate at each test location.

Our calculated design infiltration rates are presented in Table A-1 below with a factor safety of 3. Detailed test data is attached at the end of this appendix.

Table A-1 – Design Infiltration Rates with a Factor of Safety of 3

Test Location	Depth of Test Borehole (feet)	Design Infiltration Rate (inch/hour)
P-1	5	Testing was abandoned due to negligible water level drop during pre-soaking
P-2	5	
P-3	5	
P-4	5	1.2

UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

COARSE-GRAINED SOILS

Relative Density	SPT (blows/ft)	Relative Density (%)
Very Loose	<4	0 - 15
Loose	4 - 10	15 - 35
Medium Dense	10 - 30	35 - 65
Dense	30 - 50	65 - 85
Very Dense	>50	85 - 100

FINE-GRAINED SOILS

Consistency	SPT (blows/ft)
Very Soft	<2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	>30

NOTE: SPT blow counts based on 140 lb. hammer falling 30 inches

Sample Symbol	Sample Type	Description
	SPT	1.4 in I.D., 2.0 in. O.D. driven sampler
	California Modified	2.4 in. I.D., 3.0 in. O.D. driven sampler
	Bulk	Retrieved from soil cuttings
	Thin-Walled Tube	Pitcher or Shelby Tube

LABORATORY TESTING ABBREVIATIONS

ATT	Atterberg Limits
C	Consolidation
CORR	Corrosivity Series
DS	Direct Shear
EI	Expansion Index
GS	Grain Size Distribution
K	Permeability
MAX	Moisture/Density (Modified Proctor)
O	Organic Content
RV	Resistance Value
SE	Sand Equivalent
SG	Specific Gravity
TX	Triaxial Compression
UC	Unconfined Compression

TWINING

EXPLANATION FOR LOG OF BORINGS

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A-1

STANDARD LOG EXPLANATION 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-1**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	16		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
						CORR, R		ML	SANDY SILT, brown, moist
1370	5		26	9.8	125.0				same, very stiff
1365	10		54					SM	SILTY SAND, very dense, light brown, moist
1360	15		50/5"	16.0	115.9				▼ same
1355	20		36			ATT		CL	SANDY lean CLAY, hard, dark brown
1350	25		50	25.1	104.2				same
1345	30		28/50/3"			ATT		SC	CLAYEY SAND, very dense, dark brown
1340	35								

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 2

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-1**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	16		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
			50/4"	14.5	112.3	C		CL	SANDY lean CLAY, hard, dark brown, same with some gravel
1335	40		50					CL	same
1330	45		50/6"	17.2	112.4			CL	same
1325	50		36/50/4"					CL	same
									Total Depth = 51.5 feet Backfilled on 9/30/2019 Groundwater encounterd at 16' bgs. Borehole filled with cuttings at completion.
1320	55								
1315	60								
1310	65								
1305	70								

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 2

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-2**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
								CL	SANDY lean CLAY with gravel, dark brown, moist
1370	5		14			ATT		CL	same, very stiff
1365	10		70	20.9	101.1	C		CL	same, hard
1360	15		22					CL	same, very stiff
									Total Depth = 16.5 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1355	20								
1350	25								
1345	30								
1340	35								

TWINING

LOG OF BORING

French Valley Library
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Winchester, California

PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 3

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-3**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)			
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
				13.4		DS, EI, MAX		ML	SANDY SILT,dark brown, moist
1370	5		47	5.5	126.9	DS		SC	CLAYEY SAND, dense, reddish brown, moist
1365	10		24					CL	SANDY lean CLAY with some white sand, very stiff, brown, moist
1360	15		60	26.3	99.0			ML	SANDY SILT, hard, brown, moist
									Total Depth = 16.5 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1355	20								
1350	25								
1345	30								
1340	35								

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 4

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-4**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	16		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
								SM	SILTY SAND, light brown, moist
1370	5		16					ML	SANDY SILT, very stiff, brown, moist
1365	10		52	7.5	121.2	DS		SM	SILTY SAND,dense, light brown, moist
1360	15		15			ATT		CL	SANDY lean CLAY, very stiff, light brown, moist
1355	20		50	16.5	114.8			CL	same, hard
1350	25		31/50/4"					CL	same
1345	30		50/4"	22.3	105.0			CL	same
1340	35								

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 5

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-4**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	16		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
			44					CL	SANDY lean CLAY, very stiff, light brown, moist *(continued)*
								CL	same, hard
1335	40		30/50/3"	15.2	116.9			CL	same
1330	45		25/50/3"					CL	same
1325	50		50/2"	13.0	118.7			CL	same
									Total Depth = 51.5 feet Backfilled on 9/30/2019 Groundwater encounterd at 16' bgs. Borehole filled with cuttings at completion.
1320	55								
1315	60								
1310	65								
1305	70								

TWINING

LOG OF BORING

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Winchester, California

PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 5

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**P-1**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)			
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES: Bulk	SAMPLES: Driven	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
								SM	SILTY SAND, dark brown, moist
								SC	CLAYEY SAND, dark brown, moist
1370	5								Total Depth = 5.0 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1365	10								
1360	15								
1355	20								
1350	25								
1345	30								
1340	35								

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

TWINING

LOG OF BORING

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31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 6

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**P-2**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SM	SILTY SAND, dark brown, moist
							SC	CLAYEY SAND, dark brown, moist
1370	5							Total Depth = 5.0 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1365	10							
1360	15							
1355	20							
1350	25							
1345	30							
1340	35							

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 7

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**P-3**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SM	SILTY SAND, dark brown, moist
							SC	CLAYEY SAND, dark brown, moist
1370	5							Total Depth = 5.0 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1365	10							
1360	15							
1355	20							
1350	25							
1345	30							
1340	35							

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 7

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**P-4**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)			
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1369 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SM	Silty SAND; brown; slightly moist; some gravel
							SC	Clayey SAND; light brown; slightly moist
1364	5							Total Depth = 5.0 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1359	10							
1354	15							
1349	20							
1344	25							
1339	30							
1334	35							

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 7

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

Infiltration Rate Calculation Sheet

Project :	French Valley Library	Project No. :	190759.3	Date :	9/30/2019
Test Hole No.:	P-4	Tested by :	DHC		
Depth of Test Hole, D_T (in):	60	USCS Soil Classification :	SC		
Test Hole Dimension (inches)			Length	Width	
Diameter (if round) (inches) =	8	Sides (if rectangular) =			

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6" ? (Y/N)
1	12:30 PM	12:55 PM	25	12.0	36.0	24.0	Y
2	12:58 PM	1:23 PM	25	13.2	38.4	25.2	Y

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

			Δt	H_o	H_f	ΔH	
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Water Height (inches)	Final Water Height (inches)	Change in Water Level (inches)	Tested Infiltration Rate
1	1:42 PM	1:52 PM	10	38.40	25.20	13.20	4.69
2	1:53 PM	2:03 PM	10	49.20	30.60	18.60	5.33
3	2:03 PM	2:13 PM	10	42.00	29.40	12.60	4.01
4	2:13 PM	2:23 PM	10	40.80	29.40	11.40	3.69
5	2:23 PM	2:33 PM	10	42.00	30.00	12.00	3.79
6	2:34 PM	2:44 PM	10	40.20	28.80	11.40	3.75
7	2:44 PM	2:54 PM	10	37.20	27.00	10.20	3.59
8							
9							
10							
11							
12							
13							
14							
15							

Infiltration Rate with a factor of safety of 3 = 1.2 inch /hr

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APPENDIX B
LABORATORY TESTING

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Appendix B
Laboratory Testing

Laboratory Moisture Content and Density Tests

The moisture content and dry densities of selected driven samples obtained from the exploratory borings were evaluated in general accordance with the latest version of ASTM D 2937. The results are shown on the boring logs in Appendix A, and also summarized in Table B-1.

No. 200 Wash Sieve

The amount of fines passing the No. 200 sieve was evaluated in accordance with ASTM D 1140. The results are presented in Table B-2.

Atterberg Limits

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the Unified Soil Classification System. The test results are summarized in on Figure B-1 and Table B-3.

Resistance Value (R-value)

R-value testing was performed on a select bulk sample of the near-surface soils encountered at the site. The test was performed in general accordance with ASTM D 2844. The results are summarized in Table B-4.

Expansion Index

The expansion index of a select soil sample was evaluated in general accordance with ASTM D 4829. The specimen was molded under a specified compactive energy at approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimen was loaded with a surcharge of 144 pounds per square foot and was inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The result of Expansion Index test is presented in Table B-5.

Direct Shear

Direct shear tests were performed on a remolded sample and select modified-California soil samples in general accordance with the latest version of ASTM D 3080 to evaluate the shear strength characteristics of the selected materials. The remolded sample was prepared to a relative compaction of 90% according to the maximum density as determined by ASTM D1557. The samples were inundated during shearing to represent adverse field conditions. Test results are presented on Figures B-2 through B-4.

Maximum Density and Optimum Moisture

A Modified Proctor test was performed on near-surface soils to determine the maximum dry density and optimum water content for compaction. The test was performed in accordance with ASTM D 1557 Method A. The curve is attached to this appendix as Figure B-5.

Consolidation

Consolidation tests were performed on select modified-California soil samples in general accordance with the latest version of ASTM D2435. The samples were inundated during testing

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to represent adverse field conditions. The percent consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests are attached to this appendix. The tests were performed by Twining and Hushmand Associates, Inc. (HAI) of Irvine, California. The test results are presented in Figure B-6 and the HAI report included in this appendix.

Corrosivity

Soil pH and resistivity tests were performed by Anaheim Test Lab, Inc. (ATLI) of Anaheim, California on a representative soil sample. The resistivity of the soil assumes saturated soil conditions. The chloride and sulfate contents of the selected samples were evaluated in general accordance with the latest versions of Caltrans test methods CT417, CT422, and CT 643. The test results are presented on Table B-6 and the ATLI report included in this appendix.

Table B-1
Moisture Content and Dry Density

Boring No.	Depth (feet)	Moisture Content (%)	Dry Density (pcf)
B-1	5	9.8	125.0
B-1	15	16.0	115.9
B-1	25	25.1	104.2
B-1	35	14.5	112.3
B-1	45	17.2	112.4
B-2	10	20.9	101.1
B-3	5	5.5	126.9
B-3	15	26.3	99.0
B-4	10	7.5	121.2
B-4	20	16.5	114.8
B-4	30	22.3	105.0
B-4	40	15.2	116.9
B-4	50	13.0	118.7

Table B-2
Number 200 Wash Results

Boring No.	Depth (feet)	Percent Passing #200
B-1	0-5	67.5
B-1	20	73.2
B-1	30	43.4
B-2	5	50.9
B-4	15	69.0

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Table B-3
Atterberg Limits Results

Boring No.	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	U.S.C.S. Classification
B-1	20	33	17	16	CL
B-1	30	32	14	18	CL
B-2	5	25	13	12	CL
B-4	15	42	14	28	CL

Table B-4
Resistance Value (R-value)

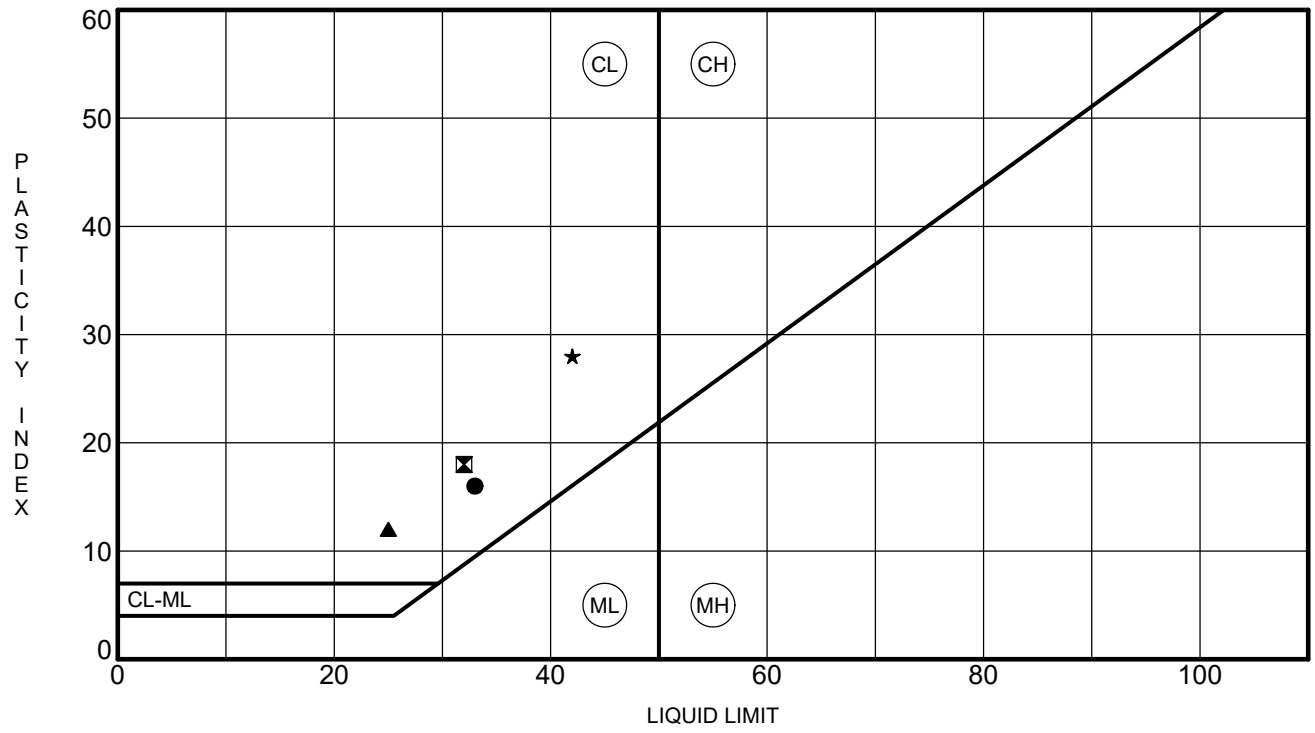
Boring No.	Depth (feet)	R Value
B-1	0 – 5	12

Table B-5
Expansion Index

Boring No.	Depth (feet)	Expansion Index	Expansion Potential
B-3	0 – 5	42	low

Table B-6
Corrosivity Test Results

Boring No.	Depth (feet)	pH	Water Soluble Sulfate (ppm)	Water Soluble Chloride (ppm)	Minimum Resistivity (ohm-cm)
B-1	0-5	7.4	205	106	1,000



	Sample Location	LL	PL	PI	U.S.C.S. Classification
●	**B-1 at 20 ft**	**33**	**17**	**16**	**SANDY lean CLAY**
⊠	**B-1 at 30 ft**	**32**	**14**	**18**	**CLAYEY SAND**
▲	**B-2 at 5 ft**	**25**	**13**	**12**	**SANDY lean CLAY**
★	**B-4 at 15 ft**	**42**	**14**	**28**	**SANDY lean CLAY**

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ATTERBERG LIMITS

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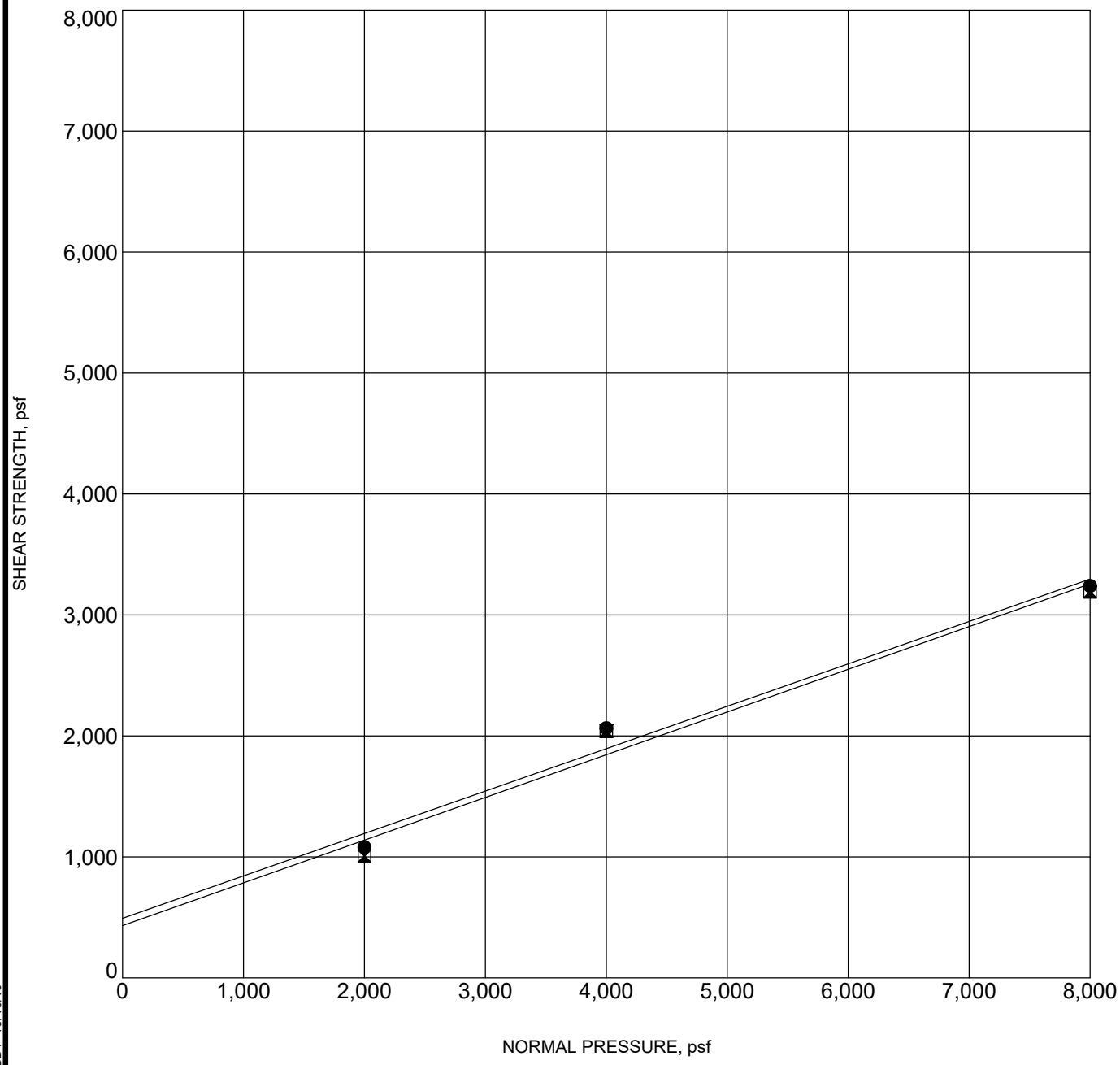
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-1

ATTERBERG LIMITS 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	492	432
Friction Angle, Ø (deg):	19	19

Boring No.: B-3
Sample Depth (ft): 0-5' BULK
Sample Description: SANDY SILT
Strain Rate (in./min): 0.005
Dry Density (pcf): 111.0

Initial Moisture (%): 8.0
Final Moisture (%): 13.4

Remolded Shear: Compacted to 90% Relative Compaction

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DIRECT SHEAR TEST

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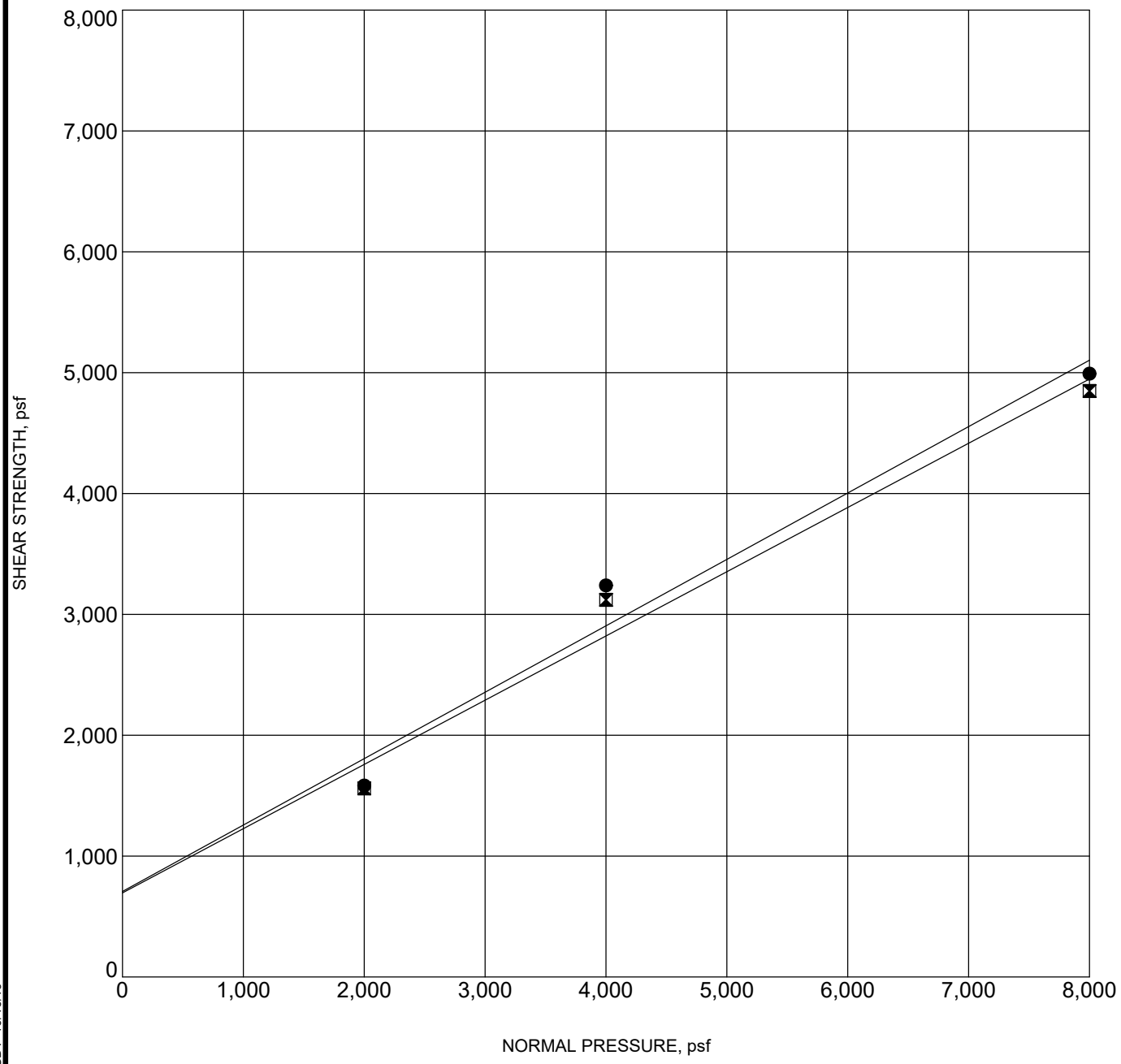
PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-1

DIRECT SHEAR 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	708	696
Friction Angle, Ø (deg):	29	28

Boring No.: B-3
Sample Depth (ft): 5
Sample Description: CLAYEY SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 126.9

Initial Moisture (%): 5.5
Final Moisture (%): 10.0

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DIRECT SHEAR TEST

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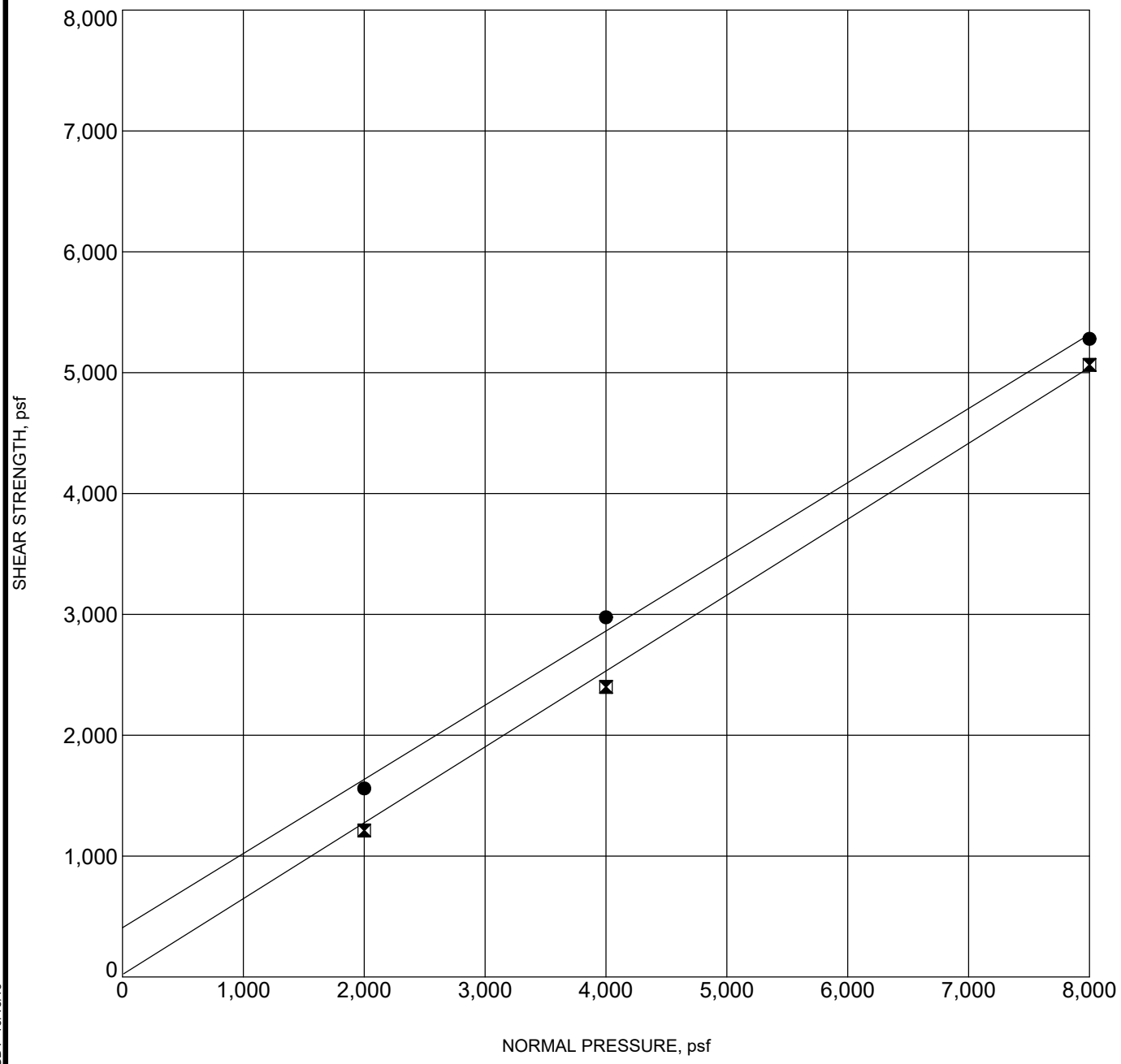
PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-2

DIRECT SHEAR 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	408	0
Friction Angle, Ø (deg):	32	33

Boring No.: B-4
Sample Depth (ft): 10
Sample Description: SILTY SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 121.2

Initial Moisture (%): 7.5
Final Moisture (%): 12.1

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DIRECT SHEAR TEST

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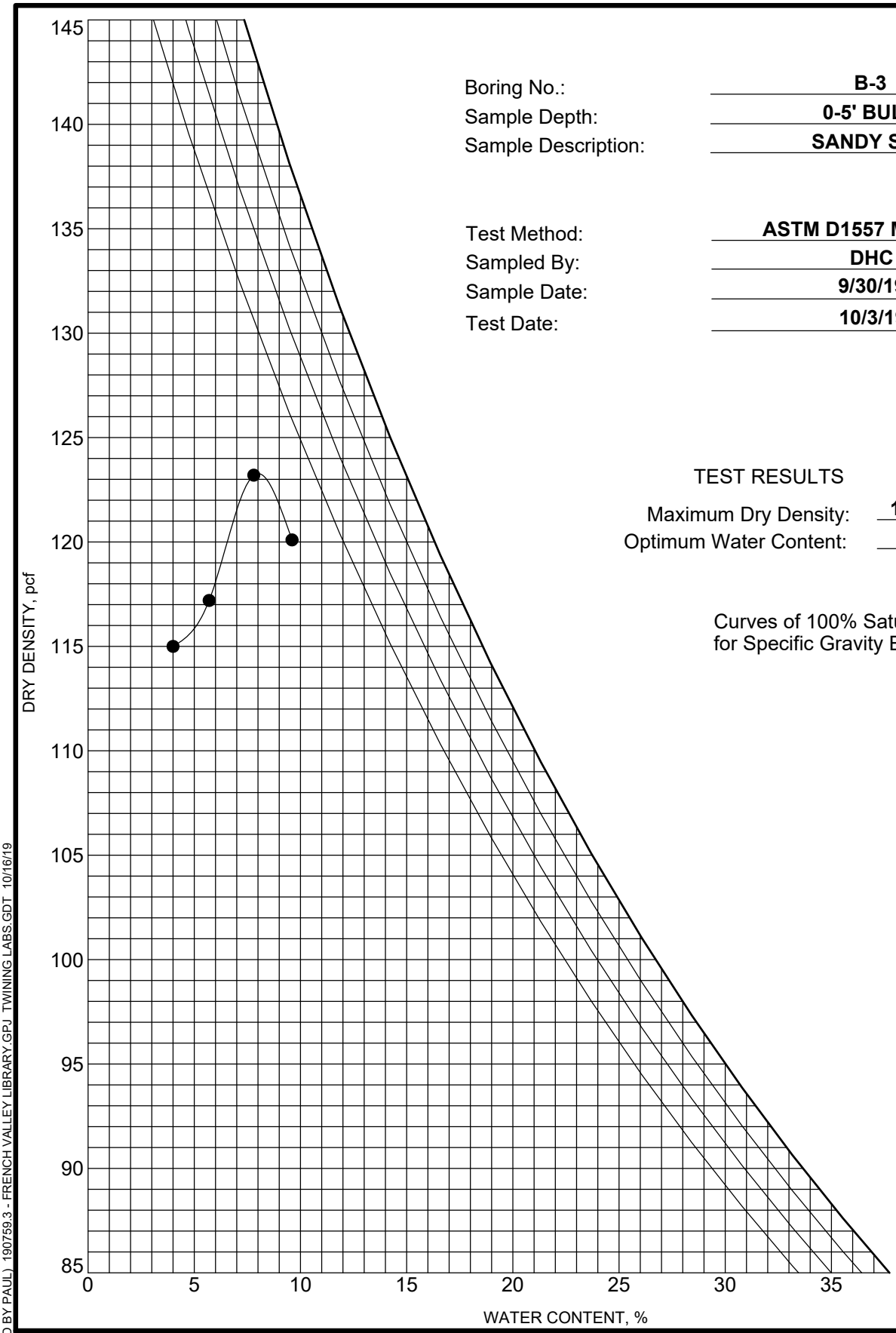
PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-3

DIRECT SHEAR 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Boring No.:	**B-3**
Sample Depth:	**0-5' BULK**
Sample Description:	**SANDY SILT**
Test Method:	**ASTM D1557 Method A**
Sampled By:	**DHC**
Sample Date:	**9/30/19**
Test Date:	**10/3/19**

TEST RESULTS

Maximum Dry Density:	**123.5 pcf**
Optimum Water Content:	**8.0 %**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

2.50

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MOISTURE-DENSITY RELATIONSHIP

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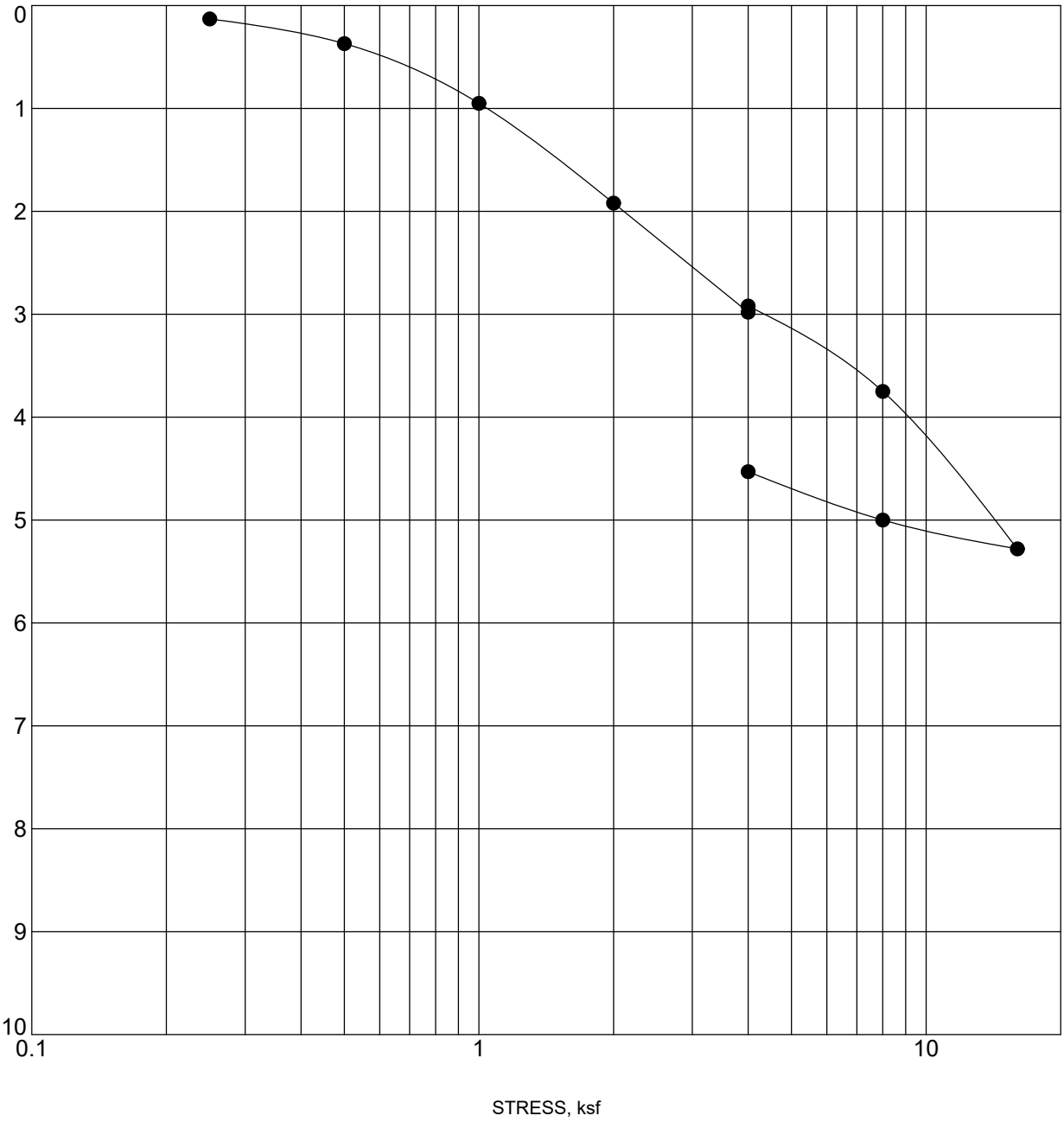
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-5

COMPACTION (MODIFIED BY PAUL) 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● **B-2 at 10 ft**	**SANDY lean CLAY**	**101.1**	**20.9**

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CONSOLIDATION TEST

French Valley Library
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PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-6

CONSOL STRAIN 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19

HUSHMAND ASSOCIATES, INC.
Geotechnical and Earthquake Engineers

Hushmand Associates, Inc.
250 Goddard, Irvine,
CA 92618

p. (949) 777-1274
w. haieng.com
e. hai@haieng.com

October 14, 2019

Twining, Inc.
3310 Airport Way,
Long Beach, CA 90806

Attention: Mr. Steven Chang

SUBJECT: **Laboratory Test Result**
Project Name: **French Valley**
Project No.: **190759.3**
HAI Project No.: **TWI-19-009**

Dear Mr. Chang:

Enclosed is the result of the laboratory testing program conducted on samples from the above referenced project. The testing performed for this program was conducted in general accordance with the following test procedure:

Type of Test	Test Procedure
Moisture Content & Dry Density	ASTM D2216 & D2937
Consolidation	ASTM D2435

Attached are: one (1) Moisture Content & Dry Density test result; and one (1) Consolidation test result.

We appreciate the opportunity to provide our testing services to Twining Inc. If you have any questions regarding the test results, please contact us.

Sincerely,

HUSHMAND ASSOCIATES, INC.

Kang C. Lin, BS, EIT
Laboratory Manager

Woongju (MJ) Mun, PhD, PE
Senior Staff Engineer

MOISTURE CONTENT AND DR□ DENSIT□ OF RING SAMPLES

ASTM D□□□□ □ ASTM D□□□□

Client: Twining, Inc.
Project Name: French Valley
Project No.: 190759.3

□Al Pr□□N□□□ TWI-19-009
P□r□□r□ □d □□□ KL
C□□□□□d □□□ MJ
D□□□□ 10/2/2019

N□□	**□□r□□□ N□□**	**S□□ □□□ N□□**	**D□□□□**	Wt of Ring + Soil	Height of Sample	Dia. of Sample	Volume of Sample	Wt of Rings	Wt of Soil	Wet Density	Wt of Cont. + Wet Soil	Wt of Cont. + Dry Soil	Wt of Container	**M□□□□r□ C□□□□□**	**Dr□ D□□□□□**
			□□	gr	in	in	cu.ft	gr	gr	pcf	gr	gr	gr	□	□□□
□	□□□	□	□□	1002.47	5.00	2.416	0.0133	228.50	773.97	128.6	220.65	194.16	11.72	□□□□	□□□□

CONSOLIDATION TEST

ASTM D□□□□

Client : Twining, Inc.
Project Name: French Valley
Project Number: 190759.3
Boring No.: B-1
Sample No.: 1
Type of Sample: Undisturbed Ring
Depth (ft): 35
Soil Description: Olive Brown, Sandy Fat Clay (CH)

HAI Project No.: TWI-19-009
Tested by: KL
Checked by: MJ
Date: 10/02/19

Initial Total Weight	Final Total Weight	Final Dry Weight
(g)	(g)	(g)
158.97	162.18	139.03

			I□□□□□C□□d□□□□□	F□□□C□□d□□□□
Height	H	(in)	1.026	0.994
Height of Solids	H_s	(in)	0.685	0.685
Height of Water	H_w	(in)	0.265	0.308
Height of Air	H_a	(in)	0.075	0.000
Dr□D□□□□□		□□□□	□□□□	□□□□
□ □□r C□□□□□		□□ □	□□□	□□□
S□□□r□□□□		□□ □	□□□	□□□

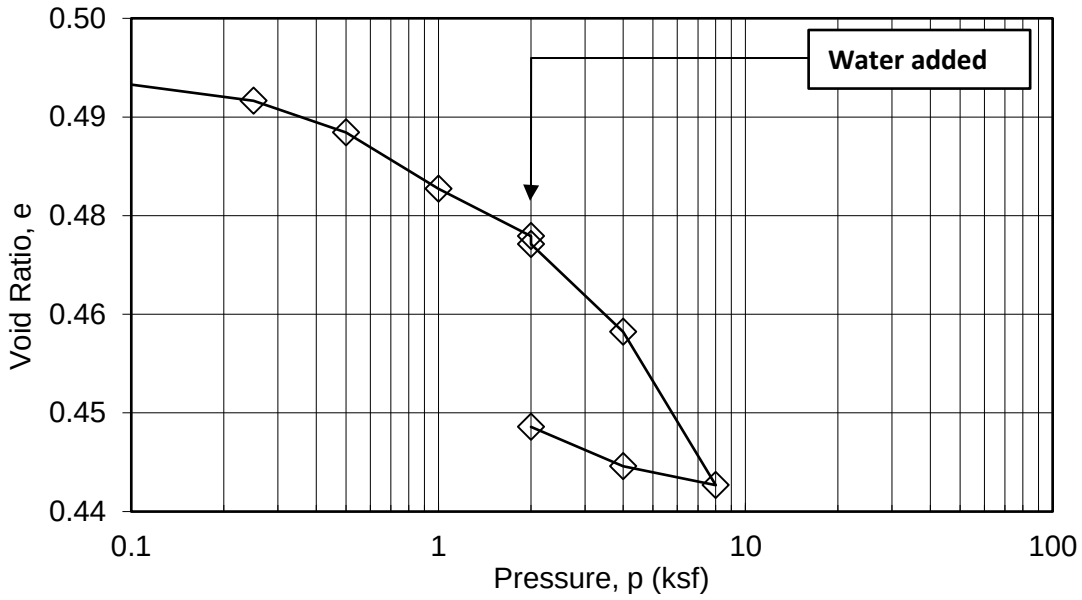
* Saturation is calcualted based on Gs= 2.70

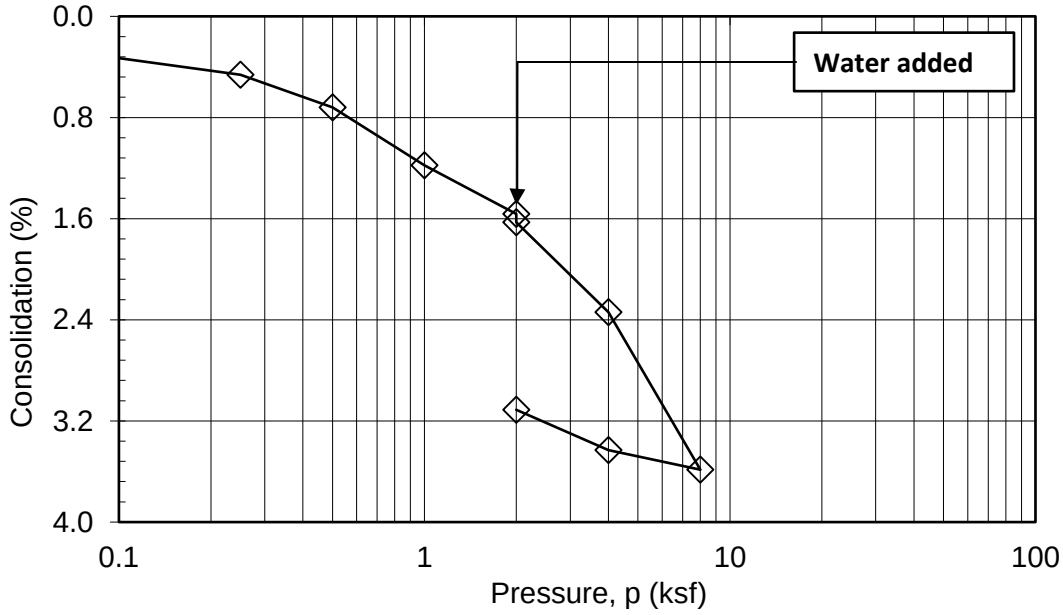
L□□d □□□□	**δH** □□□	□ □□□	□□d□ □□□	□	**C□□□□** □□ □	□□ □□□² □	**M**□ □□□² □	**C□□ □ □□□**
0.01	-------	1.0260	0.341	0.497	0			
0.25	0.0047	1.0213	0.336	0.490	0.5	2.9E-02	1.9E-02	
0.5	0.0074	1.0186	0.333	0.486	0.7	1.5E-02	1.0E-02	
1	0.0121	1.0139	0.328	0.479	1.2	1.4E-02	9.3E-03	
2	0.0160	1.0100	0.325	0.473	1.6	5.8E-03	3.9E-03	
2	0.0167	1.0093	0.324	0.473	1.6	Water Added		
4	0.0240	1.0020	0.317	0.462	2.3	5.3E-03	3.6E-03	
8	0.0368	0.9892	0.304	0.443	3.6	4.7E-03	3.2E-03	
4	0.0352	0.9908	0.305	0.446	3.4	Unloaded		
2	0.0319	0.9941	0.309	0.450	3.1			

CONSOLIDATION TEST

ASTM D□□□□

Client :	Twining, Inc.	*HAI Project No.:*	TWI-19-009
Project Name:	French Valley	*Tested by:*	KL
Project Number:	190759.3	*Checked by:*	MJ
Boring No.:	B-1	*Date:*	10/02/19
Sample No.:	1		
Type of Sample:	Undisturbed Ring		
Depth (ft):	35		
Soil Description:	Olive Brown, Sandy Fat Clay (CH)		





ANAHEIM TEST LAB, INC

196 Technology Drive, Unit D
Irvine, CA 92618
Phone (949)336-6544

TWINING LABS
3310 AIRPORT WAY
LONG BEACH, CA 90806

DATE: 10/03/2019

P.O. NO: Soils 10119

LAB NO: C-3261

SPECIFICATION: CTM-417/422/643

MATERIAL: Soil

Project No.: 190759.3
Project: French Valley
Date sampled: 09/30/2019
Boring ID: B-1 Bulk

ANALYTICAL REPORT

CORROSION SERIES
SUMMARY OF DATA

pH	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm	MIN. RESISTIVITY per CT. 643 ohm-cm
7.4	205	106	1,000

RESPECTFULLY SUBMITTED

WES BRIDGER LAB MANAGER

TWINING

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Appendix C
Slope Stability Analysis

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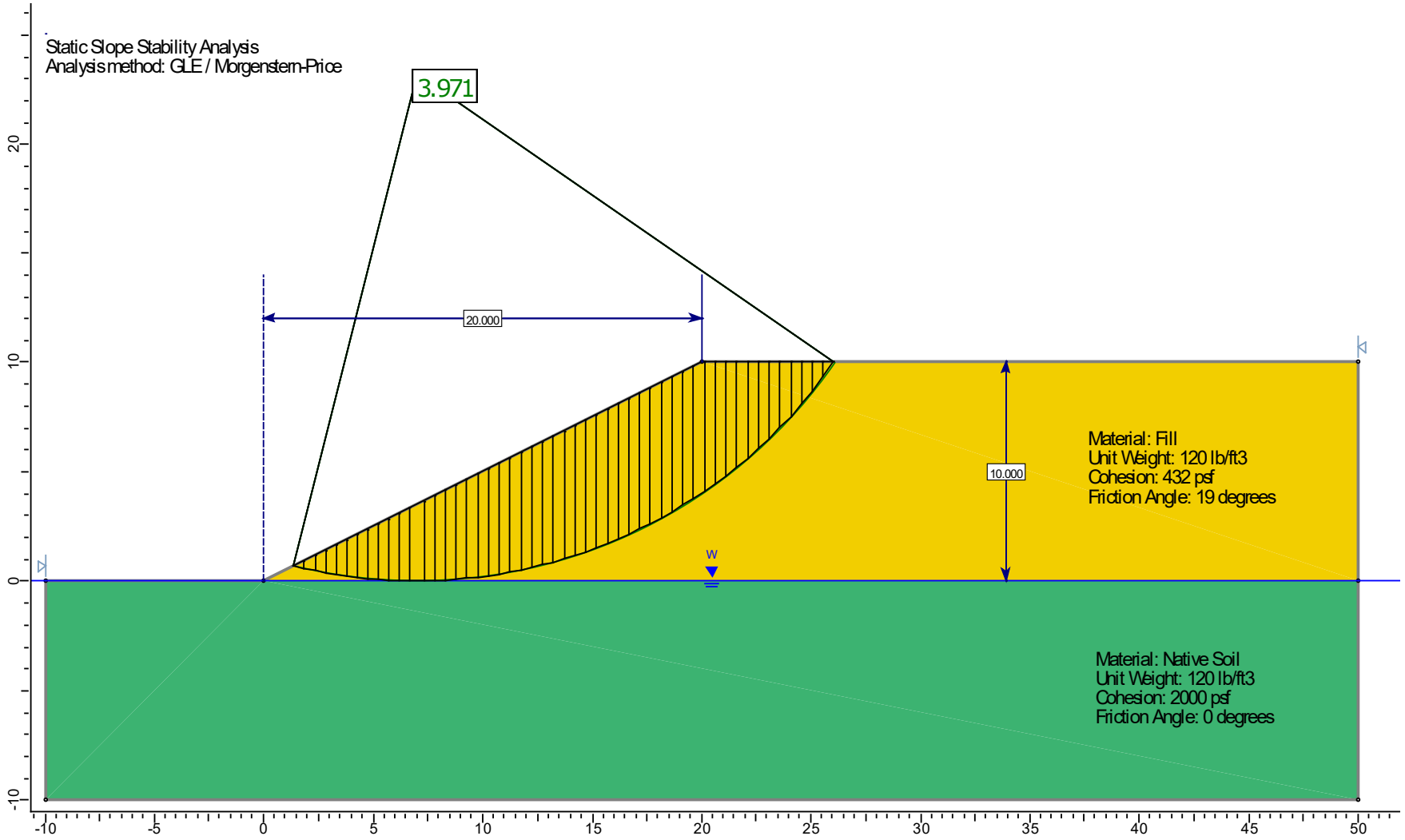

Figure C-1 Static Slope Stability Analysis

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Tel 562.426.3355
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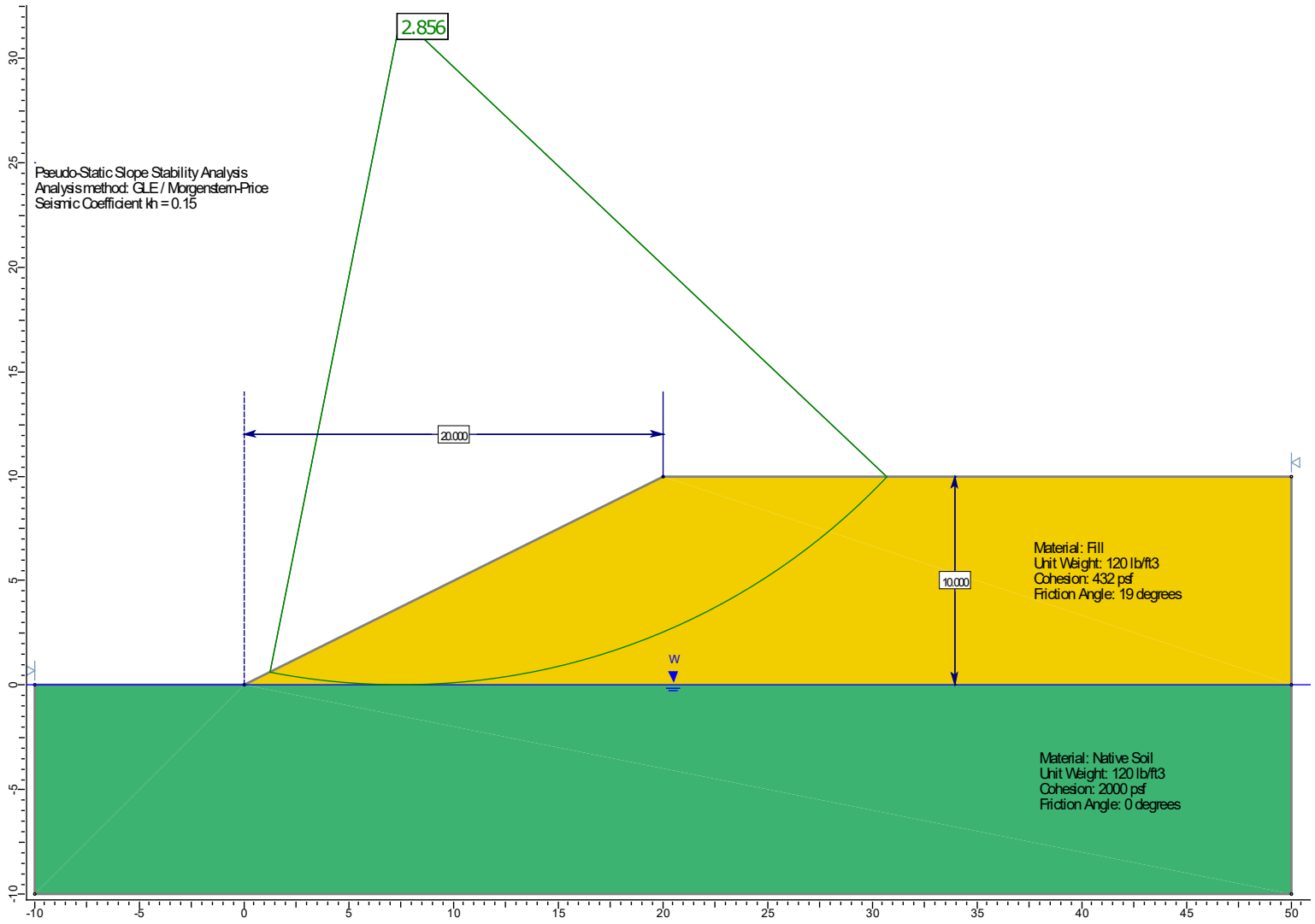

Figure C-1 Pseudo-Static Slope Stability Analysis

APPENDIX E

PHASE I HAZARDOUS MATEIRALS ASSESSMENT

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PHASE I ENVIRONMENTAL SITE ASSESSMENT
APN 480-1600-21
FRENCH VALLEY, CALIFORNIA

Submitted to:

Ms. Maribel Hyer
Senior Real Property Agent
County of Riverside Economic Development Agency
3403 Tenth Street, Suite 400, Riverside, California 92501

CFP Riverside, LLC
18336 Minnetonka Boulevard, Suite C, Deephaven, MN 55391

U.S. Bank National Association as Trustee

Ashraf Almurdaah
Vice President
U. S. Bank National Association
633 W. 5th Street, 24th Floor, Los Angeles, California 90071

Prepared by:

GROUP DELTA CONSULTANTS, INC.
1035 S. Milliken Avenue, Suite G
Ontario, California 91761
Tel: (909) 295-5550

June 12, 2019
Group Delta Project No. EN430

GROUP DELTA

LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

June 12, 2019

Attention: Lynn Calvert-Hayes
Principal

Subject: Phase I Environmental Site Assessment (ESA)
APN 480-1600-21
French Valley, California
Group Delta Project No. EN430

Dear Ms. Calvert-Hayes:

Group Delta Consultants, Inc. is pleased to submit to LSA Associates, Inc. this Phase I Environmental Site Assessment report for the property associated with APN 480-1600-21 in Winchester, California. The purpose of the report is to assist the project proponents in understanding whether significant environmental liabilities regarding hazardous waste or Recognized Environmental Conditions exist on the Site. This report discusses our study purpose, scope of work, execution of work, conclusions, and recommendations for the site. This Environmental Site Assessment was performed in general accordance with our proposal submitted on February 4, 2019. Group Delta Consultants, Inc. has interpreted the American Society for Testing and Materials E1527-13 as the guidance documents for this Initial Site Assessment and used their provisions to the extent deemed appropriate for this report. No Recognized Environmental Conditions or Areas of Concern were identified in this assessment. Based upon the findings and conclusions of this report, no further assessment appears warranted at this time.

We appreciate your selection of Group Delta Consultants for this project and look forward to assisting you further on this and other projects. If you have any questions, please do not hesitate to contact us, please feel free to call us at (949) 450-2100.

Sincerely,
GROUP DELTA CONSULTANTS, INC.

Natalia Delgadillo

Glenn Burks, Ph.D., P.E.
Principal, Director of Environmental Services
Environmental Professional

Natalia Delgadillo
Staff Engineer

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EXECUTIVE SUMMARY

Group Delta has performed a Phase I Environmental Site Assessment (ESA) for LSA Associates, Inc. (herein referred to as Client) for a 11.5-acre site located southeast of SR-79 (Winchester Road), northeast of Skyview Road, and 326 ft west of Via Santa Catalina (herein referred as Site) in French Valley (Winchester), California. The Site is identified by the Riverside County Assessor's Parcel Number (APN) 480-1600-21. The Site is under consideration for development with a library planned by the Riverside County Economic Development Agency.

This Phase I ESA was performed in accordance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E1527-13. This version of the ASTM standard complies with the Federal All Appropriate Inquiry (AAI) rule (40 Code of Federal Regulations [CFR] Part 312 – Standards and Practices for All Appropriate Inquiries). The purpose of the Phase I ESA is to review, evaluate, and document present and past land use and practices, and visually examine Site conditions to identify Recognized Environmental Conditions (RECs). The Phase I ESA included a Site reconnaissance, observation of adjacent properties, environmental regulatory agency records review, review of available historic documents, and owner interview.

A Site reconnaissance was performed on May 10, 2019 as part of the ESA to observe current conditions throughout the Site. This assessment did not reveal any RECs associated with the scope of this project. However, the following hazardous materials may be encountered during construction that are not considered RECs, but may warrant further investigation or implementation of special provisions:

- One upright wood utility pole exits on site and its purpose is unknown. It is assumed the material consists of treated wood which is typically treated with hazardous preserving chemicals that protect the wood from insect attack and fungal decay during its use. Treated wood waste (TWW) is a hazardous waste (to avoid the time and expense involved in completing laboratory testing) and should be managed by the Department of Toxic Substances Control (DTSC) Alternative Management Standards (AMS) which permit disposal at specific non-hazardous waste landfills.

- Small soil stockpiles appear to have been dumped onsite. The source of the soil is unknown and did not exhibit signs of contamination. However, if stained or odiferous dumped soil is encountered, it should be sampled and characterized in accordance with standard industry practices.

The Owner interview conducted during this Phase I ESA did not identify any RECs for the Site.

This assessment also included a review of available federal and state data reported by Environmental Data Resources (EDR), available regulatory agency environmental records, and

available site history and records. The review did not identify any RECs for the Site. The review also included properties in the vicinity of the Site. Records indicated listed locations within ½ mile of the Site as listed in the EDR report. However, based on type of regulatory listing, regulatory status of the case, and/or location with respect to regional groundwater flow, the likelihood of Site contamination from an off-site source is considered low.

The information procured during this investigation was used to identify, to the extent practical and within the limitations of the Scope, RECs associated with the Site due to current or past land use. This assessment has revealed no evidence of RECs in association with the Site.

Based upon the findings and conclusions, no further assessment appears warranted at this time.

1.0 INTRODUCTION

1.1 Background and Project Description

Group Delta has performed a Phase I Environmental Site Assessment (ESA) for LSA Associates, Inc (herein referred to as Client) for an 11.5-acre site located southeast of State Route 79 (SR-79) (Winchester Road), northeast of Skyview Road, and approximately 325 ft west of Via Santa Catalina (herein referred as Site) in French Valley (Winchester), California. The Site is currently a vacant parcel and is under consideration for development with a library by the Riverside County Economic Development Agency.

1.2 Purpose

The purpose of the Phase I ESA is to review, evaluate, and document present and past land uses and practices, and visually examine Site conditions in order to identify Recognized Environmental Conditions (RECs). A REC is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of release to the environment, or; (3) under conditions that pose a material threat of a future release to the environment. The REC term does not include *de minimis* conditions that generally do not present a threat to human health or the environment, and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

1.3 Detailed Scope of Work

Group Delta has interpreted American Society for Testing and Materials (ASTM) E1527-13 as the guidance document and used its provisions to the extent deemed appropriate for this report. In general, the scope of work included:

- Review of available information to describe the general geology and hydrogeology at the Site and adjacent areas;
- Search of regulatory records regarding possible hazardous material handling, spills, storage, or production at the Site or in its vicinity;
- Review of on-line available data including databases maintained by the Department of Toxic Substances Control (DTSC) and the State Water Resources Control Board (SWRCB);
- Perform agency records review of available files from the Riverside County Department of Environmental Health (RCDEH), Riverside County Planning Department (RCPD), Riverside County Building and Safety Department (RCBSD), South Coast Air Quality Management District (SCAQMD), Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA), National Pipeline Mapping System (NPMS), and Division of Oil, Gas, and Geothermal Resources (DOGGR) for onsite wells;

- Review of historic aerial photographs, historic topographic maps, Sanborn® fire maps, City Directories, and a radius map database search provided by Environmental Data Resources, Inc. (EDR);
- Reconnaissance of the Site and the immediate surrounding area to identify indicators of the existence of hazardous materials or RECs;
- Interview of an owner representative for the Site;
- Development of conclusions and findings, and;
- Preparation of a report describing the assessment and presenting the results and findings.

A statement of interpretive limitations is contained in Section 1.5 of the report.

1.4 Significant Assumptions

As stated in the previous section, this ESA was conducted in general accordance with ASTM E1527-13 to the extent deemed appropriate. This was done to identify and analyze environmental conditions that constitute existing, past, or potential environmental risks associated with the Site. Performance in accord with this standard is intended to reduce, but not eliminate, uncertainty with respect to the potential for RECs associated with the Site.

1.5 Limitations and Exceptions

This ESA report is intended for the sole use of the Client and on the specific project identified. Our services have been performed under mutually agreed-upon terms and conditions. If other parties wish to rely on this report, please have them contact us so that a mutual understanding and agreement of the terms and conditions for our services can be established prior to their use and reliance of this report and the information it contains.

The findings and opinions presented are relative to the dates of our Site work and should not be relied on to represent conditions at substantially later dates. The opinions included herein are based on information obtained during the study and our experience. If additional information becomes available, which might impact our environmental findings, we request the opportunity to review the information, reassess the potential conditions, and modify our opinions, if warranted.

Although this assessment has attempted to identify the potential for environmental impacts to the Site, potential sources of contamination may have escaped detection due to: (1) the limited scope of this assessment, (2) the inaccuracy of public records, and/or (3) the presence of undetected or unreported environmental incidents.

It was not within the scope of this assessment to address issues not included in ASTM E1527-13 (such as radon, lead in drinking water, naturally-occurring hazardous materials or vegetation, endangered species, wetlands, etc.). Furthermore, it was not the purpose of this study to determine the degree or extent of contamination, if any, at the Site.

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar conditions, by reputable environmental consultants practicing in this or similar localities. No other warranty, expressed or implied, is made regarding the professional information in this report.

1.6 Special Terms and Conditions

All appropriate inquiry (AAI) into the prior uses of the Site was made in accordance with good commercial and customary practices in order to identify and analyze RECs constituting existing, past or potential environmental conditions in connection with the Site.

There are no special terms and conditions that apply to the preparation of this report.

1.7 User Reliance

This assessment was performed at the request of the Client, utilizing methods and procedures consistent with good commercial or customary practices designed to conform to acceptable industry standards. The assessment and conclusions presented in this report represent the best professional judgment of the Environmental Professional based on the conditions that existed during the assessment and the information and data available to us during the course of this assignment.

Factual information regarding operations and conditions provided by the Client, owner, or their representative has been assumed to be correct and complete.

The report may be distributed and relied upon by the Client, its successors and assigns. Reliance on the information and conclusions presented in this report by any other party or parties is not authorized without the written consent of Group Delta.

2.0 SITE DESCRIPTION

2.1 Location and Legal Description of the Site

The Site is comprised of 11.5 acres of undeveloped land located southeast of SR-79 (Winchester Road), northeast of Skyview Road, and 326 ft west of Via Santa Catalina in French Valley (Winchester), California. The Site is identified by the Riverside County Assessor's Parcel Number (APN) 480-1600-21. According to the Title Report provided by the Client, the property does not have a physical address and, therefore, must be referenced by its APN.

A complete legal description of the Site is contained in the Preliminary Title Report provided by the Client. The Preliminary Title Report is presented as Appendix A.

2.2 Site and Vicinity General Characteristics

The Site is a flat and irregularly-shaped property. It is a vacant unpaved property with scattered vegetation. A gravel access road is located along its western boundary.

The Site's vicinity is generally characterized by residential developments and vacant land.

2.3 Current Use of the Site

The Site is currently undeveloped land without a specified use. Photographic documentation of the Site is provided in Appendix B.

2.4 Site Geology

The Site is located within the Peninsular Ranges geomorphic province. A series of ranges is separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault. The trend of topography is similar to the Coast Ranges, but the geology is more like the Sierra Nevada, with granitic rock intruding the older metamorphic rocks. The Peninsular Ranges extend into lower California and are bound on the east by the Colorado Desert. The Los Angeles Basin and the island group (Santa Catalina, Santa Barbara, and the distinctly terraced San Clemente and San Nicolas islands), together with the surrounding continental shelf (cut by deep submarine fault troughs), are included in this province.

The Site is mapped as slightly to moderately consolidated silt, sand, and gravel with young axial-valley deposits (Qya) (Morton and Miller, 2006).

2.5 Site Hydrology

The Site is located within the Temecula Valley Groundwater Basin. The Temecula Valley Groundwater Basin underlies several valleys in southwestern Riverside County and a portion of northern San Diego County. Murrieta, Temecula, Pauba, Long, and Lancaster Valleys are the largest valleys overlying this basin. The basin is bounded by nonwater-bearing crystalline rocks

of the Penninsular Ranges. The overlying valleys are drained mainly by Wilson, Temecula, Murrieta, Warm Springs, and Pechanga Creeks to the Santa Margarita River, which flows west out of Temecula Valley.

The water-bearing sediments consist of quaternary alluvium, which is estimated to reach more than 2,500 feet thick, is the water-bearing material of this basin. Well yields generally range to 300 gallons per minute (gpm) in the northwestern part of the basin but reach 1,750 gpm for wells in Pauba Valley (DWR, 1956). Groundwater is generally unconfined but is confined in the Pauba Valley and near some faults that cut the basin (DWR, 1956). Holocene alluvial deposits consist of unconsolidated gravel, sand, silt, and clay that are generally about 100 to 125 feet thick (DWR 1956) but reach 200 feet thick (DWR, 1967). The Pleistocene age Temecula Arkose, an alluvial deposit composed of arkosic sand with some marl, tuff, and silt, is at least 1,400 feet thick (DWR, 1967). Groundwater is also extracted from residuum and from fractured rocks beneath the basin.

The Site is located 2.3 miles northwest of the Lake Skinner and 4.4 miles south west of the Diamond Valley Lake. According to groundwater monitoring reports prepared for properties in the vicinity of the Site, groundwater is present at depths greater than 16 feet below ground surface (bgs). Groundwater flow direction is reported to be from north to south.

2.6 Current Uses of Adjacent Properties

The Site is bordered by Highway 79 (Winchester Road) to the north and west; by Skyview Road, single-family residential buildings, and vacant land to the south; and by additional single-family residential buildings to the east.

3.0 USER PROVIDED INFORMATION

3.1 Title Records

A complete legal description of the Site is contained in the Preliminary Title Report provided by the Client. The Preliminary Title Report is presented as Appendix A.

3.2 Environmental Liens or Activity and Other Use Limitations (AUL)

No reports of environmental liens or AULs were provided by the User during this ESA.

3.3 Owner/Occupant Interviews

3.3.1 Current Owners

Group Delta interviewed Ms. Maribel Hyer, Sr. Real Property Agent of the Riverside County, regarding any knowledge about present or past land use at the Site that may be of environmental concern. Ms. Hyer completed a questionnaire and informed Group Delta that they are not aware of any environmental concerns associated with the Site including, but not limited to, historical Site use, treatment, storage or spills of hazardous waste and petroleum products, presence of underground/aboveground storage tanks, presence of utilities, environmental problems with adjacent locations among other factors on-site.

No RECs were identified as a result of the Owner Interview.

3.3.2 Previous Owners

The previous owner of the Site was not identified during this Phase I ESA.

3.4 Reason for Preforming ESA

The purpose of the ESA is to identify apparent and potential sources of contamination for the Site that, by their association or proximity to the Site, could represent an REC. This report can serve to identify environmental conditions at the Site that may impact the proposed project and may permit the User to satisfy one of the requirements to qualify for the bona fide prospective purchaser limitations on Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) liability (42 U.S.C. §9601). It was not the purpose of this study to determine the degree or extent of contamination, if any, but rather to identify the potential for contamination or environmental concern.

3.5 Review of Existing Site Reports

The User didn't provide any reports that have been previously prepared for the Site to Group Delta.

4.0 ENVIRONMENTAL DATA SEARCH

4.1 Database Information on the Site and the Adjacent Properties

4.1.1 Standard Environmental Record Sources for the Site and Vicinity

Group Delta conducted a review of reasonably ascertainable environmental regulatory agency databases to identify known or suspected environmental concerns or RECs that may be associated with the Site. A search of readily available environmental records was obtained from EDR of Shelton, Connecticut (Appendix C). The purpose of the regulatory database report review was to evaluate to the extent possible whether prior activities, processes, operations, or actions on the Site, adjoining properties, and nearby locations have the potential to adversely impact the environmental integrity of the Site, are suspected sources of environmental contamination, or present RECs for the Site. The regulatory database report provides information regarding current operations and prior regulatory listings for the Site and previous owners and/or operators on the Site. The presence or absence of information about the Site does not necessarily mean that there are or are not environmental issues associated with the Site.

The regulatory database report includes a list of government databases searched, a statistical profile listing the number of properties within ASTM Standard Practice specified search radii, selected detailed information from environmental regulatory agency databases, and a map illustrating the identified properties, sites, or facilities of interest.

The regulatory database report provides a mechanism to evaluate a relatively large number of environmental regulatory agency databases and eliminate many properties, sites, operations, and/or facilities that have a low potential of adversely impacting the Site. However, it should be noted that the information included in the regulatory database report is not necessarily all-inclusive and environmental regulatory agency files may have been purged by public officials prior to release to the public. In addition, mapping errors may not reflect actual distances and directions between the Site and the properties, sites, operations, and/or facilities listed in the regulatory database report.

The regulatory database report includes information from federal, state, local, military, and tribal environmental regulatory agency databases.

4.1.2 Site Records

The property was not identified on any databases in the EDR regulatory database report.

4.1.3 Vicinity Records Search

Multiple sites were listed in the EDR database radius search for the project area. The radius search area included the project limits and a one-mile radius from the project limits. Numerous

properties within this search area were listed on the EDR database and were found not to pose a hazardous waste impact based on the following criteria, or a combination thereof:

- The regulatory case status of the property is identified as completed and closed;
- The type of media affected was identified as soil only;
- The release was in nominal amounts or concentrations as to not present a hazardous waste impact concern to the project;
- The listing was identified on low-hazardous risk databases (i.e., underground storage tank [UST] HAZNET, small quantity generator databases) with no reported spills, cleanups, or violations;
- The property is identified on a low-hazardous risk database as receiving one or more violations, but the nature of violations received was associated with financial, administrative, or record-keeping practices only;
- The distance of the listing to project limits is great enough that it does not present a hazardous waste impact concern to the project, and/or;
- The listing is down-gradient or cross-gradient from the project limits.

Based on these criteria, these listings are not considered an environmental concern to the project and were not evaluated further.

Table 1 provides a summary of properties in the vicinity of the site identified on high-hazardous risk databases (ENVIROSTOR, SCH) in the EDR regulatory database report. Table 1 includes the operating business name and address associated with the listing; Map ID number of the listing; associated database(s) on which the listing occurs; and a summary of information pertaining to the listing. For a determination of whether the given listing is a REC or area of concern (AOC) to the project, refer to Section 5.2 – Local Department Records.

Table 1: Site Vicinity Findings

Environmental Atlas Findings – Site Vicinity Findings
QUINTA DO LAGO ELEMENTARY, Pourroy Road/Thompson Road/French Valley, Temecula, CA 92592
Map Key Number 1
EDR Listing of Concern and Associated Databases: ENVIROSTOR, SCH
The property is located approximately 0.35 miles north of the Site. This property has a past use of agricultural row crops. A school investigation was performed to determine the presence of possible contaminants associated with its past use. A Phase I document concluded that no further action was required in 2001. **The investigation was overseen by the DTSC, no contaminants were found.** Due to the nature of the potential contamination and the closure of the case, this property is not considered an environmental concern for the Site.

A copy of the Radius Map Report is provided in Appendix C.

4.2 Historical Use Information on the Site and Adjoining Properties

Group Delta reviewed available historical information in order to ascertain the historical uses of the Site and the adjoining properties. Reviewed information included Sanborn insurance maps, historic aerial photographs, historic topographic maps, and city directories.

4.2.1 Sanborn Map Review

Group Delta reviewed a certified Sanborn map report prepared by EDR. After a complete search of the Sanborn Library and fire insurance maps by EDR, fire insurance maps of the target property were not found.

A copy of the Sanborn search findings is provided in Appendix C of this report.

4.2.2 Historical Aerial Photography and Topographic Map Review

Aerial photographs and historical topographic maps of the Site and adjoining properties were provided by EDR and reviewed to identify historical land development. Photographs and historical topographic maps dating between 1901 and 2016 were reviewed. Table 2 summarizes the results of the aerial photograph and topographic map review. Copies of the aerial photographs and topographic maps provided by EDR are included as Appendix C.

Table 2: Summary of Historical Review

Table 2 Summary of Historical Review			
Year	**Source and Scale**	**Summary**	
1901 through 1947	Topographic Map 7.5-minute	The Site is depicted as vacant. An intermittent stream is depicted adjacent to the east boundary of the Site. The surrounding vicinity is depicted as vacant land. Gravel and unpaved light duty roads are shown on the north, east, west, and south adjacent boundaries of the Site. By 1947, buildings are evident east and southwest of the Site.	
1938 through 1949	Aerial Photographs 1:500	The Site is vacant and undeveloped. Its surrounding vicinity includes a stream that flows along the east boundary. A single residential building with an orchard is depicted to the east of the Site.	Adjacent properties appeared to be the following: North: Vacant land and the adjacent stream. South: Vacant land and the adjacent stream. East: Vacant land. West: Vacant land

1953 through 1978	Topographic Maps 7.5-minute	The Site appears to remain vacant. A new stream is depicted along the east adjacent boundary of the Site. Present day Winchester Road (Highway 79) is constructed along the west adjacent boundary of the Site. An aqueduct is constructed from north to south to the west of the Site. Beeler Road is depicted as a paved road to the east of the Site.	
1953 through 2002	Aerial Photographs 1:500	The Site remains vacant. By 1953, present day Winchester Road (Highway 79) is constructed along the west adjacent boundary of the Site. The surrounding vicinity appears to mainly consist of agricultural plots of land with associated farmsteads or vacant land. By 2002, single-family residences are depicted northwest of the Site.	Adjacent properties appeared to be the following: North: No changes were observed. South: No changes were observed. East: No changes were observed. West: No changes were observed.
2012 thorough present	Topographic Maps 7.5-minute	The Site appears to remain vacant. Its surrounding vicinity becomes heavily developed into residential neighborhoods. Paved light duty roads increase significantly through the area.	
2006 through 2016	Aerial Photographs 1:500	The Site remains vacant. Its surrounding vicinity becomes developed into residential neighborhoods on both sides of Highway 79. Paved light duty roads increase significantly throughout the area.	Adjacent properties appeared to be the following: North: Residential dwellings with some pockets of vacant land. South: Residential dwellings with some neighborhood parks and Skyview Road. East: Single-family residences West: Vacant land and Highway 79.

Historic use of the vicinity of the Site includes agriculture; however, evidence of previous agricultural activities was not observed at the Site.

No adjacent properties of environmental concern were identified during the historical review.

Representative aerial photographs and topographic maps are included in Appendix C.

4.2.3 City Directory Report

The EDR City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. City directories generally include listings of residents or businesses organized both alphabetically and alphanumerically by street names and street addresses and are prepared for many urban and suburban areas of the United States dating back to the early 1900s.

Group Delta reviewed the city directory search prepared by EDR. The search was performed for the Site and the adjacent properties from as early as 1971 until 2014.

The Site was not reported in the city directory. The city directory indicates that the Site's vicinity has been mainly comprised of residences and commercial businesses including restaurants, tire warehouses, construction facilities, local agencies offices, shopping establishments, and hotels.

No businesses that would present an environmental concern to the subject Site were identified. No RECs were identified in the review of the EDR City Directory Report.

The City Directory Report prepared by EDR is presented in Appendix C.

5.0 REGULATORY AGENCY RECORDS

5.1 Online Available Records

5.1.1 Department of Toxic Substances Control (DTSC)

Group Delta reviewed available files of the State of California DTSC published on the internet records database, Envirostor. The purpose of this search was to identify any evidence of unauthorized releases of hazardous materials to the surface, subsurface soil, and groundwater.

The Site was not identified on the Envirostor database. No cases within 1.0 mile of the Site were identified as an environmental concern to the subject Site.

5.1.2 State Water Resources Control Board (SWRCB)

Group Delta reviewed available files through the online GeoTracker database maintained by the California SWRCB. GeoTracker maintains files related to underground storage tanks (USTs) facilities, leaking underground storage tanks (LUSTs), site clean-ups, disposal sites, wells, and information related to hazardous materials and/or waste.

The Site was not identified on the GeoTracker database. No LUST cases that impacted groundwater were identified within 0.5 miles from the Site.

5.1.3 Division of Oil, Gas, and Geothermal Resources (DOGGR)

Group Delta reviewed mapping available on the DOGGR website for oil and gas wells on or in the vicinity of the Project. No oil and/or gas wells were identified on or within 1500 feet of the Site. No RECs were identified as a result of the DOGGR database review.

5.1.4 United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA), National Pipeline Mapping System (NPMS)

Group Delta reviewed available files through the online NPMS database maintained by the PHMSA. NPMS is a Geographic Information System (GIS) database of pipeline information for the specific intent of emergency response. The database does not include natural gas lines or liquefied natural gas facilities.

No pipelines were mapped on or within 1500 feet of the Site. No RECs were identified as a result of the NPMS database review.

5.2 Local Department Records

Records were requested from the following agencies for the Site:

1. Riverside County Department of Environmental Health (RCDEH)

2. Riverside County Planning Department (RCPD)
3. Riverside County Building and Safety Department (RCBSD)
4. South Coast Air Quality Management District (SCAQMD)

5.2.1 Riverside County Department of Environmental Health (RCDEH)

Group Delta consulted the RCDEH webpage to request or find records associated with the Site on May 14, 2019. The RCDEH Hazardous Materials Management Branch (HMMB) is currently unable to provide information for sites based on APNs or similar geographic site information alone. The RCDEH suggested that GeoTracker, California Environmental Protection Agency (CalEPA) Site Portal, and US Environmental Protection Agency Emergency Planning and Community Right-to-Know Act (USEPA EPCRA) - Toxic Release Inventory (TRI) Program databases be reviewed for the presence of RECs. As the address of the property is not available, Group Delta consulted the three suggested databases. No files pertaining to the Site are on file with the suggested databases.

5.2.2 Riverside County Planning Department (RCPD)

Group Delta consulted the RCPD online database to request or find records associated with the Site on May 14, 2019. The system contains maps, permit information and descriptive and environmental data. The system has no records of concern pertaining to the Site APN.

5.2.3 Riverside County Building and Safety Department (RCBSD)

Group Delta consulted the RCBSD online database to request or find records associated with the Site on May 14, 2019. The system has no records of concern pertaining to the Site APN.

5.2.4 South Coast Air Quality Management District (SCAQMD)

Group Delta consulted the SCAQMD webpage to request or find records associated with the Site on May 2019. The Public Information service has a system called “Facility Information Detail (F.I.N.D.)”. The system has no records pertaining to the Site APN.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

A Site reconnaissance was performed on May 10, 2019 by Mike Toomey of Group Delta. The property was observed by traversing the perimeter and center lines of the Site by foot while noting observations of environmental significance.

The purpose of the Site reconnaissance was to observe the present Site use and conditions as they relate to the possible presence of potentially hazardous substances and petroleum products. In addition, adjoining properties and roads were visually observed from the Site to identify land uses and the potential presence of structures, operations, activities, or environmental conditions that may involve the use, treatment, storage, disposal, or generation of hazardous wastes and/or petroleum products that may pose an environmental concern to the Site. Photographic documentation of the reconnaissance is included in Appendix B.

6.2 General Site Setting

The Site is 11.5 acres in size and consists of unpaved, vacant land, naturally vegetated with flowers and low-lying bushes. A chain-link fence and paved road line the Site along the east perimeter. The Site topography is generally flat.

6.3 Adjacent Properties Site Observations

The properties adjacent to the Site were observed from the Site to assess if they had potential to present RECs for the Site. All properties adjacent to the Site were well-maintained and did not appear to be of environmental concern.

6.4 Site Visit Findings

The following observations were made during the site reconnaissance:

- Tires, plastic pipe pieces, sandbags filled with rocks, and piles of dumped soil were observed throughout the Site.
- An old wooden telephone pole still standing, a modern streetlight pole, and two water hook up pipes were observed onsite at the southern border of the Site.
- No visible signs of hazardous waste generation, storage, dumping or leaking was noted.

The soil dumped onsite was odorless and did not have signs of staining. No RECs were identified as result of the Site reconnaissance.

7.0 SIGNIFICANT DATA GAPS

7.1 Data Gaps

In general, a Data Gap is the inability to gather information as prescribed in the ASTM Standard Practice despite good faith efforts. This may include, but not be limited to, a lack of historical information, inability to interview knowledgeable individuals, or inspect portions of the Site.

No Data Gaps were identified during this assessment.

7.2 Data Failures

The objective of reviewing historical information is to identify all obvious uses of the Site from first developed use or 1940, whichever is earlier, in order to identify the likelihood of previous uses resulting in a recognized environmental condition(s). Generally, a Data Failure is when all obvious uses of the site cannot be determined despite gathering and reviewing all of the standard historical sources that are reasonably ascertainable. A historical source is considered reasonably ascertainable if it is (1) publicly available, (2) obtainable within a reasonable period of time and at a reasonable cost, and (3) practically reviewable.

The Site uses were identified back to 1901. Therefore, data failure was not encountered during the course of this assessment.

8.0 FINDINGS AND CONCLUSIONS

Group Delta has performed a Phase I ESA for an 11.5-acre site located southeast of SR-79 (Winchester Road), northeast of Skyview Road, and 326 ft west of Via Santa Catalina in French Valley (Winchester), California. The Site is currently vacant land and is under consideration for development with a library.

This ESA was conducted in general accordance with the scope of work, under guidance provided by the ASTM E1527-13 standard, and in a manner generally consistent with the agreement between the Client and Group Delta for this type of report. The information procured during this investigation was used to identify, to the extent practical and within the limitations of the Scope, RECs associated with the Site due to current or past land use.

This assessment has revealed no evidence of RECs in connection with the subject Site.

The following noteworthy items were identified over the course of this assessment:

1. One upright wood utility pole exits on site. The purpose of the pole is unknown. It is assumed the material consists of treated wood. Treated wood is typically treated with hazardous preserving chemicals that protect the wood from insect attack and fungal decay during its use.

2. Small soil stockpiles appear to have been dumped onsite. The source of the soil is unknown.

9.0 OPINIONS

We have performed a Phase I ESA of the subject Site in accordance with the scope of work and limitations of ASTM E1527-13. The information procured during this investigation was used to identify, to the extent practical and within the limitations of the Scope, RECs associated with the Site due to current or past land use. This assessment has revealed no evidence of RECs in connection with the subject Site. Based upon the findings and conclusions, no further assessment appears warranted at this time.

Group Delta presents the following additional recommendations:

1. Should treated wood poles be removed during construction activities, the generator may presume that treated wood waste (TWW) is a hazardous waste (to avoid the time and expense involved in completing laboratory testing) and manage the waste by the DTSC Alternative Management Standards (AMS). The AMS are described in the California Code of Regulations, Title 22, Division 4.5, Chapter 34. The AMS lessen storage requirements, extend accumulation periods, allow shipments of presumed hazardous waste TWW without manifests and registered hazardous waste haulers, and permit disposal at specific non-hazardous waste landfills.

2. The stockpiled soil observed onsite did not exhibit signs of contamination. However, if stained or odiferous soil is encountered, it should be sampled and characterized in accordance with standard industry practices.

10.0 DEVIATIONS

There were no deviations to the ASTM Standard Practice associated with the preparation and development of this Phase I ESA.

11.0 REFERENCES

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United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration, National Pipeline Mapping System, May 22, 2019. https://pvnpms.phmsa.dot.gov/PublicViewer/

FIGURES

Reference: ***Google Maps***

N

GROUP DELTA

Group Delta Project No. EN430

Project Location Map

Phase I ESA
French Valley Library
French Valley, CA

Figure 1

APPENDIX A
PRELIMINARY TITLE REPORT

Lawyers Title - Inland Empire
3480 Vine Street, Suite 300
Riverside, CA 92507
Phone: 951.774.0825

Prelim Title Report

County of Riverside EDA
3403 10th Street, Ste. 400
Riverside, CA 92501

Attn: CRAIG OLSEN

Your Reference No: 480-160-021

Property Address: Riverside, California

Title Officer: Barbara Northrup--So
Email: TU65@LTIC.COM
Phone No.: (951) 248-0669
File No.: 615674763

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Lawyers Title Company
3480 Vine Street Suite 300
Riverside, CA 92507
Phone: (951) 774-0825
Fax: ( )

County of Riverside EDA
3403 10th Street, Ste. 400
Riverside, CA 92501

Attn: **CRAIG OLSEN**

Title Officer: Barbara Northrup--So
email: TU65@LTIC.COM
Phone No.: (951) 248-0669
Fax No.:
File No.: 615674763

Your Reference No: 480-160-021

Property Address: Riverside, California

UPDATED AND AMENDED PRELIMINARY REPORT

Dated as of February 26, 2019 at 7:30 a.m.

In response to the application for a policy of title insurance referenced herein, Lawyers Title Company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitation on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

The policy(s) of title insurance to be issued hereunder will be policy(s) of **Commonwealth Land Title Insurance Company.**

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered. It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

SCHEDULE A

The form of policy of title insurance contemplated by this report is:

CLTA Standard Owners Policy

The estate or interest in the land hereinafter described or referred to covered by this report is:

A FEE

Title to said estate or interest at the date hereof is vested in:

COUNTY OF RIVERSIDE, A POLITICAL SUBDIVISION OF THE STATE OF CALIFORNIA

The land referred to herein is situated in the County of Riverside, State of California, and is described as follows:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

EXHIBIT "A"

All that certain real property situated in the County of Riverside, State of California, described as follows:

Parcel 1 of Parcel Map No. 32914, in the County of Riverside, State of California, as shown by map on file in Book 224, Pages 91 through 93 of Parcel Maps, in the Office of the County Recorder of said County.

Assessor's Parcel No: 480-160-021

SCHEDULE B – Section A

The following exceptions will appear in policies when providing standard coverage as outlined below:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

2. Any facts, rights, interests or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may asserted by persons in possession of the Land.

3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.

4. Any encroachment, encumbrance, violation, variation or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.

5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the Public Records.

6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

SCHEDULE B – Section B

At the date hereof Exceptions to coverage in addition to the printed exceptions and exclusions in said policy form would be as follows:

A. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes to be levied for the fiscal year 2019-2020.

B. Intentionally deleted

C. Intentionally deleted

D. The lien of supplemental or escaped assessments of property taxes, if any, made pursuant to the provisions of Chapter 3.5 (commencing with Section 75) or Part 2, Chapter 3, Articles 3 and 4, respectively, of the Revenue and Taxation Code of the State of California as a result of the transfer of title to the vestee named in Schedule A; or as a result of changes in ownership or new construction occurring prior to date of policy.

E. Any liens or other assessments, bonds, or special district liens including without limitation, Community Facility Districts, that arise by reason of any local, City, Municipal or County Project or Special District.

F. There were no taxes levied for the fiscal year 2018-2019 as the property was vested in a public entity.

Assessor's Parcel No.: 364-152-034-0

1. Water rights, claims or title to water, whether or not disclosed by the public records.

2. Easement(s) in favor of the public over any existing roads lying within said Land.

3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other matters shown on

   Recording No: in Book 16, Page 72 of Record of Surveys

4. Land Conservation Contract

   Recording Date: April 24, 1970
   Recording No.: as Instrument No. 38515 of Official Records

Notice of Non-Renewal of said Contract

Recording Date: August 10, 1977
Recording No.: as Instrument No. 1977-154340 of Official Records

Resolution No. 84-64 Certificate of Tentative Cancellation of a Portion of Land Conservation Contract and Diminishment of Agricultural Preserve

Recording Date: My 2, 1983
Recording No.: as Instrument No. 1983-083700 of Official Records

Note: At the date of said instrument and the recordation thereof the grantor had no record interest in said land nor has he since acquired any.

Resolution No. 83-411 Extension of Time for Certificate of Tentative Cancellation of a Portion of a Land Conservation Contract and Diminishment for Agricultural Preserve

Recording Date: November 29, 1984
Recording No.: as Instrument No. 1984-243731 of Official Records

Note: At the dated of said instrument and the recordation thereof the grantor had no record interest in said land nor has he since acquired any.

A Resolution No. 87-512 Disestablishment of Agricultural Preserve Pursuant to Notice of Non-Renewal of Land Conservation Contract

Recording Date: December 29, 1987
Recording No.: as Instrument No. 1987-364841 of Official Records

Note: At the date of said instrument and the recordation thereof the Grantor had no record interest in said land nor has he since acquired any.

5. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date: March 5, 1987
Recording No: as Instrument No. 1987-061757 of Official Records

Said covenants, conditions and restrictions provide that a violation thereof shall not defeat the lien of any mortgage or deed of trust made in good faith and for value.

Said instrument provides or establishes: That assessments will not be assessed to pubic agencies

6. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date: April 21, 1987
Recording No: as Instrument No. 1987-109408 of Official Records

Said covenants, conditions and restrictions provide that a violation thereof shall not defeat the lien of any mortgage or deed of trust made in good faith and for value.

Said instrument provides or establishes: That assessments will not be assessed to pubic agencies

7. Matters contained in that certain document

Entitled:	Agreement for Mitigation of School Facility Impacts Between Temecula Valley Unified School District, Dutch Investors, Inc., and The Batavia Land Company
Dated:	August 28, 1995
Executed by:	Temecula Valley Unified School District, Dutch Investors, Inc., a Nevada corporation and The Batavia Land Company, a California Limited Partnership
Recording Date:	August 31, 1995
Recording No:	as Instrument No. 1995-287611 of Official Records

Reference is hereby made to said document for full particulars.

8. Matters contained in that certain document

Entitled:	Resolution No. 2002-238 Approving an Amendment to the Boundaries of Zone D of the Southwest Area Road and Bridge Benefit District, Identifying Additional Facilities Whose Cost of Construction area To Be Funded by said Zone D, and Approving the Related Environmental Documents and Findings (Amendment No. 1)
Dated:	March 25, 2002
Executed by:	County of Riverside
Recording Date:	July 12, 2002
Recording No:	as Instrument No. 2002-382638 of Official Records

Reference is hereby made to said document for full particulars.

9. Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:

In favor of:	County of Riverside, a political subdivision
Purpose:	public road and drainage purposes
Recording Date:	January 4, 2006
Recording No:	as Instrument No. 2006-004929 of Official Records
Affects:	said land more particularly described therein

10. Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:

In favor of:	County of Riverside
Purpose:	construction use and repair of a training levee
Recording Date:	February 9, 2006
Recording No:	as Instrument No. 2006-099616 of Official Records
Affects:	as shown on Parcel Map No. 32914

A Quitclaim Deed recorded on October 17, 2018 as Instrument No. 2018-0410713 of Official Records

Grantor:	County of Riverside
Grantee:	Riverside County Flood Control and Water Conservation District, a body politic

11. Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:

Purpose:	public road and drainage purposes including public utility and public service purposes
Recording Date:	July 18, 2006
Recording No:	as Instrument No. 2006-524630 of Official Records
Affects:	said land more particularly described therein

12. Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:

In favor of:	The County of Riverside
Purpose:	public road, drainage purposes, public utility
Recording Date:	July 13, 2007
Recording No:	as Instrument No. 2007-456582 of Official Records
Affects:	said land more particularly described therein

13. The terms and conditions of a "Hold Harmless Agreement for Sewer"

By and between:	Barratt American Inc. (Landowner) and Eastern Municipal Water District, a public agency
Recording Date:	August 22, 2007
Recording No.:	as Instrument No. 2007-541498 of Official Records

Reference is hereby made to said document for full particulars.

14. The terms and conditions of a "Hold Harmless Agreement for Water"

By and between:	Barratt American Inc. (Landowner) and Eastern Municipal Water District, a public agency
Recording Date:	August 22, 2007
Recording No.:	as Instrument No. 2007-541501 of Official Records

Reference is hereby made to said document for full particulars.

15. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date:	June 27, 2008
Recording No:	as Instrument No. 2008-351116 of Official Records

16. The ownership of said Land does not include rights of access to or from the street, highway, or freeway abutting said Land, such rights having been relinquished by said map/plat.

Affects:	Winchester Road; will have not rights of access except the general easement of travel

17. Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:

In favor of:	County of Riverside, California
Purpose:	right of way, appurtenant to the French Valley Airport herein called Dominant Tenement, an Avigation easement
Recording Date:	May 5, 2010
Recording No:	as Instrument No. 2010-206588 of Official Records
Affects:	said land more particularly described therein

18. Matters contained in that certain document

Entitled:	Statement of Assessment Information for Dutch Village Master Association Pursuant to Civil Code 4210
Dated:	March 20, 2014
Executed by:	Dutch Village Master Association, a California nonprofit mutual benefit corporation
Recording Date:	June 6, 2014
Recording No:	as Instrument No. 2014-208719 of Official Records

Reference is hereby made to said document for full particulars.

19. Please be advised that our search did not disclose any open Deeds of Trust of record. If you should have knowledge of any outstanding obligation, please contact the Title Department immediately for further review prior to closing.

20. Matters which may be disclosed by an inspection and/or by a correct ALTA/ACSM Land Title Survey of said Land that is satisfactory to the Company, and/or by inquiry of the parties in possession thereof.

21. Any rights of the parties in possession of a portion of, or all of, said Land, which rights are not disclosed by the public records.

    The Company will require, for review, a full and complete copy of any unrecorded agreement, contract, license and/or lease, together with all supplements, assignments and amendments thereto, before issuing any policy of title insurance without excepting this item from coverage.

    The Company reserves the right to except additional items and/or make additional requirements after reviewing said documents.

22. Any easements not disclosed by the public records as to matters affecting title to real property, whether or not said easements are visible and apparent.

23. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other matters which a correct survey would disclose and which are not shown by the public records.

END OF SCHEDULE B EXCEPTIONS

PLEASE REFER TO THE "NOTES AND REQUIREMENTS SECTION" WHICH FOLLOWS FOR INFORMATION NECESSARY TO COMPLETE THIS TRANSACTION

REQUIREMENTS SECTION:

Req. No. 1: Intentionally deleted

Req. No. 2: The Company requires a Statement of Information from the parties named below in order to complete this report, based on the effect of documents, proceedings, liens, decrees, or other matters which do not specifically describe said Land, but which, if any do exist, may affect the title or impose liens or encumbrances thereon. After review of the requested Statement(s) of Information, the Company may have additional requirements before the issuance of any policy of title insurance.

No names were furnished with the application. Please have the buyers furnish the Statement of Information as soon as possible.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

NOTE: The Statement of Information is necessary to complete the search and examination of title under this order. Any title search includes matters that are indexed by name only, and having a completed Statement of Information assists the Company in the elimination of certain matters which appear to involve the parties but in fact affect another party with the same or similar name. Be assured that the Statement of Information is essential and will be kept strictly confidential to this file.

INFORMATIONAL NOTES SECTION

Note No. 1: The information on the attached plat is provided for your convenience as a guide to the general location of the subject property. The accuracy of this plat is not guaranteed, nor is it a part of any policy, report or guarantee to which it may be attached.

Note No. 2: California insurance code section 12413.1 regulates the disbursement of escrow and sub-escrow funds by title companies. The law requires that funds be deposited in the title company escrow account and available for withdrawal prior to disbursement. Funds deposited with the company by wire transfer may be disbursed upon receipt. Funds deposited with the company via cashier's check or teller's check drawn on a California based bank may be disbursed on the next business day after the day of deposit. If funds are deposited with the company by other methods, recording and/or disbursement may be delayed. All escrow and sub-escrow funds received by the company will be deposited with other escrow funds in one or more non-interest bearing escrow accounts of the company in a financial institution selected by the company. The company may receive certain direct or indirect benefits from the financial institution by reason of the deposit of such funds or the maintenance of such accounts with such financial institution, and the company shall have no obligation to account to the depositing party in any manner for the value of, or to pay to such party, any benefit received by the company. Those benefits may include, without limitation, credits allowed by such financial institution on loans to the company or its parent company and earnings on investments made with the proceeds of such loans, accounting, reporting and other services and products of such financial institution. Such benefits shall be deemed additional compensation of the company for its services in connection with the escrow or sub-escrow.

For wiring Instructions please contact your Title Officer or Title Company Escrow officer.

Note No. 3: Lawyers Title is a division of Commonwealth Land Title Insurance Company. The insurer in policies of title insurance, when issued in this transaction, will be Commonwealth Land Title Insurance Company.

Note No. 4: The Company requires current beneficiary demands prior to closing. If the demand is expired and a current demand cannot be obtained, our requirements will be as follows:

a) If the Company accepts a verbal update on the demand, we may hold an amount equal to one monthly mortgage payment. This hold will be in addition to the verbal hold the lender may have stipulated.

b) If the Company cannot obtain a verbal update on the demand, we will either pay off the expired demand or wait for the amended demand, at our discretion.

c) All payoff figures are verified at closing. If the customer's last payment was made within 15 days of closing, our Payoff Department may hold one month's payment to insure the check has cleared the bank (unless a copy of the cancelled check is provided, in which case there will be no hold).

Processor: cph / SAH / SAH / BN
Date Typed: March 5, 2019

Attachment One (Revised 06-05-14)

CALIFORNIA LAND TITLE ASSOCIATION STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE–SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.

Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;
   d. improvements on the Land;
   e. land division; and
   f. environmental protection.

   This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.

   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$ 10,000.00
Covered Risk 18:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$5,000.00

2006 ALTA LOAN POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13 or 14); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

Except as provided in Schedule B - Part II, this policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

PART I

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. Variable exceptions such as taxes, easements, CC&R's, etc. shown here.

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (12-02-13)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

Attachment One (6-5-14)

Lawyers Title Company
3480 Vine Street Suite 300
Riverside, CA 92507
Phone: (951) 774-0825
Fax: ( )

Order No. 615674763

Notice of Available Discounts

Pursuant to Section 2355.3 in Title 10 of the California Code of Regulations Fidelity National Financial, Inc. and its subsidiaries ("FNF") must deliver a notice of each discount available under our current rate filing along with the delivery of escrow instructions, a preliminary report or commitment. Please be aware that the provision of this notice does not constitute a waiver of the consumer's right to be charged the filed rate. As such, your transaction may not qualify for the below discounts.

You are encouraged to discuss the applicability of one or more of the below discounts with a Company representative. These discounts are generally described below; consult the rate manual for a full description of the terms, conditions and requirements for such discount. These discounts only apply to transactions involving services rendered by the FNF Family of Companies. This notice only applies to transactions involving property improved with a one-to-four family residential dwelling.

FNF Underwritten Title Company
LTC – Lawyers Title Company

FNF Underwriter
CLTIC – Commonwealth Land Title Insurance Co.

Available Discounts

DISASTER LOANS (CLTIC)
The charge for a Lender's Policy (Standard or Extended coverage) covering the financing or refinancing by an owner of record, within 24 months of the date of a declaration of a disaster area by the government of the United States or the State of California on any land located in said area, which was partially or totally destroyed in the disaster, will be 50% of the appropriate title insurance rate.

EMPLOYEE RATE (LTC and CLTIC)
No charge shall be made to employees (including employees on approved retirement) of the Company or its underwritten, subsidiary or affiliated title companies for policies or escrow services in connection with financing, refinancing, sale or purchase of the employees' bona fide home property. Waiver of such charges is authorized only in connection with those costs which the employee would be obligated to pay, by established custom, as a party to the transaction.

Notice of Available Discount Mod. 10/21/2011

FIDELITY NATIONAL FINANCIAL
PRIVACY NOTICE

Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, "FNF," "our," or "we") respect and are committed to protecting your privacy. This Privacy Notice explains how we collect, use, and protect personal information, when and to whom we disclose such information, and the choices you have about the use and disclosure of that information.

Types of Information Collected

We may collect two types of information from you: Personal Information and Browsing Information.

Personal Information.

FNF may collect the following categories of Personal Information:

- contact information (e.g., name, address, phone number, email address);
- demographic information (e.g., date of birth, gender, marital status);
- identity information (e.g. Social Security Number, driver's license, passport, or other government ID number);
- financial account information (e.g. loan or bank account information); and
- other personal information necessary to provide products or services to you.

Browsing Information.

FNF may automatically collect the following types of Browsing Information when you access an FNF website, online service, or application (each an "FNF Website") from your Internet browser, computer, and/or mobile device:

- Internet Protocol (IP) address and operating system;
- browser version, language, and type;
- domain name system requests; and
- browsing history on the FNF Website, such as date and time of your visit to the FNF Website and visits to the pages within the FNF Website.

How Personal Information is Collected

We may collect Personal Information about you from:

- information we receive from you on applications or other forms;
- information about your transactions with FNF, our affiliates, or others; and
- information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

How Browsing Information is Collected

If you visit or use an FNF Website, Browsing Information may be collected during your visit. Like most websites, our servers automatically log each visitor to the FNF Website and may collect the Browsing Information described above. We use Browsing Information for system administration, troubleshooting, fraud investigation, and to improve our websites. Browsing Information generally does not reveal anything personal about you, though if you have created a user account for an FNF Website and are logged into that account, the FNF Website may be able to link certain browsing activity to your user account.

Other Online Specifics

Cookies. When you visit an FNF Website, a "cookie" may be sent to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer's hard drive. Information gathered using cookies helps us improve your user experience. For example, a cookie can help the website load properly or can customize the display page based on your browser type and user preferences. You can choose whether or not to accept cookies by changing your Internet browser settings. Be aware that doing so may impair or limit some functionality of the FNF Website.

Web Beacons.

We use web beacons to determine when and how many times a page has been viewed. This information is used to improve our websites.

Do Not Track.

Currently our FNF Websites do not respond to "Do Not Track" features enabled through your browser.

Links to Other Sites.
FNF Websites may contain links to other websites. FNF is not responsible for the privacy practices or the content of any of those other websites. We advise you to read the privacy policy of every website you visit.

Use of Personal Information
FNF uses Personal Information for three main purposes:

- To provide products and services to you or in connection with a transaction involving you.
- To improve our products and services.
- To communicate with you about our, our affiliates', and third parties' products and services, jointly or independently.

When Information Is Disclosed
We may make disclosures of your Personal Information and Browsing Information in the following circumstances:

- to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure;
- to nonaffiliated service providers who provide or perform services or functions on our behalf and who agree to use the information only to provide such services or functions;
- to nonaffiliated third party service providers with whom we perform joint marketing, pursuant to an agreement with them to jointly market financial products or services to you;
- to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order; or
- in the good-faith belief that such disclosure is necessary to comply with legal process or applicable laws, or to protect the rights, property, or safety of FNF, its customers, or the public.

The law does not require your prior authorization and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or Browsing Information with nonaffiliated third parties, except as required or permitted by law.

We reserve the right to transfer your Personal Information, Browsing Information, and any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of bankruptcy, reorganization, insolvency, receivership, or an assignment for the benefit of creditors. By submitting Personal Information and/or Browsing Information to FNF, you expressly agree and consent to the use and/or transfer of the foregoing information in connection with any of the above described proceedings.

Please see "Choices With Your Information" to learn the disclosures you can restrict.

Security of Your Information
We maintain physical, electronic, and procedural safeguards to guard your Personal Information. We limit access to nonpublic personal information about you to employees who need to know that information to do their job. When we provide Personal Information to others as discussed in this Privacy Notice, we expect that they process such information in compliance with our Privacy Notice and in compliance with applicable privacy laws.

Choices With Your Information
If you do not want FNF to share your information with our affiliates to directly market to you, you may send an "opt out" request by email, phone, or physical mail as directed at the end of this Privacy Notice. We do not share your Personal Information with nonaffiliates for their use to direct market to you.

Whether you submit Personal Information or Browsing Information to FNF is entirely up to you. If you decide not to submit Personal Information or Browsing Information, FNF may not be able to provide certain services or products to you.

For California Residents:
We will not share your Personal Information or Browsing Information with nonaffiliated third parties, except as permitted by California law.

For Nevada Residents:
You may be placed on our internal Do Not Call List by calling (888) 934-3354 or by contacting us via the information set forth at the end of this Privacy Notice. Nevada law requires that we also provide you with the following contact information: Bureau of Consumer Protection, Office of the Nevada Attorney General, 555 E. Washington St., Suite 3900, Las Vegas, NV 89101; Phone number: (702) 486-3132; email: BCPINFO@ag.state.nv.us.
For Oregon Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties for marketing purposes, except after you have been informed by us of such sharing and had an opportunity to indicate that you do not want a disclosure made for marketing purposes.

For Vermont Residents:
We will not disclose information about your creditworthiness to our affiliates and will not disclose your personal information, financial information, credit report, or health information to nonaffiliated third parties to market to you, other than as permitted by Vermont law, unless you authorize us to make those disclosures.

Information From Children
The FNF Websites are meant for adults and are not intended or designed to attract persons under the age of eighteen (18).We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

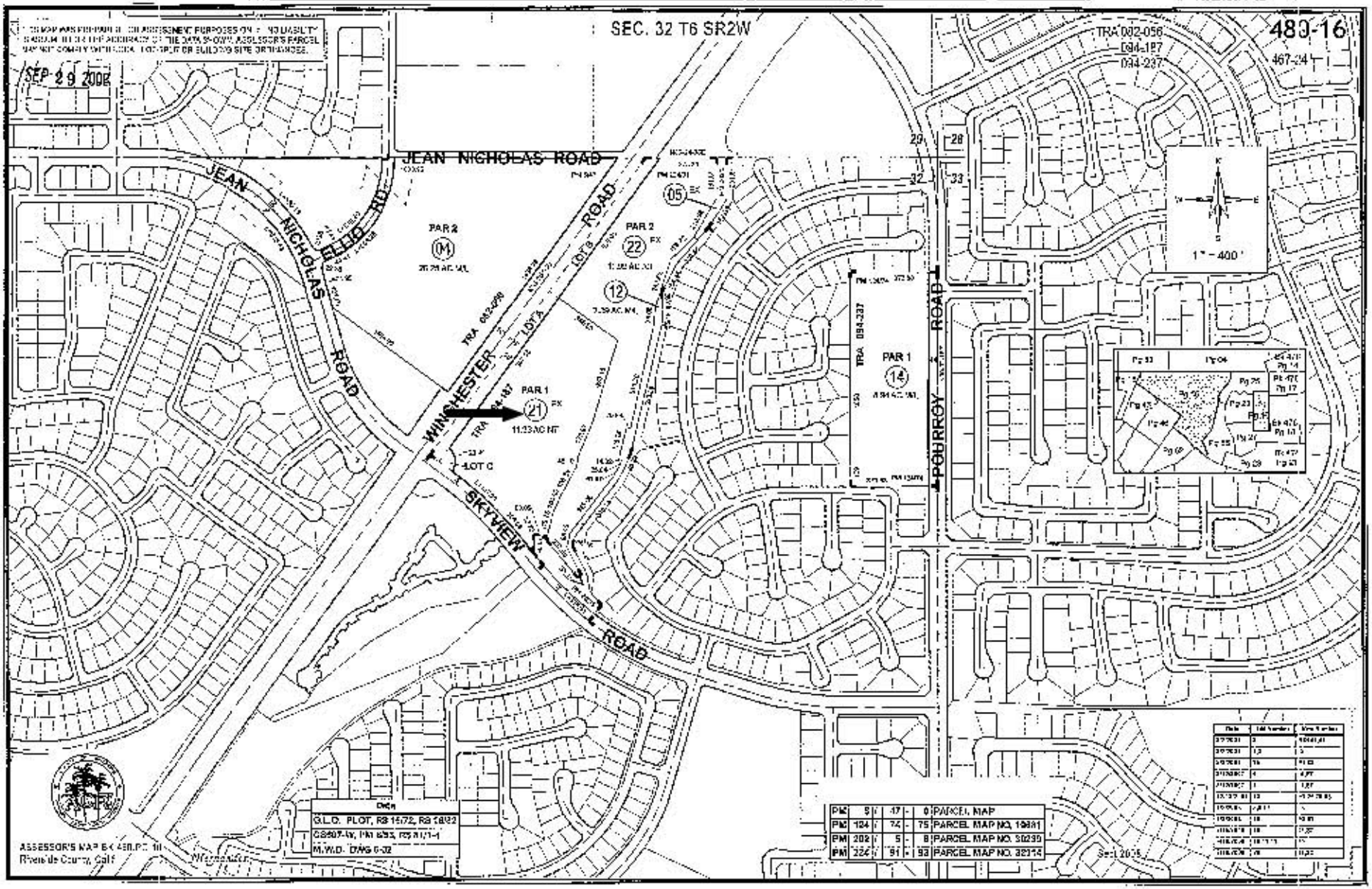
International Users
FNF's headquarters is located within the United States. If you reside outside the United States and choose to provide Personal Information or Browsing Information to us, please note that we may transfer that information outside of your country of residence for any of the purposes described in this Privacy Notice. By providing FNF with your Personal Information and/or Browsing Information, you consent to our collection, transfer, and use of such information in accordance with this Privacy Notice.

FNF Website Services for Mortgage Loans
Certain FNF companies provide services to mortgage loan servicers, including hosting websites that collect customer information on behalf of mortgage loan servicers (the "Service Websites"). The Service Websites may contain links to both this Privacy Notice and the mortgage loan servicer or lender's privacy notice. The sections of this Privacy Notice titled When Information is Disclosed, Choices with Your Information, and Accessing and Correcting Information do not apply to the Service Websites. The mortgage loan servicer or lender's privacy notice governs use, disclosure, and access to your Personal Information. FNF does not share Personal Information collected through the Service Websites, except (1) as required or authorized by contract with the mortgage loan servicer or lender, or (2) as required by law or in the good-faith belief that such disclosure is necessary to comply with a legal process or applicable law, to enforce this Privacy Notice, or to protect the rights, property, or safety of FNF or the public.

Your Consent To This Privacy Notice; Notice Changes
By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of the information in accordance with this Privacy Notice. We may change this Privacy Notice at any time. The revised Privacy Notice, showing the new revision date, will be posted on the FNF Website. Each time you provide information to us following any amendment of this Privacy Notice, your provision of information to us will signify your assent to and acceptance of the terms of the revised Privacy Notice for all previously collected information and information collected from you in the future. We may use comments, information or feedback that you submit to us in any manner that we may choose without notice or compensation to you.

Accessing and Correcting Information; Contact Us
If you have questions, would like to access or correct your Personal Information, or want to opt-out of information sharing for affiliate marketing, send your requests via email to privacy@fnf.com, by phone to (888) 934-3354, or by mail to:

Fidelity National Financial, Inc.
601 Riverside Avenue,
Jacksonville, Florida 32204
Attn: Chief Privacy Officer


SEC. 32 T6 SR2W
489-16
467-24
TRA 002-056
004-197
004-237
SEP 29 2006
JEAN NICHOLAS ROAD
JEAN NICHOLAS ROAD
ELLIS RD
WINCHESTER ROAD
POURROY ROAD
SKYVIEW ROAD
PAR 1
PAR 2
LOT B
LOT C
11.33 AC M/L
1" = 400'
ASSESSOR'S MAP BK 489 PG 16
Riverside County, Calif
G.L.O. PLOT, RS 15/72, RS 18/32
CS807-W, PM 8853, RS 81/1-4
M.W.D. DMS 6-32
PM 5 / 47 - 0 PARCEL MAP
PM 124 / 74 - 75 PARCEL MAP NO. 19381
PM 202 / 5 - 8 PARCEL MAP NO. 30239
PM 224 / 91 - 93 PARCEL MAP NO. 32114
Sept 2006

APPENDIX B
SITE PHOTOGRAPHS

Group Delta Consultants

Site Photographs

PROJECT NAME	French Valley Library – Riverside County	PROJECT No.	EN430	SHEET	1	OF	5

PROJECT PHOTOGRAPHIC NUMBER	1		
DESCRIPTION	View of the east portion of the Site.		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

PROJECT PHOTOGRAPHIC NUMBER	2		
DESCRIPTION	View of the Skyview Culdesac to the east		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

Group Delta Consultants

Site Photographs

PROJECT NAME	French Valley Library – Riverside County	PROJECT No.	EN430	SHEET	2	OF	5

PROJECT PHOTOGRAPHIC NUMBER	3		
DESCRIPTION	View of the northwest portion of the Site from Skyview Rd		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

PROJECT PHOTOGRAPHIC NUMBER	4		
DESCRIPTION	Bushes in the Site		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

Group Delta Consultants

Site Photographs

PROJECT NAME	French Valley Library – Riverside County	PROJECT No.	EN430	SHEET	3	OF	5

PROJECT PHOTOGRAPHIC NUMBER	5		
DESCRIPTION	Dumped soil and gravel road facing the southeast portion of the Site		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

PROJECT PHOTOGRAPHIC NUMBER	6		
DESCRIPTION	View from the northeast portion of the Site		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

Group Delta Consultants

Site Photographs

PROJECT NAME	French Valley Library – Riverside County	PROJECT No.	EN430	SHEET	4	OF	5

PROJECT PHOTOGRAPHIC NUMBER	7		
DESCRIPTION	Rocks located on the Site		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

PROJECT PHOTOGRAPHIC NUMBER	8		
DESCRIPTION	Abandoned sandbags		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

Group Delta Consultants

Site Photographs

PROJECT NAME	French Valley Library – Riverside County	PROJECT No.	EN430	SHEET	5	OF	5

PROJECT PHOTOGRAPHIC NUMBER	9		
DESCRIPTION	View of the southwest portion of the Site with onsite trash		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

PROJECT PHOTOGRAPHIC NUMBER	10		
DESCRIPTION	Wooden telephone pole at the south boundary of the Site		
PHOTOGRAPHED BY	MT	DATE	05-10-2019

APPENDIX C

ENVIRONMENTAL DATA RESOURCES, INC. REPORT
(RADIUS SEARCH MAP, SANBORN MAPS, AERIAL PHOTOGRAPHS,
TOPOGRAPHIC MAPS, & CITY DIRECTORIES)

Not Reported
Not Reported
Winchester, CA 92596

Inquiry Number: 5641788.2s
May 03, 2019

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

NOT REPORTED
WINCHESTER, CA 92596

COORDINATES

Latitude (North):	33.6091360 - 33° 36' 32.88''
Longitude (West):	117.1074880 - 117° 6' 26.95''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	490028.2
UTM Y (Meters):	3718631.2
Elevation:	1362 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5640928 BACHELOR MOUNTAIN, CA
Version Date:	2012
Northeast Map:	5640944 WINCHESTER, CA
Version Date:	2012
Southwest Map:	5641304 MURRIETA, CA
Version Date:	2012
Northwest Map:	5641314 ROMOLAND, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140603, 20140530
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
NOT REPORTED
WINCHESTER, CA 92596

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	QUINTA DO LAGO ELEME	POURROY ROAD/THOMPSO	ENVIROSTOR, SCH	Higher	1876, 0.355, SE
2	PROPOSED ELEMENTARY	NORTHEAST CORNER ELL	ENVIROSTOR, SCH	Higher	3103, 0.588, North

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List

US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

LUST ---------- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ---------- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
UST ---------- Active UST Facilities
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup Program Properties
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
SWRCY ---------- Recycler Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---------- Delisted National Clandestine Laboratory Register

HIST Cal-Sites ---- Historical Calsites Database
SCH ---- School Property Evaluation Program
CDL ---- Clandestine Drug Labs
CERS HAZ WASTE ---- CERS HAZ WASTE
Toxic Pits ---- Toxic Pits Cleanup Act Sites
US CDL ---- National Clandestine Laboratory Register
PFAS ---- PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST ---- SWEEPS UST Listing
HIST UST ---- Hazardous Substance Storage Container Database
CERS TANKS ---- California Environmental Reporting System (CERS) Tanks
CA FID UST ---- Facility Inventory Database

Local Land Records

LIENS ---- Environmental Liens Listing
LIENS 2 ---- CERCLA Lien Information
DEED ---- Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System
CHMIRS ---- California Hazardous Material Incident Report System
LDS ---- Land Disposal Sites Listing
MCS ---- Military Cleanup Sites Listing
SPILLS 90 ---- SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR ---- RCRA - Non Generators / No Longer Regulated
FUDS ---- Formerly Used Defense Sites
DOD ---- Department of Defense Sites
SCRD DRYCLEANERS ---- State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ---- Financial Assurance Information
EPA WATCH LIST ---- EPA WATCH LIST
2020 COR ACTION ---- 2020 Corrective Action Program List
TSCA ---- Toxic Substances Control Act
TRIS ---- Toxic Chemical Release Inventory System
SSTS ---- Section 7 Tracking Systems
ROD ---- Records Of Decision
RMP ---- Risk Management Plans
RAATS ---- RCRA Administrative Action Tracking System
PRP ---- Potentially Responsible Parties
PADS ---- PCB Activity Database System
ICIS ---- Integrated Compliance Information System
FTTS ---- FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ---- Material Licensing Tracking System
COAL ASH DOE ---- Steam-Electric Plant Operation Data
COAL ASH EPA ---- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---- PCB Transformer Registration Database
RADINFO ---- Radiation Information Database
HIST FTTS ---- FIFRA/TSCA Tracking System Administrative Case Listing

DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
ECHO	Enforcement & Compliance History Information
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
WIP	Well Investigation Program Case List
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historical Auto Stations

EXECUTIVE SUMMARY

EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 01/28/2019 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
QUINTA DO LAGO ELEME Facility Id: 33010047 Status: No Action Required	***POURROY ROAD/THOMPSO***	***SE 1/4 - 1/2 (0.355 mi.)***	***1***	***8***
PROPOSED ELEMENTARY Facility Id: 60001559 Status: No Further Action	***NORTHEAST CORNER ELL***	***N 1/2 - 1 (0.588 mi.)***	***2***	***10***

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 5641788.2S

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

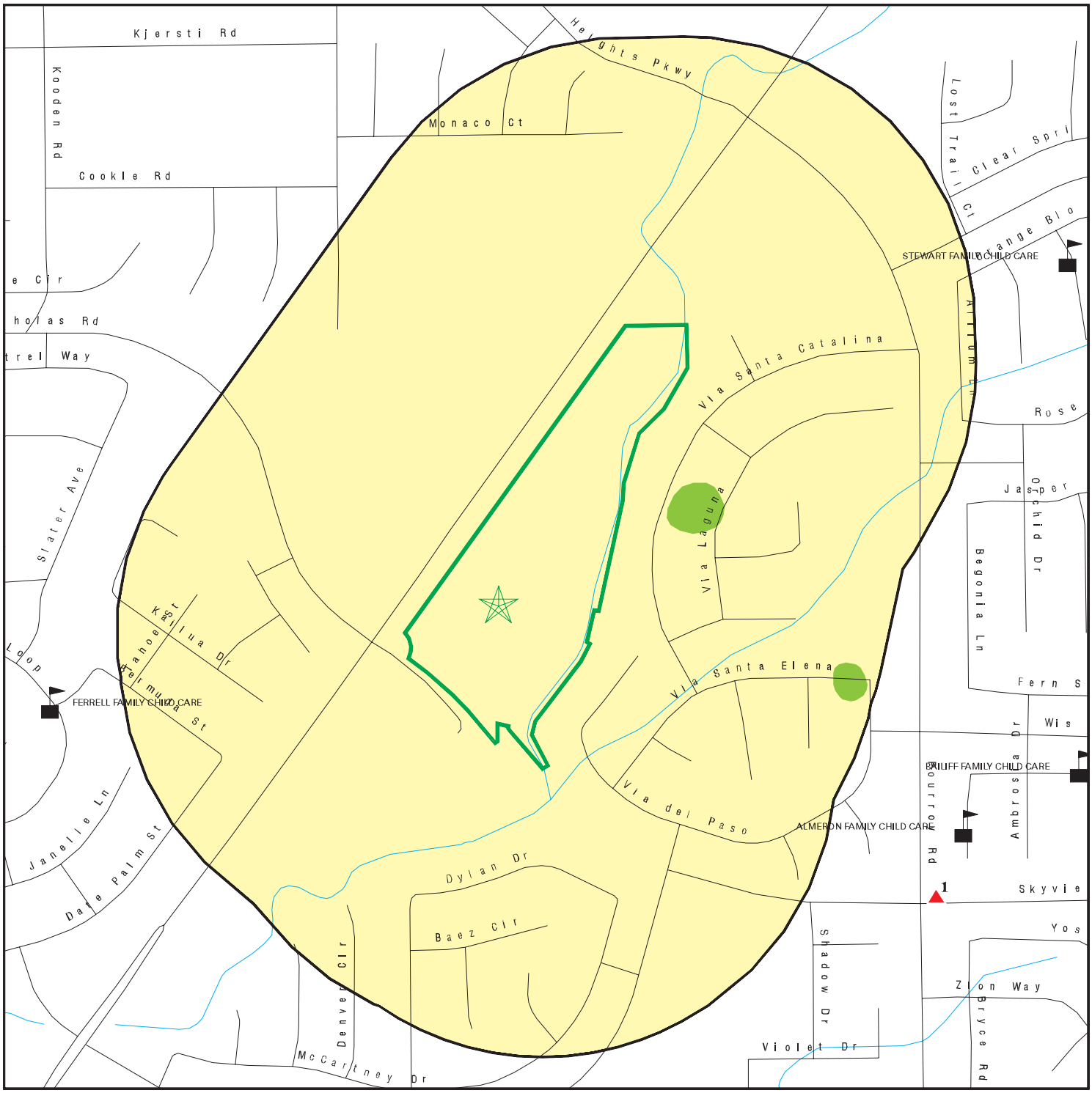
Areas of Concern

N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Not Reported	CLIENT:	Group Delta Consultants
ADDRESS:	Not Reported Winchester CA 92596	CONTACT:	Natalia Delgadillo
LAT/LONG:	33.609136 / 117.107488	INQUIRY #:	5641788.2s
		DATE:	May 03, 2019 4:31 pm

DETAIL MAP - 5641788.2S



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Not Reported	CLIENT: Group Delta Consultants
ADDRESS: Not Reported	CONTACT: Natalia Delgadillo
Winchester CA 92596	INQUIRY #: 5641788.2s
LAT/LONG: 33.609136 / 117.107488	DATE: May 03, 2019 4:33 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	1	1	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	0	1	1	0	2

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
SE
1/4-1/2
0.355 mi.
1876 ft.

QUINTA DO LAGO ELEMENTARY
POURROY ROAD/THOMPSON ROAD/FRENCH VALLEY
TEMECULA, CA 92592

ENVIROSTOR SCH | **S118756704** | **N/A**

Relative:
Higher

Actual:
1389 ft.

ENVIROSTOR:

Facility ID:	33010047
Status:	No Action Required
Status Date:	08/22/2001
Site Code:	404261
Site Type:	School Investigation
Site Type Detailed:	School
Acres:	12
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Mark Malinowski
Division Branch:	Southern California Schools & Brownfields Outreach
Assembly:	67
Senate:	28
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	School District
Latitude:	33.60545
Longitude:	-117.1009
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	NONE SPECIFIED No Contaminants found
Confirmed COC:	NONE SPECIFIED
Potential Description:	NMA
Alias Name:	QUINTA DO LAGO ELEMENTARY
Alias Type:	Alternate Name
Alias Name:	TEMECULA VALLEY USD-QUINTA DO LAGO ELEM
Alias Type:	Alternate Name
Alias Name:	404261
Alias Type:	Project Code (Site Code)
Alias Name:	33010047
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	08/28/2001
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	08/22/2001
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported

QUINTA DO LAGO ELEMENTARY (Continued) **S118756704**

Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 33010047
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 12
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Not reported
Supervisor: Mark Malinowski
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404261
Assembly: 67
Senate: 28
Special Program Status: Not reported
Status: No Action Required
Status Date: 08/22/2001
Restricted Use: NO
Funding: School District
Latitude: 33.60545
Longitude: -117.1009
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: NONE SPECIFIED, No Contaminants found
Confirmed COC: NONE SPECIFIED
Potential Description: NMA
Alias Name: QUINTA DO LAGO ELEMENTARY
Alias Type: Alternate Name
Alias Name: TEMECULA VALLEY USD-QUINTA DO LAGO ELEM
Alias Type: Alternate Name
Alias Name: 404261
Alias Type: Project Code (Site Code)
Alias Name: 33010047
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 08/28/2001
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 08/22/2001
Comments: Not reported

Future Area Name: Not reported

QUINTA DO LAGO ELEMENTARY (Continued) **S118756704**

Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

---

2 **PROPOSED ELEMENTARY SCHOOL NO. 10-A** **ENVIROSTOR** **S111290786**
North **NORTHEAST CORNER ELLIOTT ROAD AND PAT ROAD** **SCH** **N/A**
1/2-1 **WINCHESTER, CA 92596**
0.588 mi.
3103 ft.

Relative:
Higher

Actual:
1423 ft.

ENVIROSTOR:
Facility ID: 60001559
Status: No Further Action
Status Date: 01/19/2012
Site Code: 404867
Site Type: School Investigation
Site Type Detailed: School
Acres: 17.42
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Aslam Shareef
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Assembly: 67
Senate: 28
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 33.6207
Longitude: -117.1089
APN: 480-030-025, 480-030-026
Past Use: NONE, TRANSPORTATION - WAREHOUSING
Potential COC: Lead
Confirmed COC: 30013-NO
Potential Description: NMA
Alias Name: 480-030-025
Alias Type: APN
Alias Name: 480-030-026
Alias Type: APN
Alias Name: 404867
Alias Type: Project Code (Site Code)
Alias Name: 60001559
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 11/29/2011
Comments: DTSC prepared a project closeout Cost Recovery Unit Memorandum

PROPOSED ELEMENTARY SCHOOL NO. 10-A (Continued) **S111290786**

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	11/15/2011
Comments:	The Report was considered to be a Phase I Addendum due to the inclusion of samping results for lead from lead-based paint and OCPs from termiticides. DTSC approved the Phase I Addendum with a No Further Action determination
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

SCH:

Facility ID:	60001559
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	17.42
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Aslam Shareef
Supervisor:	Shahir Haddad
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404867
Assembly:	67
Senate:	28
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	01/19/2012
Restricted Use:	NO
Funding:	Responsible Party
Latitude:	33.6207
Longitude:	-117.1089
APN:	480-030-025, 480-030-026
Past Use:	NONE, TRANSPORTATION - WAREHOUSING
Potential COC:	Lead
Confirmed COC:	30013-NO
Potential Description:	NMA
Alias Name:	480-030-025
Alias Type:	APN
Alias Name:	480-030-026
Alias Type:	APN
Alias Name:	404867
Alias Type:	Project Code (Site Code)
Alias Name:	60001559
Alias Type:	Envirostor ID Number

PROPOSED ELEMENTARY SCHOOL NO. 10-A (Continued) **S111290786**

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Cost Recovery Closeout Memo
Completed Date:	11/29/2011
Comments:	DTSC prepared a project closeout Cost Recovery Unit Memorandum

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Phase 1
Completed Date:	11/15/2011
Comments:	The Report was considered to be a Phase I Addendum due to the inclusion of samping results for lead from lead-based paint and OCPs from termiticides. DTSC approved the Phase I Addendum with a No Further Action determination

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: N/A
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 34

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 34

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/22/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 41

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/07/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 36

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/28/2019
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 35

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/30/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/28/2019
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 35

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/30/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/12/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 21

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/12/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/11/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/13/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/25/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/11/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/13/2019
Date Made Active in Reports: 04/03/2019
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 03/13/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/18/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/12/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/07/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/03/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/28/2019
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 35
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/30/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 04/29/2019
Number of Days to Update: 34
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/17/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 24
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/19/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 04/25/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/13/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 48

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/13/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 03/26/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 34

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/23/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/24/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 50

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/28/2019
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 35

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 04/30/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/12/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 55

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 04/11/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/24/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 50

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 02/21/2019
Date Data Arrived at EDR: 02/22/2019
Date Made Active in Reports: 04/15/2019
Number of Days to Update: 52

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/11/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/04/2018
Date Data Arrived at EDR: 12/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing
Aboveground storage tank sites

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/11/2018
Number of Days to Update: 29

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/11/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 02/28/2019
Date Data Arrived at EDR: 03/01/2019
Date Made Active in Reports: 04/02/2019
Number of Days to Update: 32

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/04/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 27

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 02/08/2019
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 41

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 10/24/2018
Date Data Arrived at EDR: 01/24/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 40

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/27/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/27/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 04/03/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 01/31/2019
Date Data Arrived at EDR: 02/04/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/22/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/20/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/24/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 18

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2019
Date Data Arrived at EDR: 02/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 34

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 09/14/2018
Date Data Arrived at EDR: 10/11/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 57

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/10/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 04/08/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/07/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/02/2019
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 71
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/02/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 51

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/30/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 02/11/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 38

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/11/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/22/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/14/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/27/2018
Date Data Arrived at EDR: 02/27/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 33

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/27/2019
Date Data Arrived at EDR: 03/28/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 34

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/21/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/15/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 10

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 03/01/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 03/03/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 04/09/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 02/21/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 39

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 36

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 04/18/2019
Date Data Arrived at EDR: 04/19/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 11

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 04/18/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 01/23/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 34

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 02/26/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 02/27/2019
Date Data Arrived at EDR: 02/28/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 32

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 47

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 03/19/2019
Date Data Arrived at EDR: 03/22/2019
Date Made Active in Reports: 04/09/2019
Number of Days to Update: 18

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 03/22/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 47

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/22/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 11/02/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 41

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 01/10/2019
Date Data Arrived at EDR: 01/23/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/15/2019
Date Data Arrived at EDR: 02/19/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 14

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/11/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 37

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 02/20/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 13

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/20/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 02/20/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 13

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/20/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/07/2019
Date Data Arrived at EDR: 01/08/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 56

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/09/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 34
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/02/2019
Number of Days to Update: 28
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/12/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 23
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/12/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 03/04/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/05/2019
Number of Days to Update: 31
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/13/2019
Date Made Active in Reports: 04/29/2019
Number of Days to Update: 47
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/13/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/18/2019
Date Data Arrived at EDR: 03/19/2019
Date Made Active in Reports: 04/29/2019
Number of Days to Update: 41
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/18/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 04/27/2018
Date Data Arrived at EDR: 06/13/2018
Date Made Active in Reports: 07/17/2018
Number of Days to Update: 34
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/13/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 07/11/2018
Date Made Active in Reports: 09/13/2018
Number of Days to Update: 64
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 04/12/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Quarterly

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing
In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/13/2019
Date Made Active in Reports: 04/29/2019
Number of Days to Update: 47

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 03/13/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 03/05/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/02/2019
Number of Days to Update: 28

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 04/11/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/07/2019
Date Data Arrived at EDR: 01/08/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 59

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 04/08/2019
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 01/07/2019
Date Data Arrived at EDR: 01/08/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 58

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 04/08/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 01/24/2019
Date Data Arrived at EDR: 01/25/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 39

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 02/27/2019
Date Data Arrived at EDR: 02/28/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 32

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/14/2019
Date Data Arrived at EDR: 02/19/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 17

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 04/29/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 01/16/2019
Date Data Arrived at EDR: 02/05/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 28

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 04/25/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/27/2019
Date Data Arrived at EDR: 02/28/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 32

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 04/29/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 04/10/2019
Date Data Arrived at EDR: 04/11/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 19

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 03/29/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 12/11/2018
Date Data Arrived at EDR: 12/13/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 33

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 01/18/2019
Date Data Arrived at EDR: 01/23/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 41

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 01/28/2019
Date Data Arrived at EDR: 02/07/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/14/2019
Date Data Arrived at EDR: 02/19/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 14

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 02/08/2019
Date Data Arrived at EDR: 02/12/2019
Date Made Active in Reports: 03/12/2019
Number of Days to Update: 28

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Varies

LASSEN COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/17/2019
Date Data Arrived at EDR: 01/18/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 46

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 03/18/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 12/19/2018
Date Data Arrived at EDR: 01/10/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 56

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/14/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 51

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/16/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 51

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/30/2019
Date Data Arrived at EDR: 02/01/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 34

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/16/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Semi-Annually

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Annually

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/02/2018
Date Data Arrived at EDR: 10/05/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 28

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/20/2019
Date Data Arrived at EDR: 02/22/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 13

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 03/29/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 08/31/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 19

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 03/18/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 02/21/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 34

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 02/05/2019
Date Data Arrived at EDR: 02/07/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 26

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 04/01/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 02/21/2019
Date Data Arrived at EDR: 02/22/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 01/25/2019
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 35

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 04/25/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 01/02/2019
Date Data Arrived at EDR: 02/07/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 26
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 01/02/2019
Date Data Arrived at EDR: 02/08/2019
Date Made Active in Reports: 03/06/2019
Number of Days to Update: 26
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 01/02/2019
Date Data Arrived at EDR: 02/05/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 31
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/05/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 02/28/2019
Date Data Arrived at EDR: 03/01/2019
Date Made Active in Reports: 04/12/2019
Number of Days to Update: 42
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 01/14/2019
Date Data Arrived at EDR: 01/18/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 46
Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/12/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 18
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/18/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/29/2019
Date Data Arrived at EDR: 01/31/2019
Date Made Active in Reports: 03/08/2019
Number of Days to Update: 36

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/18/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/07/2018
Date Data Arrived at EDR: 01/04/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 60

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/02/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/07/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 67

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/02/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 03/11/2019
Date Data Arrived at EDR: 03/13/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 48

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 02/27/2019
Date Data Arrived at EDR: 02/28/2019
Date Made Active in Reports: 04/02/2019
Number of Days to Update: 33

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/19/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 03/04/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/02/2019
Number of Days to Update: 28

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/05/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 03/06/2019
Date Data Arrived at EDR: 03/06/2019
Date Made Active in Reports: 04/29/2019
Number of Days to Update: 54

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

SAN DIEGO CO. SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Quarterly

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/05/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 38

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/18/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/13/2019
Date Data Arrived at EDR: 02/15/2019
Date Made Active in Reports: 03/14/2019
Number of Days to Update: 27

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 03/04/2019
Date Data Arrived at EDR: 03/13/2019
Date Made Active in Reports: 04/29/2019
Number of Days to Update: 47

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/13/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/23/2019
Number of Days to Update: 36

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 02/13/2019
Date Data Arrived at EDR: 02/19/2019
Date Made Active in Reports: 03/06/2019
Number of Days to Update: 15

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/21/2019
Next Scheduled EDR Contact: 06/10/2019
Data Release Frequency: Annually

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 01/30/2019
Date Data Arrived at EDR: 02/01/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 34

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 03/05/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 04/29/2019
Number of Days to Update: 53

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 03/05/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 04/03/2019
Number of Days to Update: 27

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 03/18/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 36

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/25/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/11/2019
Date Made Active in Reports: 04/30/2019
Number of Days to Update: 19

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 04/08/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 12/11/2018
Date Data Arrived at EDR: 12/13/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 33

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 02/28/2019
Date Data Arrived at EDR: 03/01/2019
Date Made Active in Reports: 04/03/2019
Number of Days to Update: 33

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 02/27/2019
Next Scheduled EDR Contact: 06/17/2019
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 28

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 01/18/2019
Date Data Arrived at EDR: 01/23/2019
Date Made Active in Reports: 03/06/2019
Number of Days to Update: 42

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 12/26/2018
Date Data Arrived at EDR: 12/27/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 19

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/26/2018
Date Data Arrived at EDR: 01/24/2019
Date Made Active in Reports: 02/28/2019
Number of Days to Update: 35

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/23/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/29/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Annually

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/07/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/26/2018
Date Data Arrived at EDR: 01/24/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 42

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/23/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/26/2019
Date Data Arrived at EDR: 03/13/2019
Date Made Active in Reports: 04/03/2019
Number of Days to Update: 21

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/13/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/26/2018
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 01/16/2019
Number of Days to Update: 13

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/29/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 02/08/2019
Date Data Arrived at EDR: 02/12/2019
Date Made Active in Reports: 03/06/2019
Number of Days to Update: 22

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 04/25/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 02/11/2019
Date Data Arrived at EDR: 02/12/2019
Date Made Active in Reports: 03/04/2019
Number of Days to Update: 20

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/12/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 07/13/2018
Date Made Active in Reports: 08/01/2018
Number of Days to Update: 19

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/10/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/01/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/27/2018
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 02/23/2018
Date Made Active in Reports: 04/09/2018
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/19/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/11/2019
Next Scheduled EDR Contact: 06/24/2019
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

NOT REPORTED
NOT REPORTED
WINCHESTER, CA 92596

TARGET PROPERTY COORDINATES

Latitude (North):	33.609136 - 33° 36' 32.89''
Longitude (West):	117.107488 - 117° 6' 26.96''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	490028.2
UTM Y (Meters):	3718631.2
Elevation:	1362 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5640928 BACHELOR MOUNTAIN, CA
Version Date:	2012
Northeast Map:	5640944 WINCHESTER, CA
Version Date:	2012
Southwest Map:	5641304 MURRIETA, CA
Version Date:	2012
Northwest Map:	5641314 ROMOLAND, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

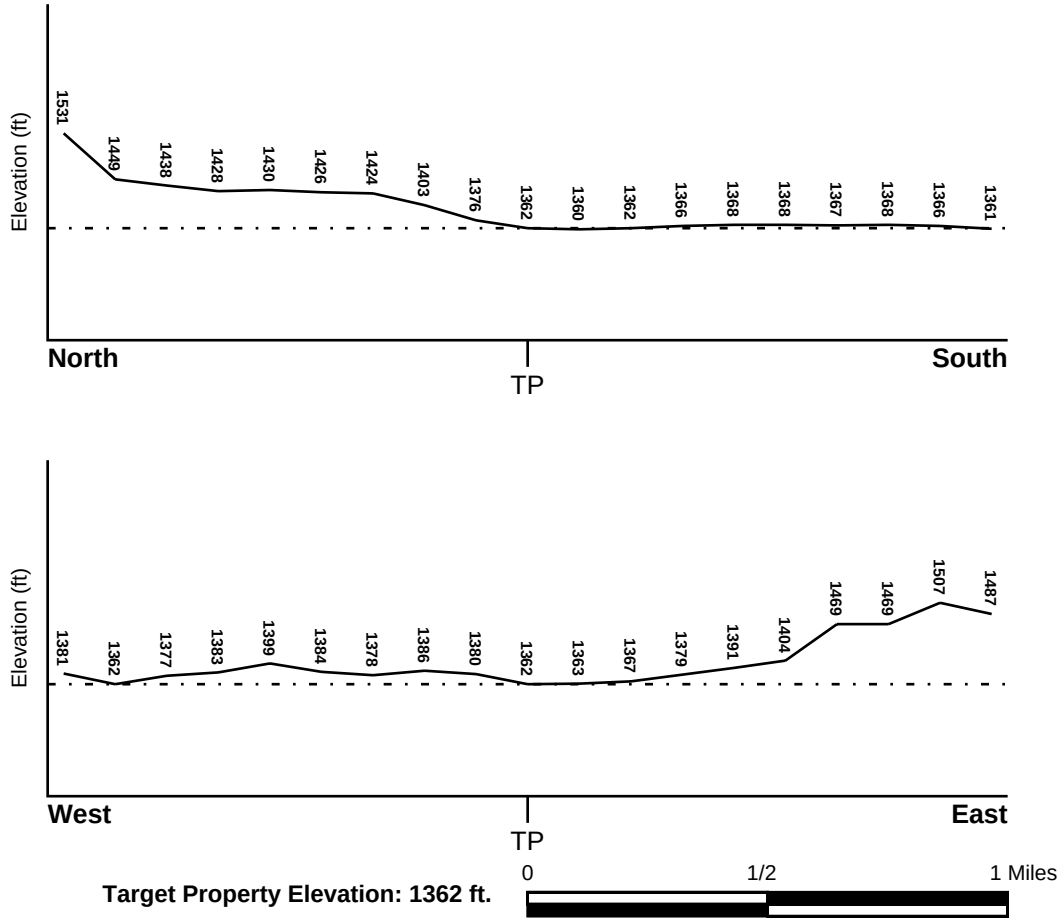
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
0602452755A	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BACHELOR MOUNTAIN	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

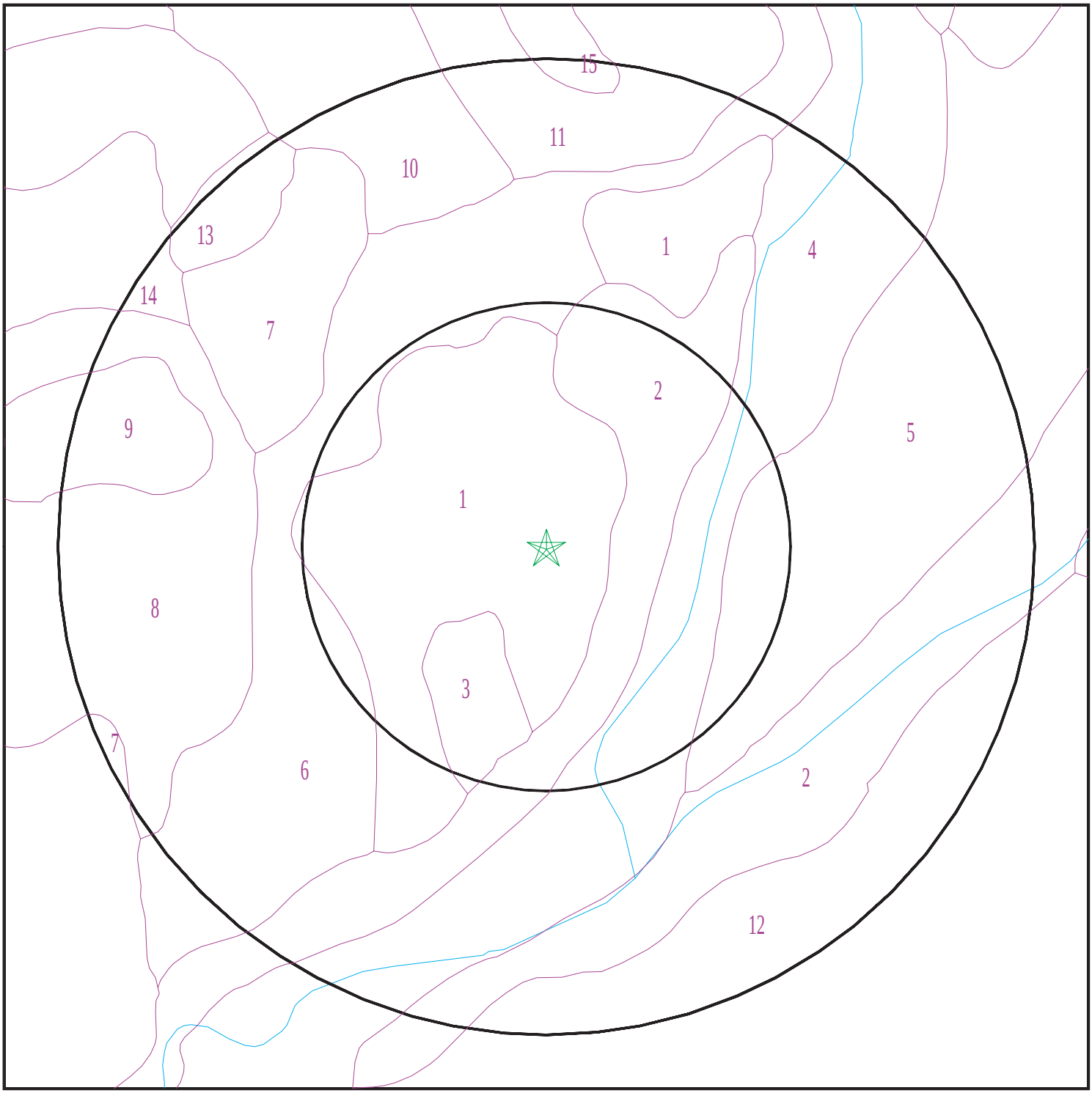
Era:	Mesozoic
System:	Lower Jurassic and Upper Triassic
Series:	Lower Mesozoic
Code:	lMze *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5641788.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Not Reported	CLIENT:	Group Delta Consultants
ADDRESS:	Not Reported Winchester CA 92596	CONTACT:	Natalia Delgadillo
LAT/LONG:	33.609136 / 117.107488	INQUIRY #:	5641788.2s
		DATE:	May 03, 2019 4:34 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: YOKOHL

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
2	9 inches	25 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
3	25 inches	29 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
4	29 inches	59 inches	stratified sandy loam to gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

Soil Map ID: 2

Soil Component Name: WYMAN

Soil Surface Texture: loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
2	14 inches	35 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	35 inches	50 inches	stratified loam to clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6
4	50 inches	59 inches	stratified loam to clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 6.6

Soil Map ID: 3

Soil Component Name: YOKOHL

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	5 inches	20 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
3	20 inches	24 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
4	24 inches	59 inches	stratified sandy loam to gravelly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

Soil Map ID: 4

Soil Component Name: CHINO

Soil Surface Texture: silt loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat poorly drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	14 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
2	14 inches	27 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
3	27 inches	59 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

Soil Map ID: 5

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	27 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 6

Soil Component Name: PORTERVILLE

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:
2	7 inches	33 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:
3	33 inches	38 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:

Soil Map ID: 7

Soil Component Name: PORTERVILLE

Soil Surface Texture: cobbly clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	cobbly clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:
2	7 inches	33 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:
3	33 inches	38 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:

Soil Map ID: 8

Soil Component Name: PORTERVILLE

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:
2	7 inches	35 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:
3	35 inches	40 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.01	Max: Min:

Soil Map ID: 9

Soil Component Name: FRIANT

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 33 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	12 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	12 inches	16 inches	unweathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 10

Soil Component Name: AULD

Soil Surface Texture: clay

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	27 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	27 inches	44 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	44 inches	48 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 11

Soil Component Name: AULD

Soil Surface Texture: clay

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	27 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	27 inches	44 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	44 inches	48 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 12

Soil Component Name: MONSERATE

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	9 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	27 inches	44 inches	indurated	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	44 inches	57 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
5	57 inches	70 inches	loamy coarse sand	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 13

Soil Component Name: BUCHENAU

Soil Surface Texture: silt loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:
2	7 inches	44 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:
3	44 inches	61 inches	cemented	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 14

Soil Component Name: LAS POSAS

Soil Surface Texture: loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	11 inches	31 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	31 inches	53 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

Soil Map ID: 15

Soil Component Name: AULD

Soil Surface Texture: cobbly clay

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	27 inches	cobbly clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
2	27 inches	44 inches	cobbly loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:
3	44 inches	48 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B3	USGS40000135949	1/4 - 1/2 Mile East
A5	USGS40000135997	1/4 - 1/2 Mile ENE
B6	USGS40000135952	1/4 - 1/2 Mile East
C7	USGS40000136028	1/4 - 1/2 Mile NNE
8	USGS40000135957	1/4 - 1/2 Mile East

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
D9	USGS40000135882	1/4 - 1/2 Mile SSW
D10	USGS40000135883	1/4 - 1/2 Mile SSW
E13	USGS40000135814	1/2 - 1 Mile South
14	USGS40000136053	1/2 - 1 Mile NE
F15	USGS40000135758	1/2 - 1 Mile SSW
16	USGS40000136059	1/2 - 1 Mile NW
G18	USGS40000136038	1/2 - 1 Mile WNW
I21	USGS40000135757	1/2 - 1 Mile SSE
J23	USGS40000135794	1/2 - 1 Mile SW
H24	USGS40000136091	1/2 - 1 Mile NE
K25	USGS40000135756	1/2 - 1 Mile SSE
K28	USGS40000135754	1/2 - 1 Mile SE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

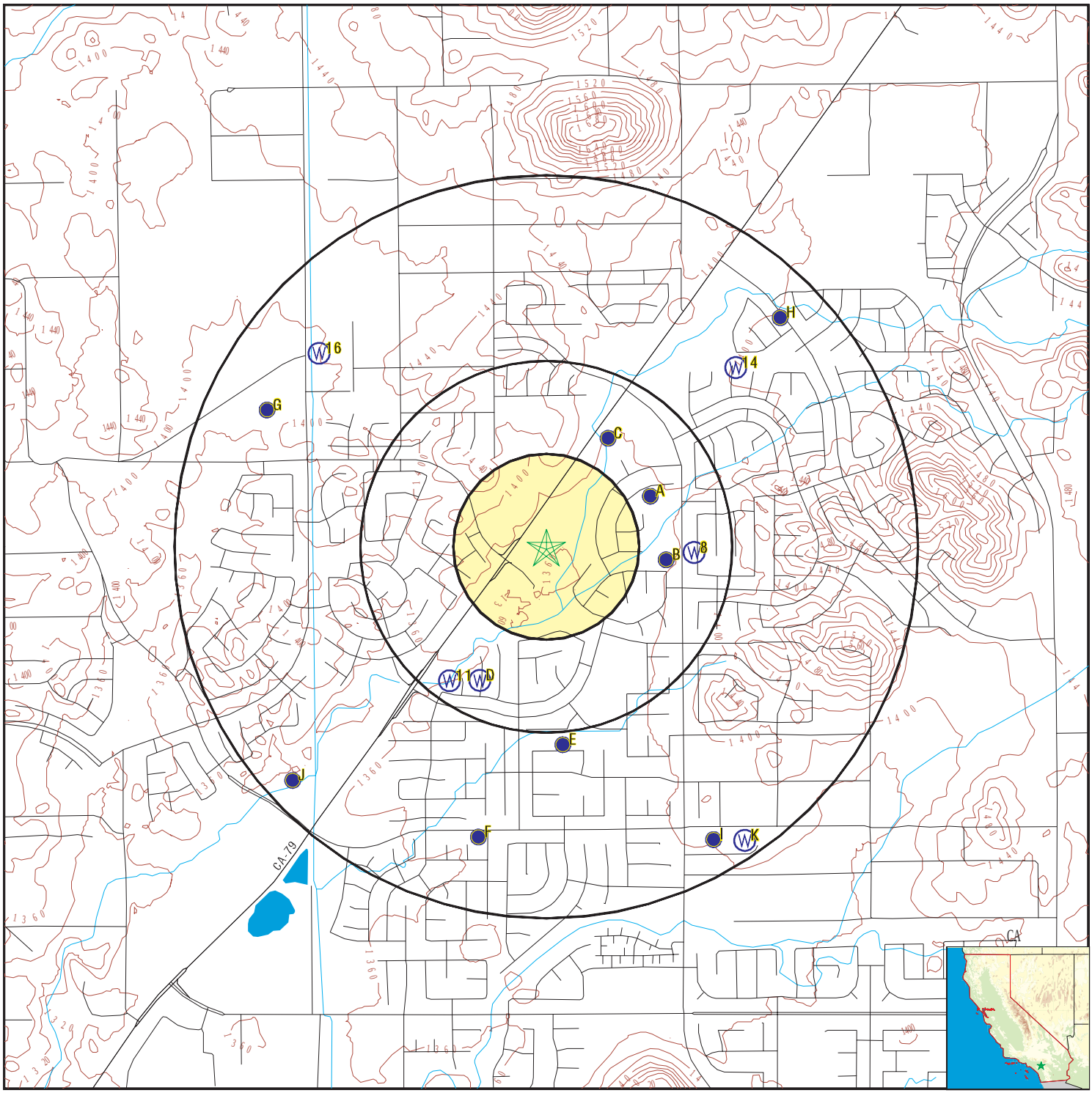
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	CADWR8000004474	1/4 - 1/2 Mile ENE
B2	CADWR8000004452	1/4 - 1/2 Mile East
C4	CADWR8000004493	1/4 - 1/2 Mile NNE
11	CADWR8000004413	1/4 - 1/2 Mile SW
E12	CADWR8000004381	1/2 - 1 Mile South
F17	CADWR8000004351	1/2 - 1 Mile SSW
G19	CADWR8000004503	1/2 - 1 Mile WNW
H20	CADWR8000004527	1/2 - 1 Mile NE
I22	CADWR8000004350	1/2 - 1 Mile SSE
I26	CADWR8000004348	1/2 - 1 Mile SSE
J27	CADWR8000004368	1/2 - 1 Mile SW

PHYSICAL SETTING SOURCE MAP - 5641788.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Not Reported	CLIENT:	Group Delta Consultants
ADDRESS:	Not Reported Winchester CA 92596	CONTACT:	Natalia Delgadillo
LAT/LONG:	33.609136 / 117.107488	INQUIRY #:	5641788.2s
		DATE:	May 03, 2019 4:34 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
ENE
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR8000004474**

State Well #:	06S02W32A001S	Station ID:	9607
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

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B2
East
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR8000004452**

State Well #:	06S02W33E001S	Station ID:	31397
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Not Reported	Well Completion Rpt #:	Not Reported

B3
East
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000135949**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W32H001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	76
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

C4
NNE
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR8000004493**

State Well #:	06S02W29R001S	Station ID:	27726
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A5
ENE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000135997**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W32A001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19500101	Well Depth:	199
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	18.00	Feet to sea level:	Not Reported
Note:	Not Reported		

B6
East
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000135952**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W32H002S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

C7
NNE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40000136028**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W29R001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	19
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	16.00	Feet to sea level:	Not Reported
Note:	Not Reported		

8
East **FED USGS** **USGS40000135957**
1/4 - 1/2 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W33E001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	63
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	21.00	Feet to sea level:	Not Reported
Note:	Not Reported		

D9
SSW **FED USGS** **USGS40000135882**
1/4 - 1/2 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W32L001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	106
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	12.00	Feet to sea level:	Not Reported
Note:	Not Reported		

D10
SSW **FED USGS** **USGS40000135883**
1/4 - 1/2 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W32L002S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported

Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	6
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

11
SW
1/4 - 1/2 Mile
Lower

CA WELLS **CADWR8000004413**

State Well #:	06S02W32L001S	Station ID:	31396
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

---

E12
South
1/2 - 1 Mile
Higher

CA WELLS **CADWR8000004381**

State Well #:	06S02W32R001S	Station ID:	9608
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

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E13
South
1/2 - 1 Mile
Higher

FED USGS **USGS40000135814**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W32R001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	59
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	32.00	Feet to sea level:	Not Reported
Note:	Not Reported		

14
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000136053**

Organization ID:	USGS-CA
Organization Name:	USGS California Water Science Center

Monitor Location:	006S002W28N001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	27
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

F15
SSW **FED USGS** **USGS40000135758**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007S002W05C001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	70
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	28.00	Feet to sea level:	Not Reported
Note:	Not Reported		

16
NW **FED USGS** **USGS40000136059**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W29M001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	Not Reported
Well Depth Units:	Not Reported	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

F17
SSW **CA WELLS** **CADWR8000004351**
1/2 - 1 Mile
Lower

State Well #:	07S02W05C001S	Station ID:	30098
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0

Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

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G18
WNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000136038**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W30R001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	32
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	13.00	Feet to sea level:	Not Reported
Note:	Not Reported		

G19
WNW
1/2 - 1 Mile
Higher

CA WELLS **CADWR8000004503**

State Well #:	06S02W30R001S	Station ID:	9604
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

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H20
NE
1/2 - 1 Mile
Higher

CA WELLS **CADWR8000004527**

State Well #:	06S02W28L001S	Station ID:	5844
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

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I21
SSE
1/2 - 1 Mile
Higher

FED USGS **USGS40000135757**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007S002W04D003S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported

Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19630101	Well Depth:	116
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

I22
SSE
1/2 - 1 Mile
Higher

CA WELLS **CADWR8000004350**

State Well #:	07S02W04D002S	Station ID:	10084
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

---

J23
SW
1/2 - 1 Mile
Lower

FED USGS **USGS40000135794**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W31R001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19500101	Well Depth:	48
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	13.00	Feet to sea level:	Not Reported
Note:	Not Reported		

H24
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40000136091**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	006S002W28L001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	29
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01

Feet below surface:	26.00	Feet to sea level:	Not Reported
Note:	Not Reported		

K25
SSE **FED USGS** **USGS40000135756**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007S002W04D002S	Type:	Well
Description:	Not Reported	HUC:	18070202
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	19590101	Well Depth:	80
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	52.00	Feet to sea level:	Not Reported
Note:	Not Reported		

I26
SSE **CA WELLS** **CADWR8000004348**
1/2 - 1 Mile
Higher

State Well #:	07S02W04D001S	Station ID:	30096
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

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J27
SW **CA WELLS** **CADWR8000004368**
1/2 - 1 Mile
Lower

State Well #:	06S02W31R001S	Station ID:	31395
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Temecula Valley	Well Completion Rpt #:	Not Reported

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K28
SE **FED USGS** **USGS40000135754**
1/2 - 1 Mile
Higher

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	007S002W04D001S	Type:	Well
Description:	Not Reported	HUC:	18070302
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer:	California Coastal Basin aquifers		
Formation Type:	Not Reported	Aquifer Type:	Not Reported
Construction Date:	Not Reported	Well Depth:	56
Well Depth Units:	ft	Well Hole Depth:	Not Reported
Well Hole Depth Units:	Not Reported		

Ground water levels,Number of Measurements:	1	Level reading date:	1968-01-01
Feet below surface:	45.00	Feet to sea level:	Not Reported
Note:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for RIVERSIDE County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for RIVERSIDE COUNTY, CA

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.117 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.450 pCi/L	100%	0%	0%
Basement	1.700 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

Not Reported

Not Reported

Winchester, CA 92596

Inquiry Number: 5641788.3

May 03, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

05/03/19

Site Name:	Client Name:
Not Reported	Group Delta Consultants
Not Reported	1035 S. Milliken Ave Suite G
Winchester, CA 92596	Ontario, CA 91761
EDR Inquiry # 5641788.3	Contact: Natalia Delgadillo

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Group Delta Consultants were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 0999-48C4-8556

PO # NA

Project NA

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 0999-48C4-8556

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Not Reported

Not Reported

Winchester, CA 92596

Inquiry Number: 5641788.8

May 06, 2019

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

05/06/19

Site Name:

Not Reported
Not Reported
Winchester, CA 92596
EDR Inquiry # 5641788.8

Client Name:

Group Delta Consultants
1035 S. Milliken Ave Suite G
Ontario, CA 91761
Contact: Natalia Delgadillo

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
2002	1"=500'	Acquisition Date: May 22, 2002	USGS/DOQQ
1996	1"=500'	Flight Date: September 30, 1996	USGS
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: February 24, 1985	USDA
1978	1"=500'	Flight Date: September 20, 1978	USDA
1967	1"=500'	Flight Date: May 09, 1967	USDA
1961	1"=500'	Flight Date: July 08, 1961	USDA
1953	1"=500'	Flight Date: August 27, 1953	USDA
1949	1"=500'	Flight Date: May 23, 1949	USDA
1938	1"=500'	Flight Date: June 14, 1938	USDA

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INQUIRY #: 5641788.8
YEAR: 2016
= 500'
N
EDR


INQUIRY #: 5641788.8
YEAR: 2012
= 500'
N
EDR


INQUIRY #: 5641788.8
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 5641788.8
YEAR: 2006
= 500'
N
EDR

INQUIRY #: 5641788.8

YEAR: 2002

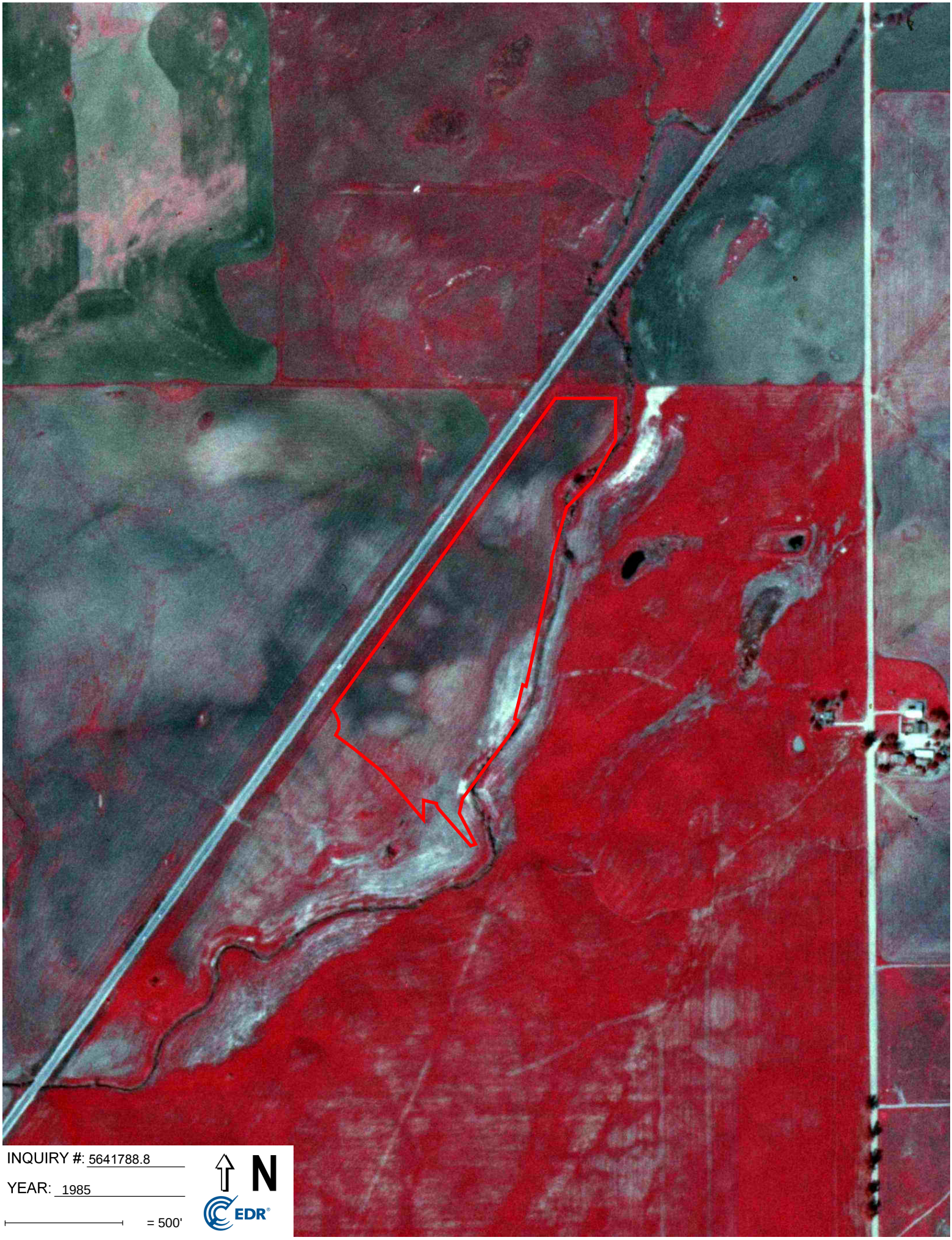
= 500'

N

EDR


INQUIRY #: 5641788.8
YEAR: 1996
= 500'
N
EDR


INQUIRY #: 5641788.8
YEAR: 1989
= 500'
N
EDR



INQUIRY #: 5641788.8

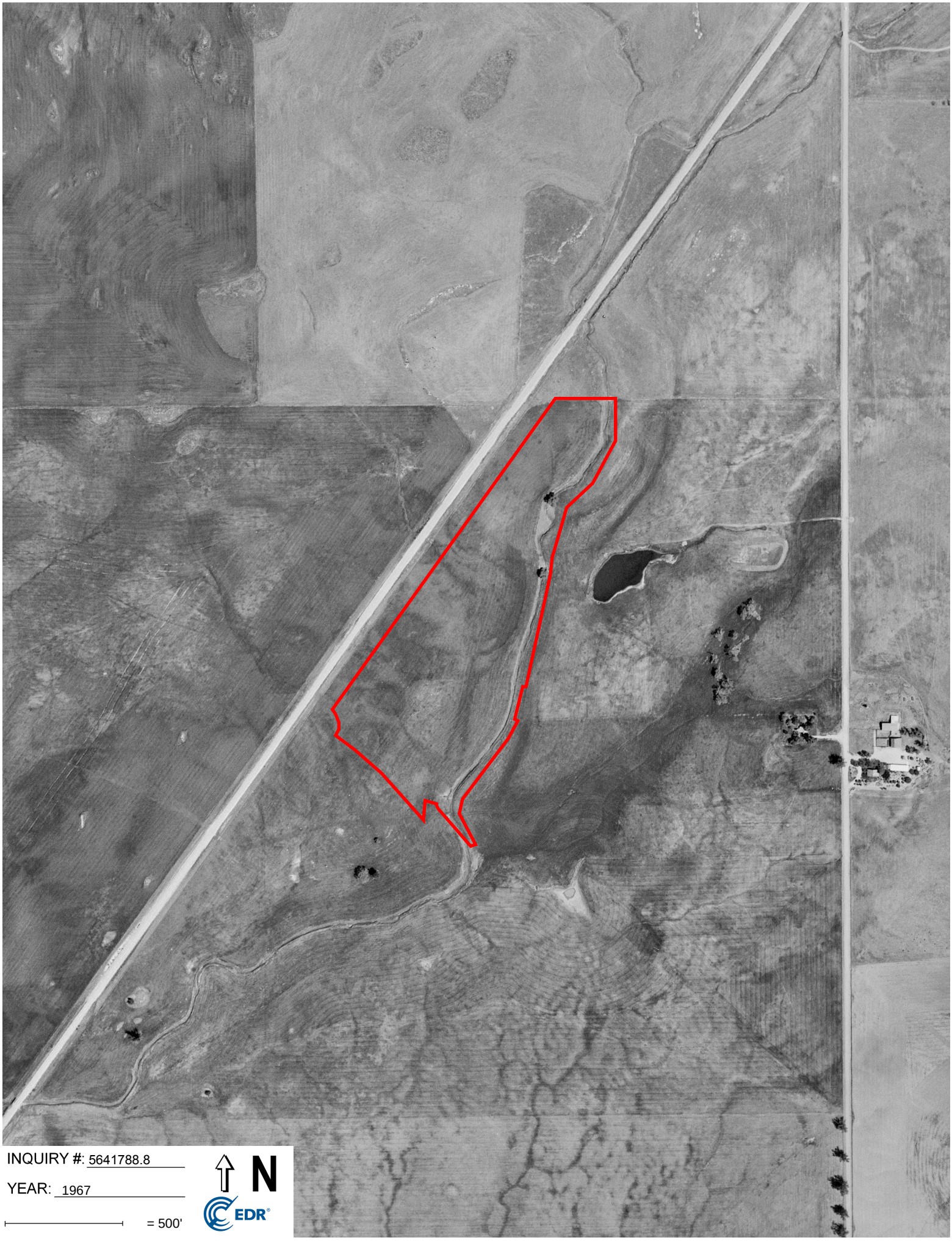
YEAR: 1985

= 500'

N

EDR


INQUIRY #: 5641788.8
YEAR: 1978
= 500'
N
EDR


INQUIRY #: 5641788.8
YEAR: 1967
= 500'
N
EDR

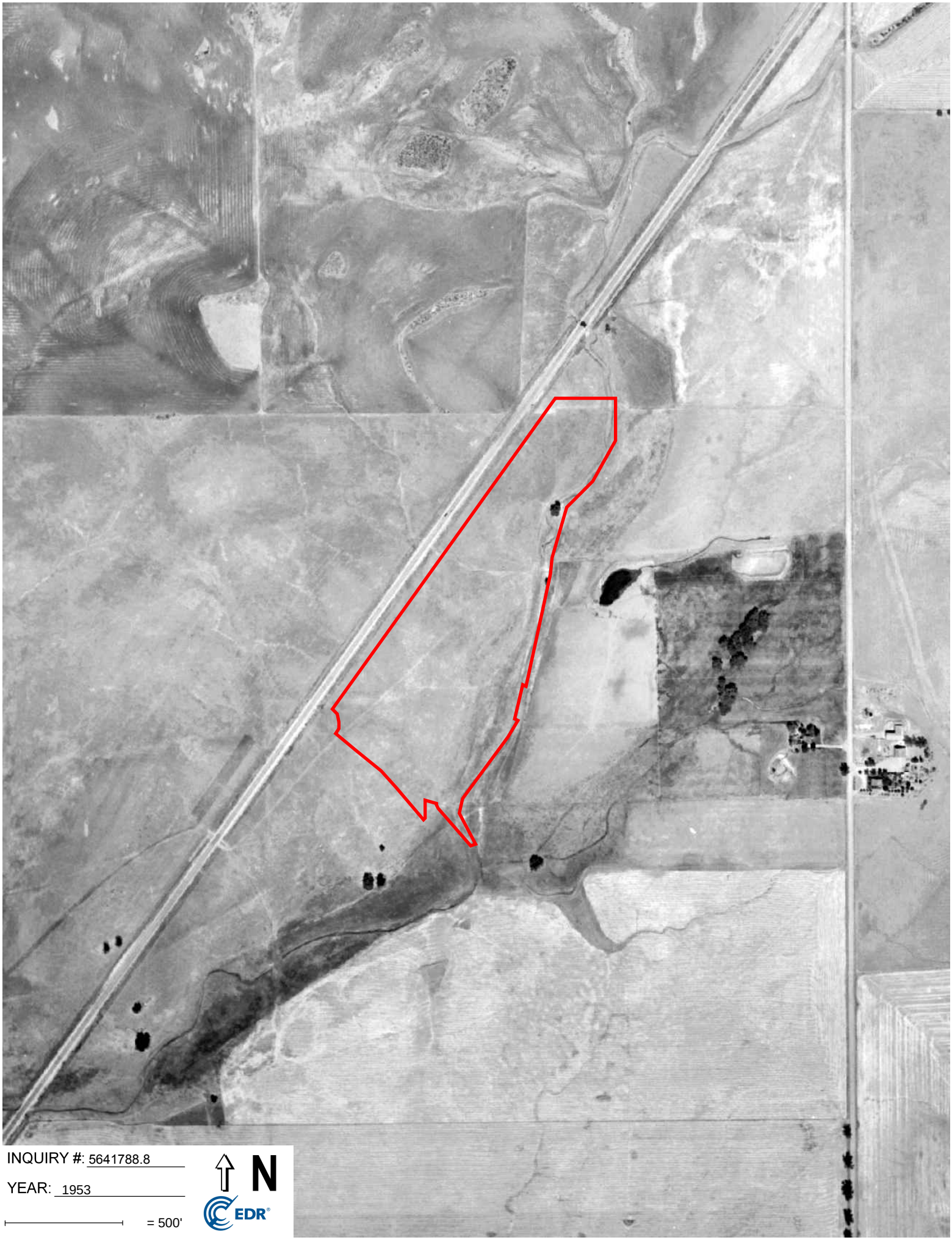
INQUIRY #: 5641788.8

YEAR: 1961

= 500'

N

EDR



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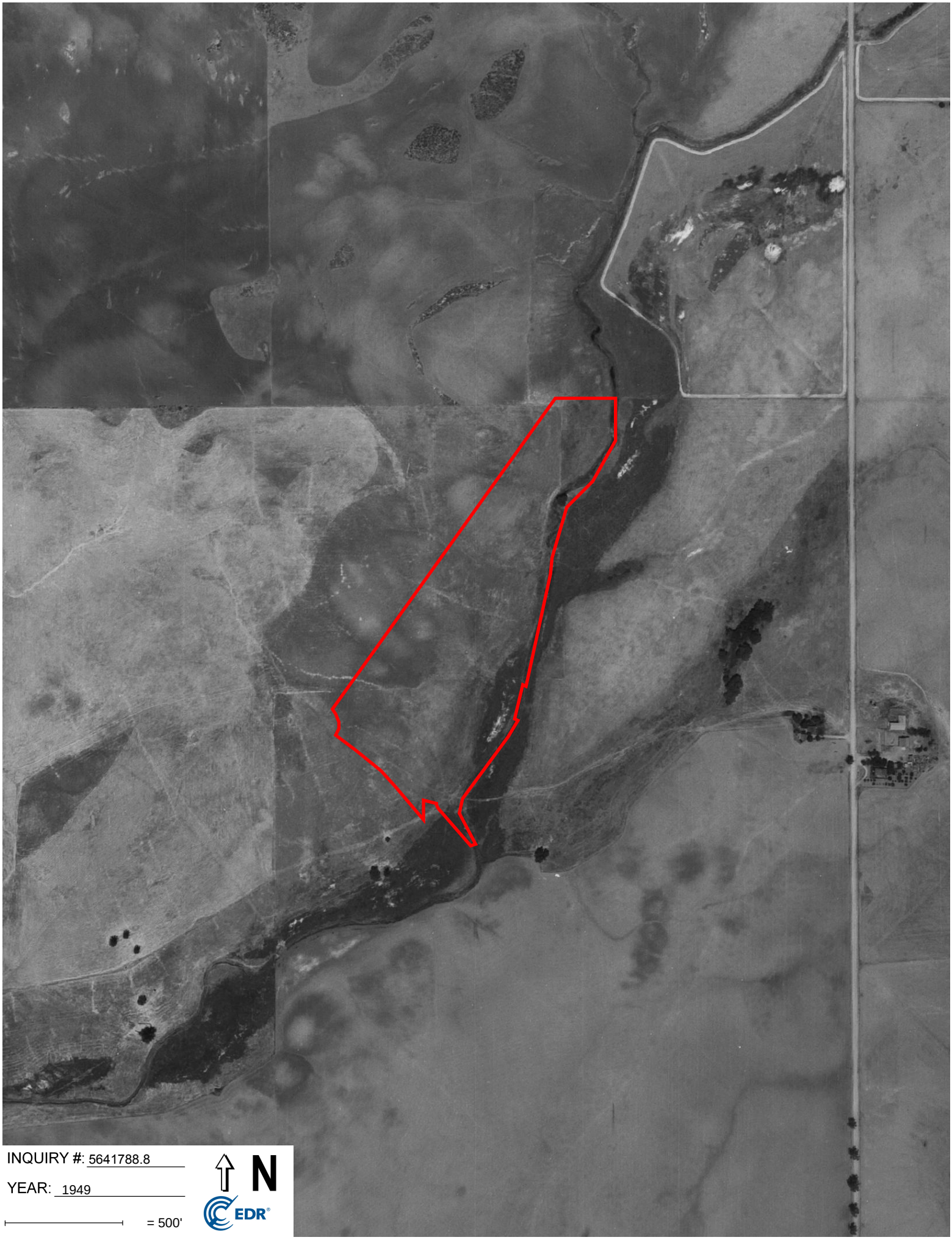
YEAR: 1953

= 500'

N

EDR



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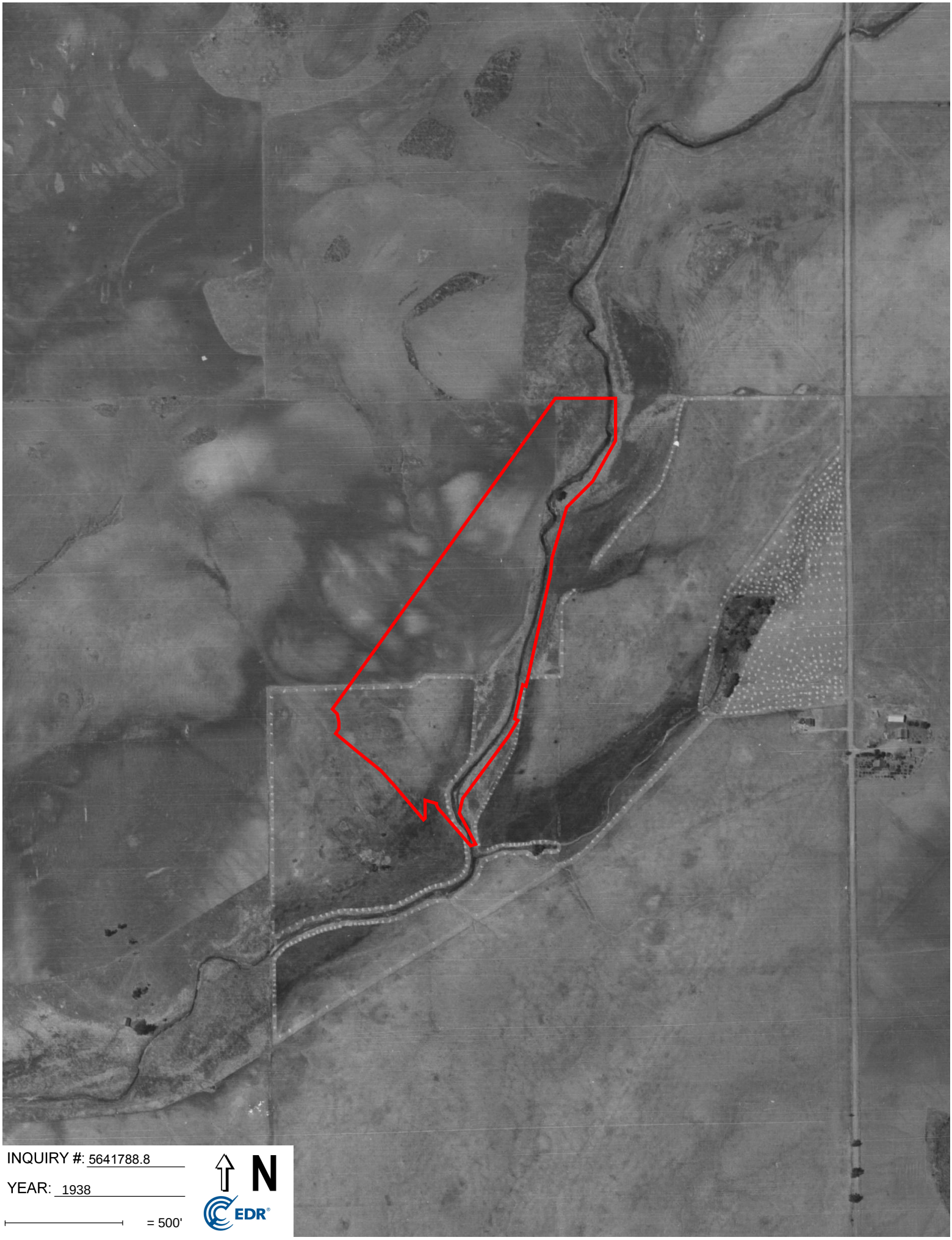
YEAR: 1949

= 500'

N

EDR



INQUIRY #: 5641788.8

YEAR: 1938

= 500'

N

EDR

Not Reported

Not Reported

Winchester, CA 92596

Inquiry Number: 5641788.4

May 03, 2019

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

05/03/19

Site Name:	Client Name:
Not Reported	Group Delta Consultants
Not Reported	1035 S. Milliken Ave Suite G
Winchester, CA 92596	Ontario, CA 91761
EDR Inquiry # 5641788.4	Contact: Natalia Delgadillo

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Group Delta Consultants were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	NA	**Latitude:**	33.609136 33° 36' 33" North
Project:	NA	**Longitude:**	-117.107488 -117° 6' 27" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	490028.48
		UTM Y Meters:	3718824.31
		Elevation:	1363.20' above sea level

Maps Provided:

2012
1978
1973
1953
1947
1943
1942
1901

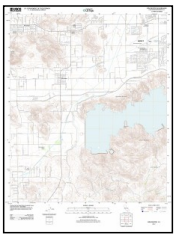
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

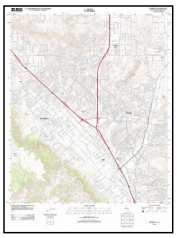
2012 Source Sheets

Bachelor Mountain
2012
7.5-minute, 24000

Romoland
2012
7.5-minute, 24000



Winchester
2012
7.5-minute, 24000



Murrieta
2012
7.5-minute, 24000

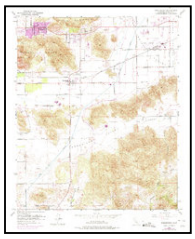
1978 Source Sheets

Bachelor Mtn
1978
7.5-minute, 24000
Aerial Photo Revised 1973

1973 Source Sheets

Murrieta
1973
7.5-minute, 24000
Aerial Photo Revised 1973

Romoland
1973
7.5-minute, 24000
Aerial Photo Revised 1973



Winchester
1973
7.5-minute, 24000
Aerial Photo Revised 1973

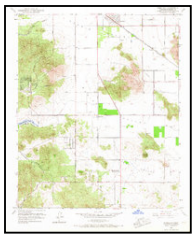
Bachelor Mtn.
1973
7.5-minute, 24000
Aerial Photo Revised 1973

Bachelor Mtn
1973
7.5-minute, 24000
Aerial Photo Revised 1973

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1953 Source Sheets



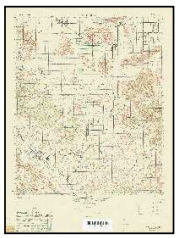
Romoland
1953
7.5-minute, 24000
Aerial Photo Revised 1951

Murrieta
1953
7.5-minute, 24000
Aerial Photo Revised 1951

Winchester
1953
7.5-minute, 24000
Aerial Photo Revised 1951

Bachelor Mtn.
1953
7.5-minute, 24000
Aerial Photo Revised 1951

1947 Source Sheets

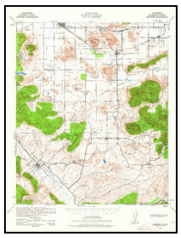


MURRIETA
1947
15-minute, 50000

1943 Source Sheets

Murrieta
1943
15-minute, 62500
Aerial Photo Revised 1939

1942 Source Sheets



Murrieta
1942
15-minute, 62500
Aerial Photo Revised 1939

Topo Sheet Key

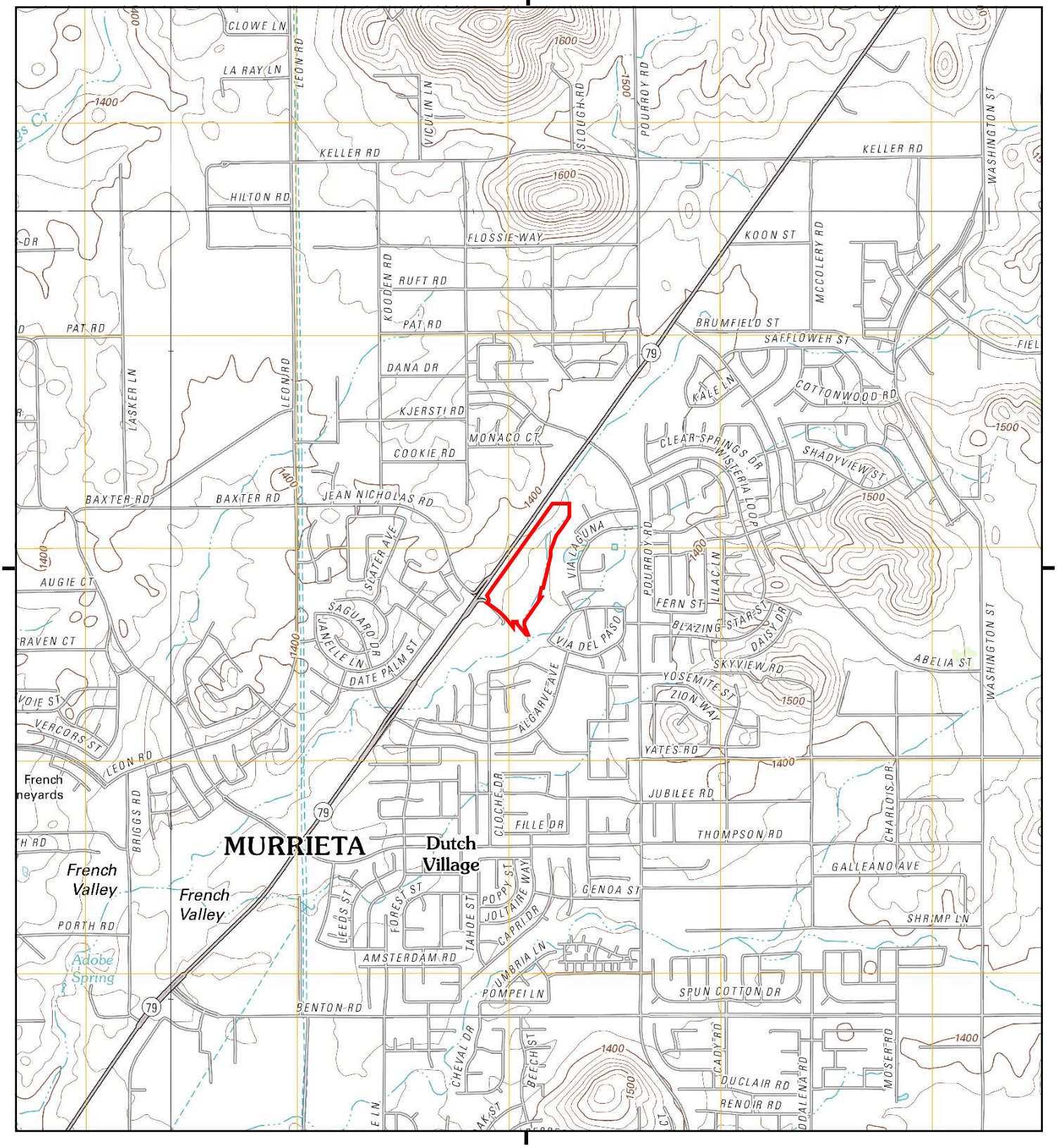
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1901 Source Sheets

Elsinore
1901
30-minute, 125000

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

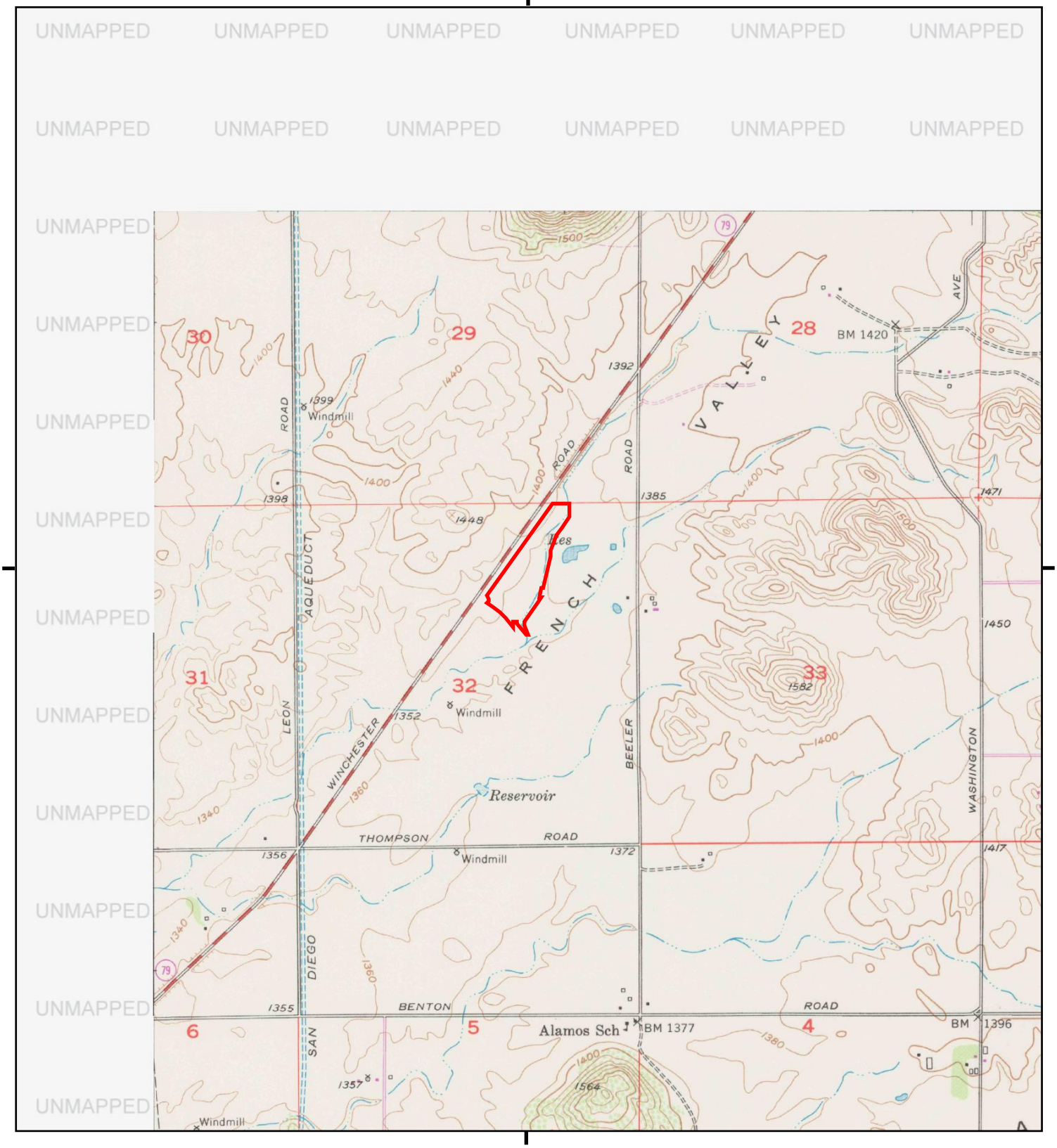
TP, Bachelor Mountain, 2012, 7.5-minute
NE, Winchester, 2012, 7.5-minute
SW, Murrieta, 2012, 7.5-minute
NW, Romoland, 2012, 7.5-minute

SITE NAME: Not Reported
ADDRESS: Not Reported
Winchester, CA 92596
CLIENT: Group Delta Consultants

N

Historical Topo Map

1978



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

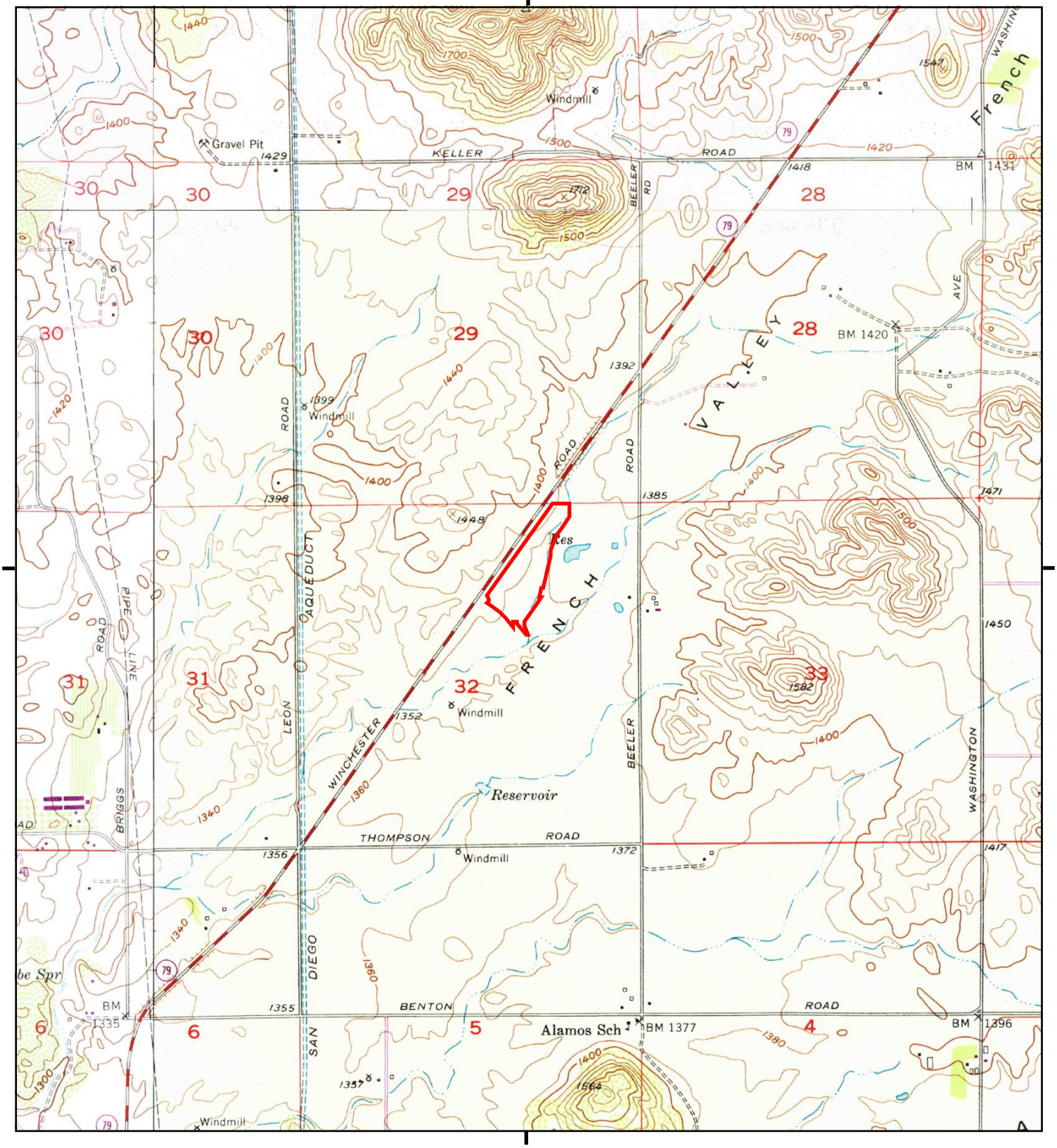
TP, Bachelor Mtn, 1978, 7.5-minute

SITE NAME: Not Reported
ADDRESS: Not Reported
Winchester, CA 92596
CLIENT: Group Delta Consultants

N

Historical Topo Map

1973



This report includes information from the following map sheet(s).

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NW N NE
W E
SW S SE

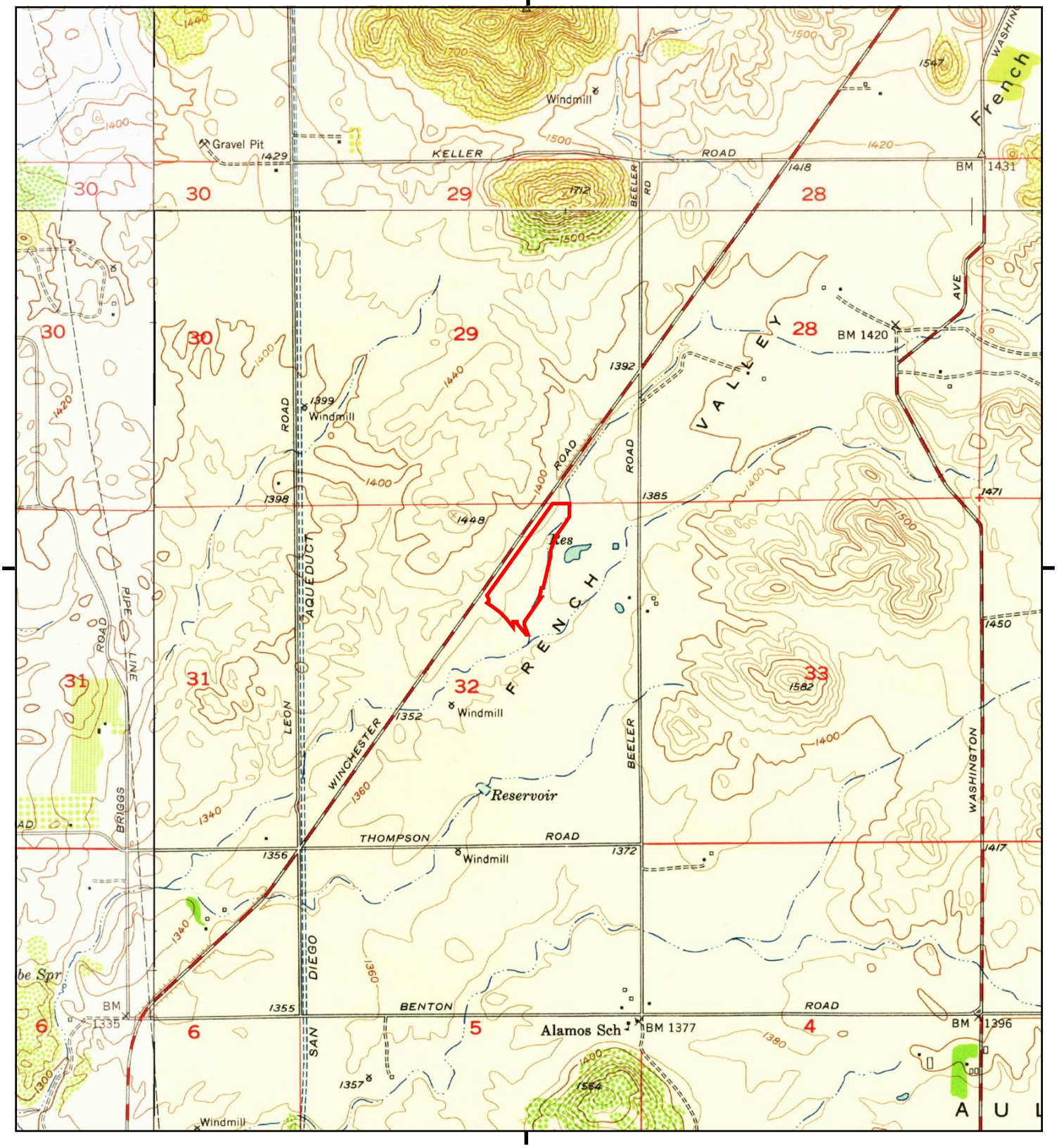
TP, Bachelor Mtn., 1973, 7.5-minute
NE, Winchester, 1973, 7.5-minute
SW, Murrieta, 1973, 7.5-minute
NW, Romoland, 1973, 7.5-minute
TP, Bachelor Mtn, 1973, 7.5-minute

SITE NAME: Not Reported
ADDRESS: Not Reported
Winchester, CA 92596
CLIENT: Group Delta Consultants

N

Historical Topo Map

1953



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

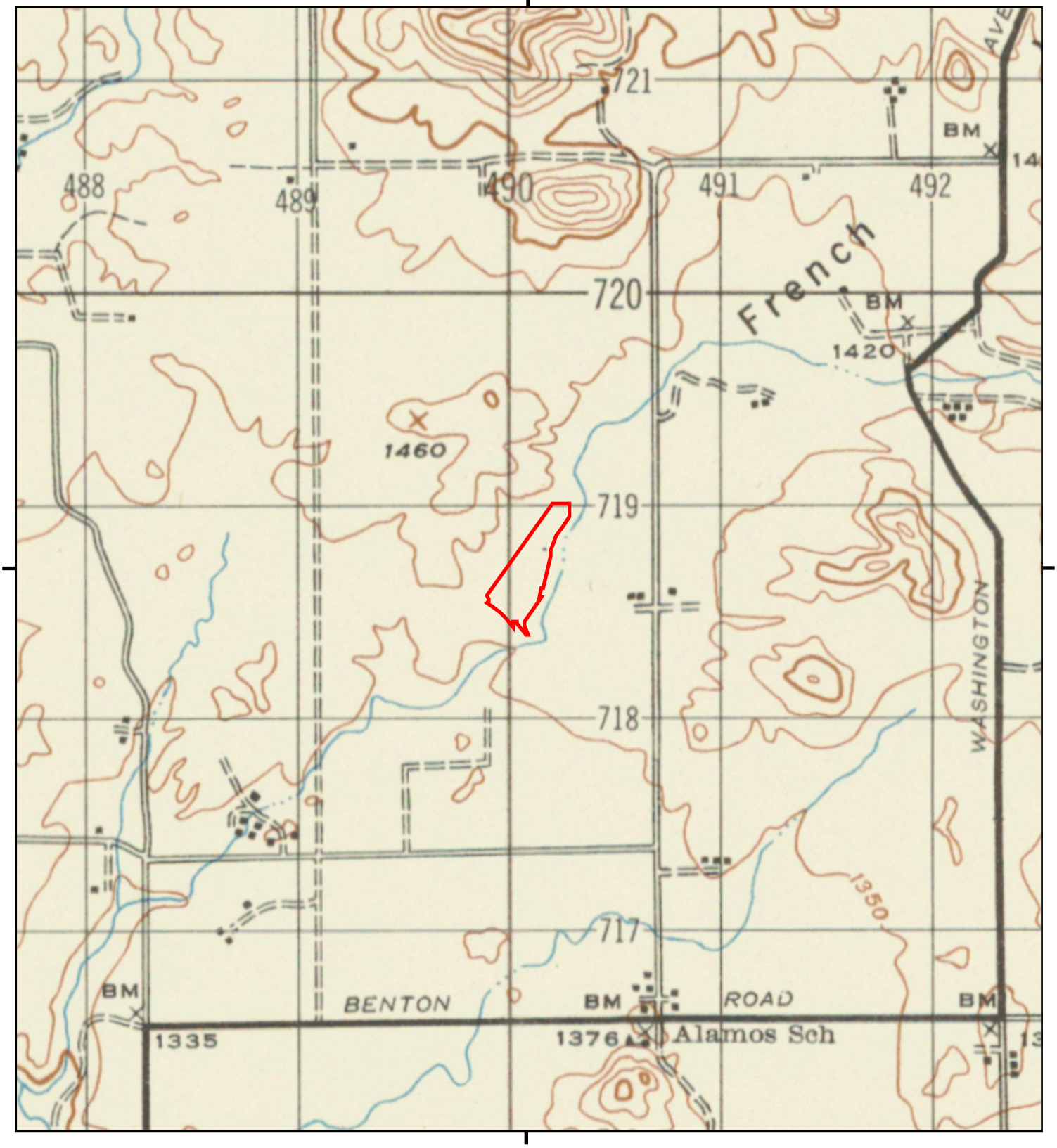
TP, Bachelor Mtn., 1953, 7.5-minute
NE, Winchester, 1953, 7.5-minute
SW, Murrieta, 1953, 7.5-minute
NW, Romoland, 1953, 7.5-minute

SITE NAME: Not Reported
ADDRESS: Not Reported
Winchester, CA 92596
CLIENT: Group Delta Consultants

N

Historical Topo Map

1947



This report includes information from the following map sheet(s).

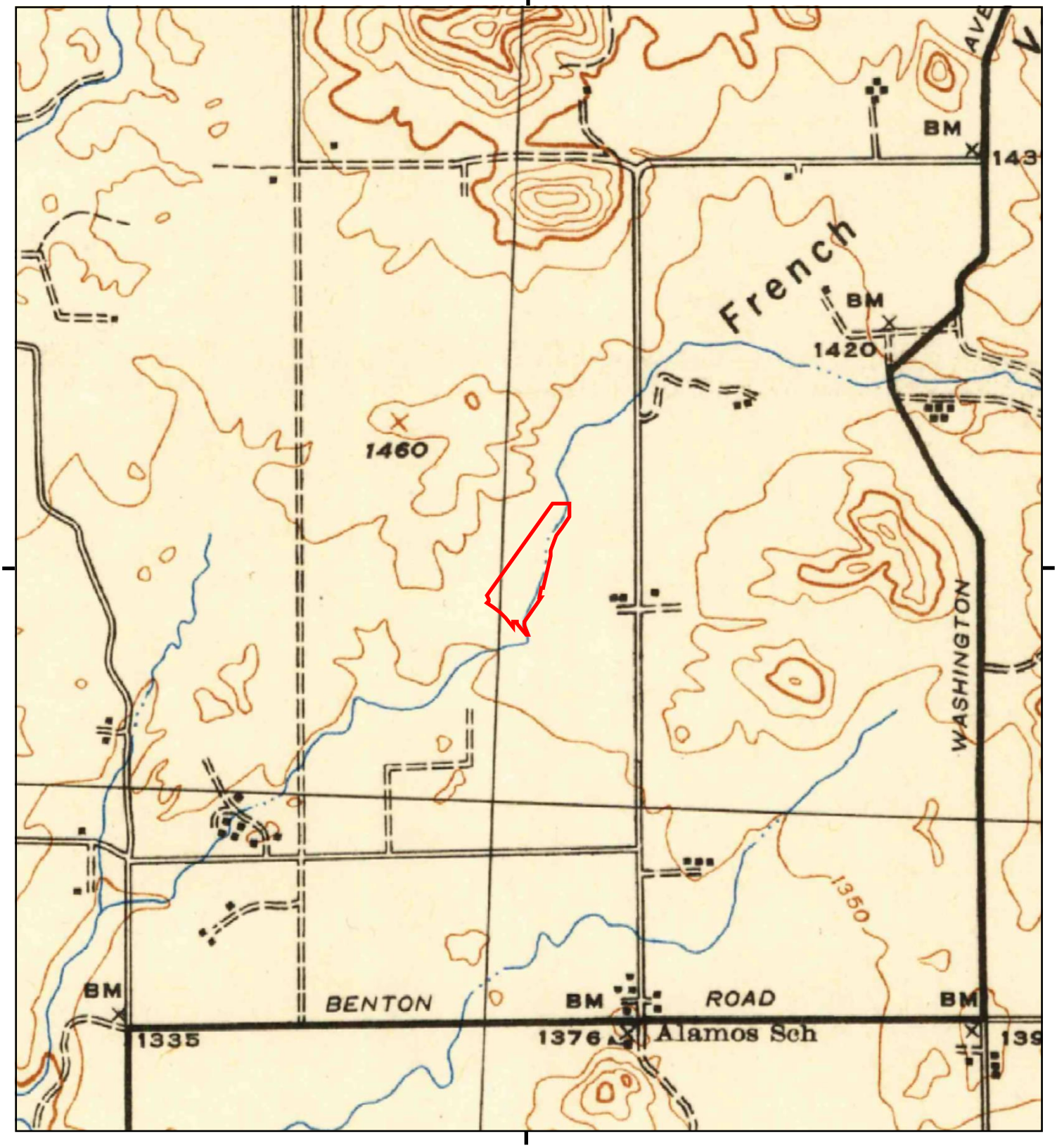
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, MURRIETA, 1947, 15-minute

SITE NAME: Not Reported
ADDRESS: Not Reported
Winchester, CA 92596
CLIENT: Group Delta Consultants

N



This report includes information from the following map sheet(s).

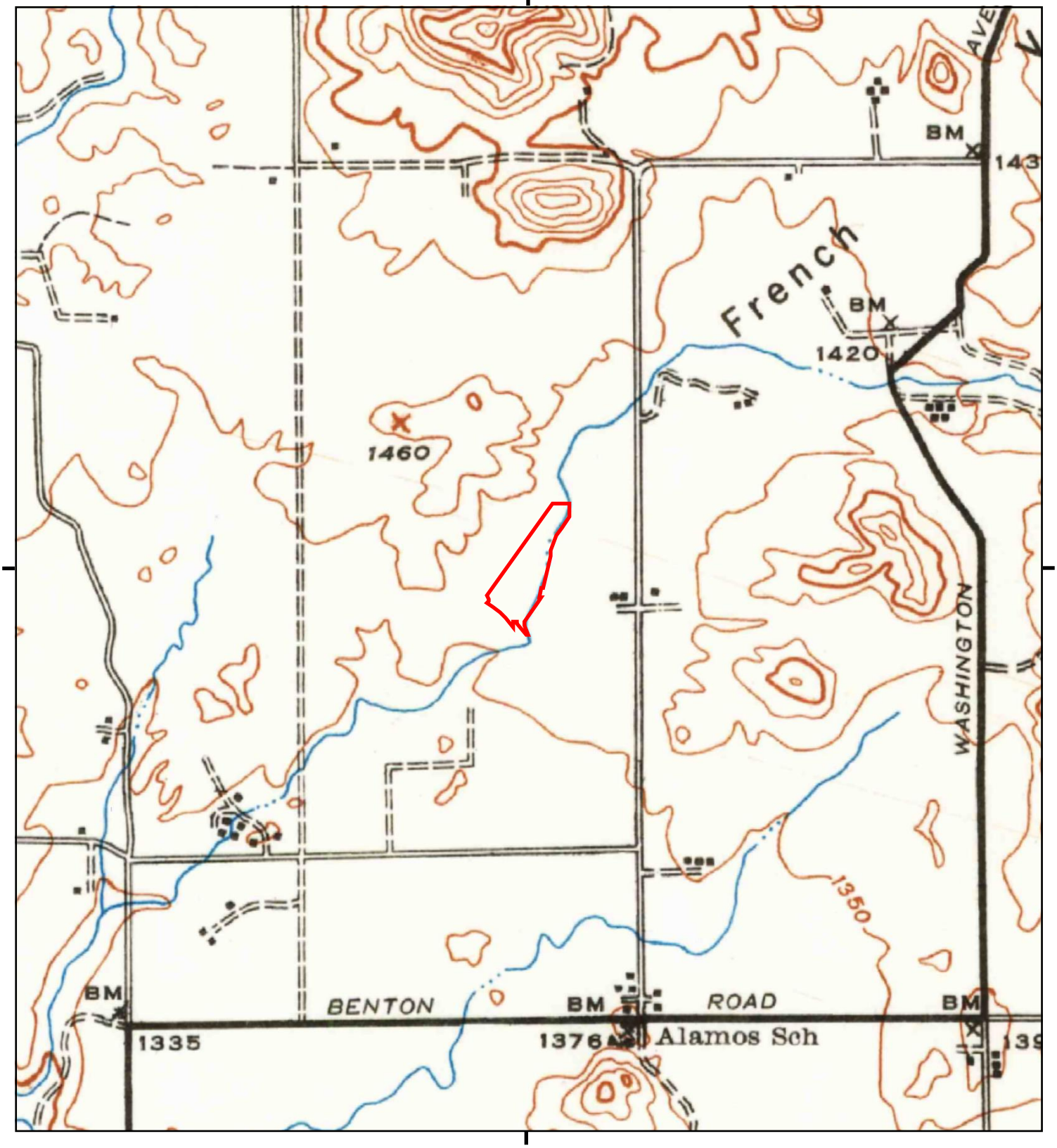
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Murrieta, 1943, 15-minute

SITE NAME: Not Reported
ADDRESS: Not Reported
Winchester, CA 92596
CLIENT: Group Delta Consultants

N



This report includes information from the following map sheet(s).

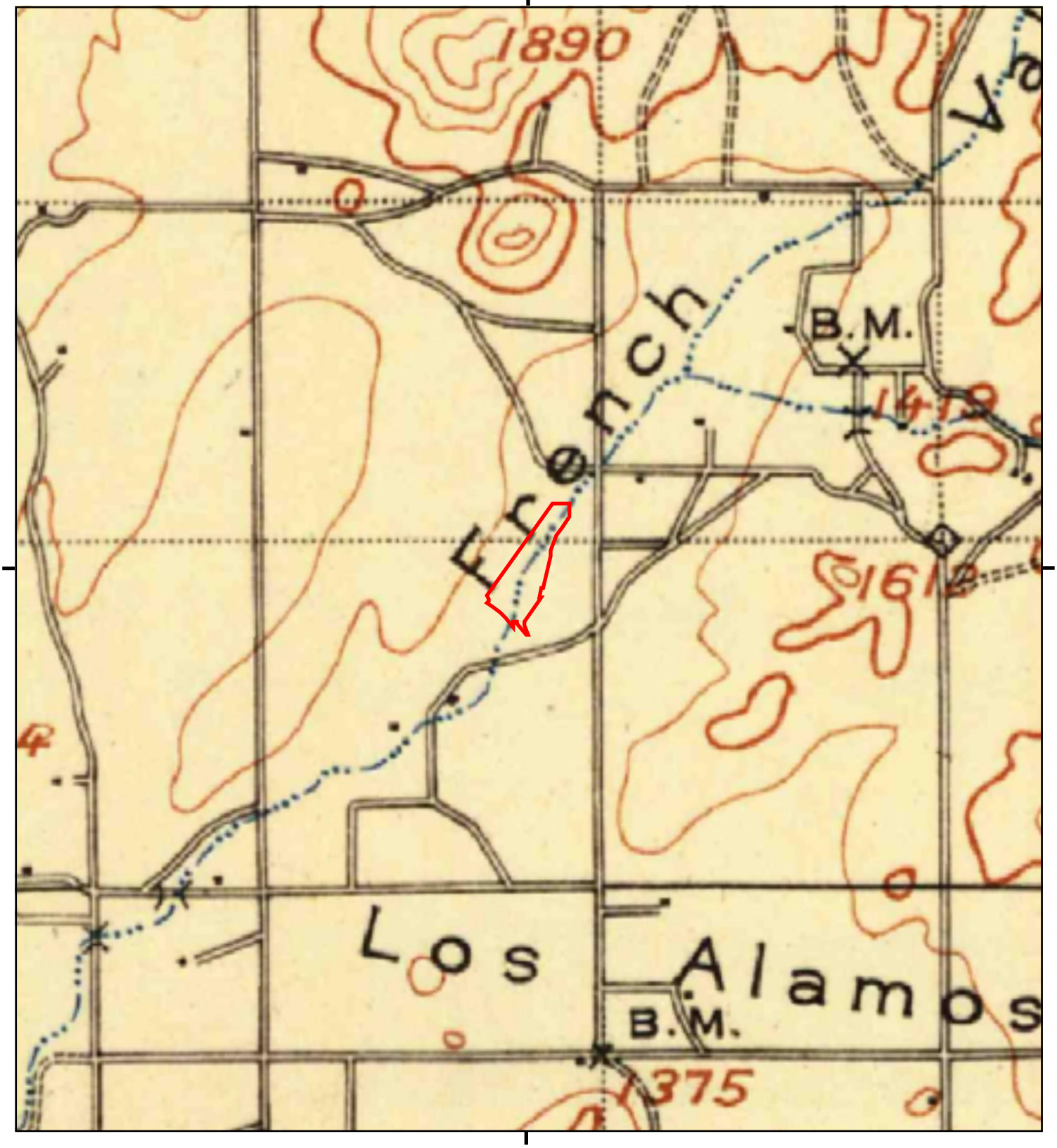
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Murrieta, 1942, 15-minute

SITE NAME: Not Reported
ADDRESS: Not Reported
Winchester, CA 92596
CLIENT: Group Delta Consultants

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Elsinore, 1901, 30-minute

SITE NAME: Not Reported
ADDRESS: Not Reported
Winchester, CA 92596
CLIENT: Group Delta Consultants

N

Not Reported
Not Reported
Winchester, CA 92596

Inquiry Number: 5641788.5
May 07, 2019

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☐	☑	EDR Digital Archive
2010	☐	☑	EDR Digital Archive
2005	☐	☑	EDR Digital Archive
2000	☐	☑	EDR Digital Archive
1995	☐	☑	EDR Digital Archive
1992	☐	☑	EDR Digital Archive
1985	☐	☑	Haines Criss-Cross Directory
1981	☐	☑	Haines Criss-Cross Directory
1975	☐	☑	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

Not Reported
Winchester, CA 92596

No Addresses Found

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	
WINCHESTER RD			
2014	pg. A1	EDR Digital Archive	
2010	pg. A2	EDR Digital Archive	
2005	pg. A3	EDR Digital Archive	
2000	pg. A4	EDR Digital Archive	
1995	pg. A5	EDR Digital Archive	
1992	pg. A6	EDR Digital Archive	
1985	pg. A7	Haines Criss-Cross Directory	
1985	pg. A8	Haines Criss-Cross Directory	
1981	pg. A10	Haines Criss-Cross Directory	
1981	pg. A9	Haines Criss-Cross Directory	
1975	pg. A11	Haines Criss-Cross Directory	
1971	-	Haines Criss-Cross Directory	Street not listed in Source

City Directory Images

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

WINCHESTER RD 2014

27185	PETTIT, MELTON E
27255	OCCUPANT UNKNOWN,
28050	SCHEMBRI, ROBYN J
28325	RIGAS ALICIA
28369	OK TIRE WAREHOUSE
28453	COX TROY CONSTRUCTION
	UNITED STATES POSTAL SERVICE
28535	WINCHESTER STORE
28750	CORONADO, JR
28751	HEMET UNIFIED SCHOOL DISTRICT
28760	RIVER, CRYSTAL
28770	CORONADO, JUANITA
28790	CUPPET, DEANNA
	CUPPETT, RICHARD M
28800	CALL, KATHRYN A
	HOMESTEAD STOCK FARM
28850	SACKETT TRISHA
	WEAVER, TIFFANY
28920	PARTRIDGE, NICOLE
28975	DIXON, CONNIE
30093	VANHORN, WAYNE A
31755	WEST COAST TURF
31831	STRINGER, KIM J
31851	DOMENIGONI BROTHERS RANCH
31871	PEFLEY, COLENE
31885	TRI-STATE MATERIALS INC
31891	HOLMES, KATHRYN
33900	ABELL, COURTNEY
	ACHESON, GERARD T
34155	JAESCHKE, DEAN
	LIESMAN, WILLIAM R
34165	GARCIA, ALEJANDRO A

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

WINCHESTER RD 2010

27185 PETTIT, MELTON E
27383 RHEINGANS, CARL J
28325 RIGAS ALICIA
28369 OK TIRE WAREHOUSE
28453 UNITED STATES POSTAL SERVICE
28481 ELFEGA, ENRIQUEZ
28535 WINCHESTER STORE
28543 WINCHESTER FEED
28750 CORONADO, MARTIN
28751 HEMET UNIFIED SCHOOL DISTRICT
28760 RIVER, CRYSTAL
28770 CORONADO, JUANITA
28790 CUPPETT, DEANNA
MILHOLLAND, HELEN J
28800 CALL, KATHRYN A
HOMESTEAD STOCK FARM
28850 DRYDEN, JENNIFER
SACKETT TRISHA
28920 PARTRIDGE, NICOLE
28975 LESLIE, STEVEN C
30093 VANHORN, WAYNE A
30163 WESSELINK, LEO F
30193 RAMIREZ, ROSA
31755 WEST COAST TURF
31831 STRINGER, CHARLES R
31851 DOMENIGONI BROTHERS RANCH
31871 OCCUPANT UNKNOWN,
31885 TRI-STATE MATERIALS INC
33900 PETTREY, KEVIN
34155 JAESCHKE, DEAN
LIESMAN, WILLIAM R
34165 GARCIA, ALEJANDRO A

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

WINCHESTER RD 2005

27400 J & J PRODUCE
28325 RIGAS ALICIA
28369 OK TIRE WAREHOUSE
28384 BIG R AND LITTLE T
28453 UNITED STATES POSTAL SERVICE
28535 WINCHESTER STORE
28539 MASOTTOS ITALIAN RESTAURANT
QUTAMI, AHMAD F
28543 SHAPEABILITIES
WINCHESTER FEED
28599 DORAN, IMOGENE A
28604 MURILLOS POTTERY
PENA, ANTONIO C
28750 CORONADO, MARTIN
28751 HEMET UNIFIED SCHOOL DISTRICT
28760 AYS ALL YOUR SERVICES
OCCUPANT UNKNOWN,
28770 CORONADO, JUANITA
28790 EISAS, RHIANNON L
MILHOLLAND, HELEN J
28800 BILES, BILLY G
HOMESTEAD STOCK FARM
28850 FARMER, JEFFERY E
28920 FRAGOSO, GERARDO
28975 AMERICAN EAGLE SECURITY
LESLIE, STEVEN C
30093 VAN HORNS MACHINE WORKS
VANHORN, WAYNE A
30163 WESSELINK, LEO F
30193 RAMIREZ, ROSA
31755 FOSTER JOHN M TURF FARMS
31831 STRINGER, CHARLES R
31851 DOMENIGONI BROTHERS RANCH
FJD INVESTMENT PROPERTIES LLC
SKY CANYON ENTERPRISES LLC
31885 TRI-STATE MATERIALS INC
34155 JAESCHKE, DEAN
34165 CORTEZ, TOMAS N

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

WINCHESTER RD 2000

28325 RIGAS ALICIA
28369 OK TIRE WAREHOUSE
28535 WINCHESTER STORE
28539 MASOTTOS ITALIAN RESTAURANT
28543 WINCHESTER FEED STORE
28599 DORAN, IMOGINE
28604 HANNAFORD, K
28750 CORONADOJR, MARTIN
28751 HEMET UNIFIED SCHOOL DISTRICT
28800 BILES, BILLY
28850 ACKERMAN, STEVEN P
28920 FRAGOSO, GERARDO
28975 LESLIE, ROBERT M
30093 VAN HORNS MACHINE WORKS
VANHORN, WAYNE
30193 RAMIREZ, ROSA
31755 FOSTER JOHN M TURF FARMS
31831 STRINGER, CHARLES
31851 DOMENIGONI BROTHERS RANCH
34155 JACOBY, EDWARD C
34165 CORTEZ, TOMAS N
41125 CHECK CASHERS OF TEMECULA

Target Street	Cross Street	Source
-	✓	EDR Digital Archive

WINCHESTER RD 1995

28340	WINCHESTER GAS & GROCERY CO
28369	OK TIRE WAREHOUSE
28384	BIG R AND LITTLE T
28535	WINCHESTER STORE
28539	MASOTTOS ITALIAN RESTAURANT
28543	WINCHESTER FEED STORE
28751	HEMET UNIFIED SCHOOL DISTRICT
28790	HARBRIDGE, DANA M
30093	VAN HORNS MACHINE WORKS
31755	WARRENS TURF NURSERY INC
33900	SMITH, KERRY D

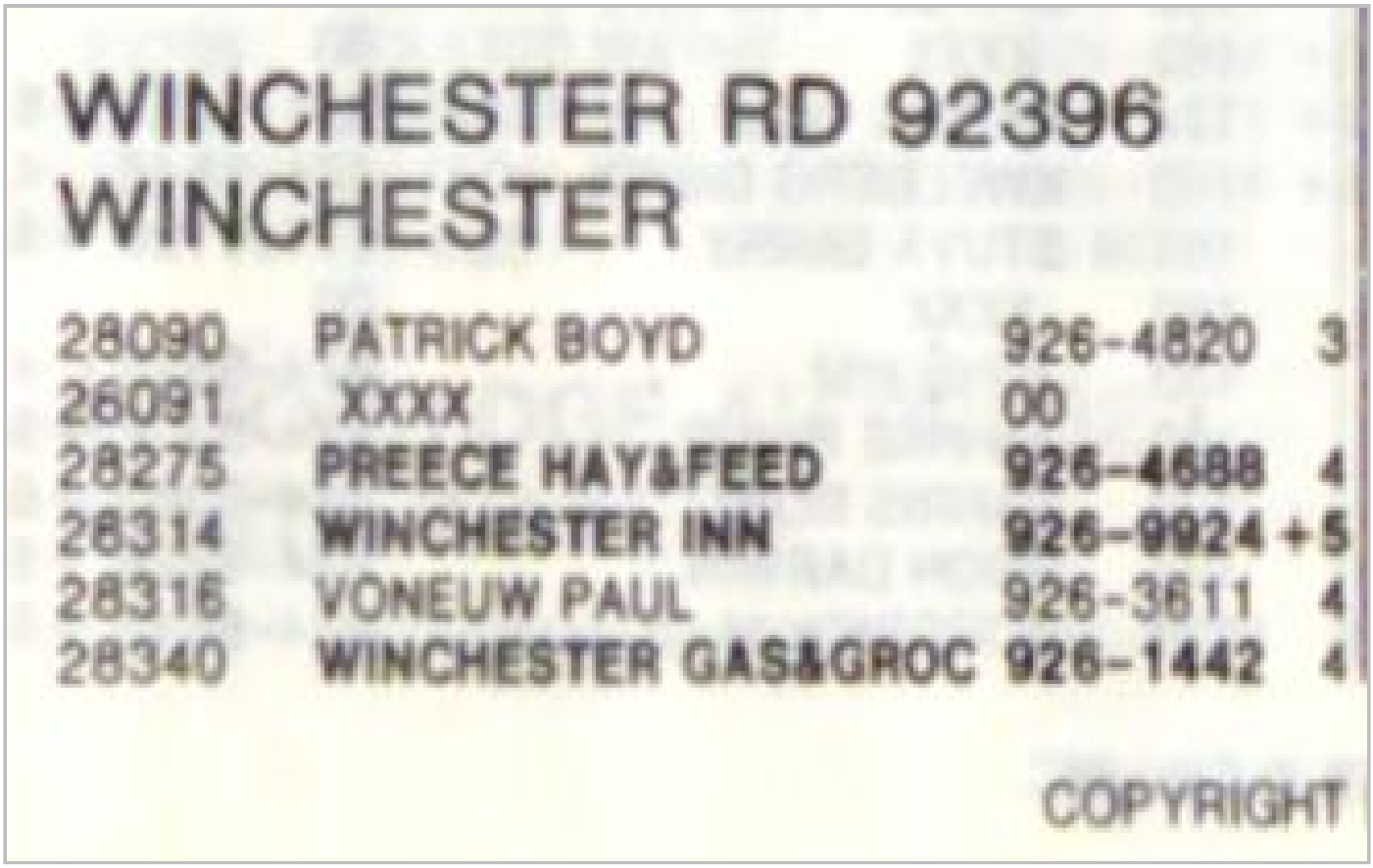
Target Street	Cross Street	Source
-	✓	EDR Digital Archive

WINCHESTER RD 1992

28314 WINCHESTER INN
28532 RUNTZEL, J T
28535 WINCHESTER STORE
28539 MASOTTOS ITALIAN RESTAURANT
RAWHIDE
28543 WINCHESTER FEED STORE
28599 DORAN, JESS E
28604 SAUER, PAUL
28750 CORONADO, MARTIN
28751 WINCHESTER ELEMENTARY SCHOOL
28800 BILES, BILLY
28975 MARQUEZ, B
30033 SANCHEZ, JUAN
30093 VAN HORNS MACHINE WORKS
VANHORN, WAYNE
30163 NUNEZ, S
30193 RAMIREZ, ROSA
31755 WARRENS TURF NURSERY INC
31851 DOMENIGONI, ANDY
34155 CASE, MICHAEL
34165 CORTEZ, ANTONIO
EL CORTEZ CABINETS

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

WINCHESTER RD 1985



WINCHESTER RD 92396
WINCHESTER

28090	PATRICK BOYD	926-4820	3
26091	XXXX	00	
28275	PREECE HAY&FEED	926-4688	4
28314	WINCHESTER INN	926-9924	+5
28316	VONEUW PAUL	926-3611	4
28340	WINCHESTER GAS&GROC	926-1442	4

COPYRIGHT

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

WINCHESTER RD 1985

WINCHESTER RD		92396 CONT..	
28349	XXXX	00	
28369	AUZENNES GARAGE DRS	926-1209	7
28401	XXXX	00	
28453	XXXX	00	
28479	XXXX	00	
28481	BIDART A	926-2384	
28532	XXXX	00	
28535	WINCHESTER FEED STR	926-3090	4
	WINCHESTER STORE	926-1682	7
28539	DONS PLACE	926-9990	6
28599	DORAN JESS E	926-1995	3
28604	HEROLD BRIAN	926-9659	+5
28751	HEMET SC WINCHESTER	926-1547	3
28800	BILES KATHRYN	926-3655	+5
28850	WINCHESTER STCK FRM	926-2969	4
28975	GATES THOS	926-3398	0
30093	VANHORN WAYNE	926-2544	+5
	VANHORNS MACH WORKS	926-2404	1
30880	CUPP VICTOR	926-9333	4
31851	DOMENIGONI ANDY	926-1763	1
32983	XXXX	00	
33187	XXXX	00	
33365	XXXX	00	
33890	BOX E C	926-3927	0
33900	HOMAN CECIL	926-2576	1
34155	MULLIGAN EUGENE	926-9146	4
	MULLIGAN EUGENE A	926-2865	1
34165	CORTEZ APOLONIO	926-3208	+5
*	10 BUS 24 RES	5 NEW	

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

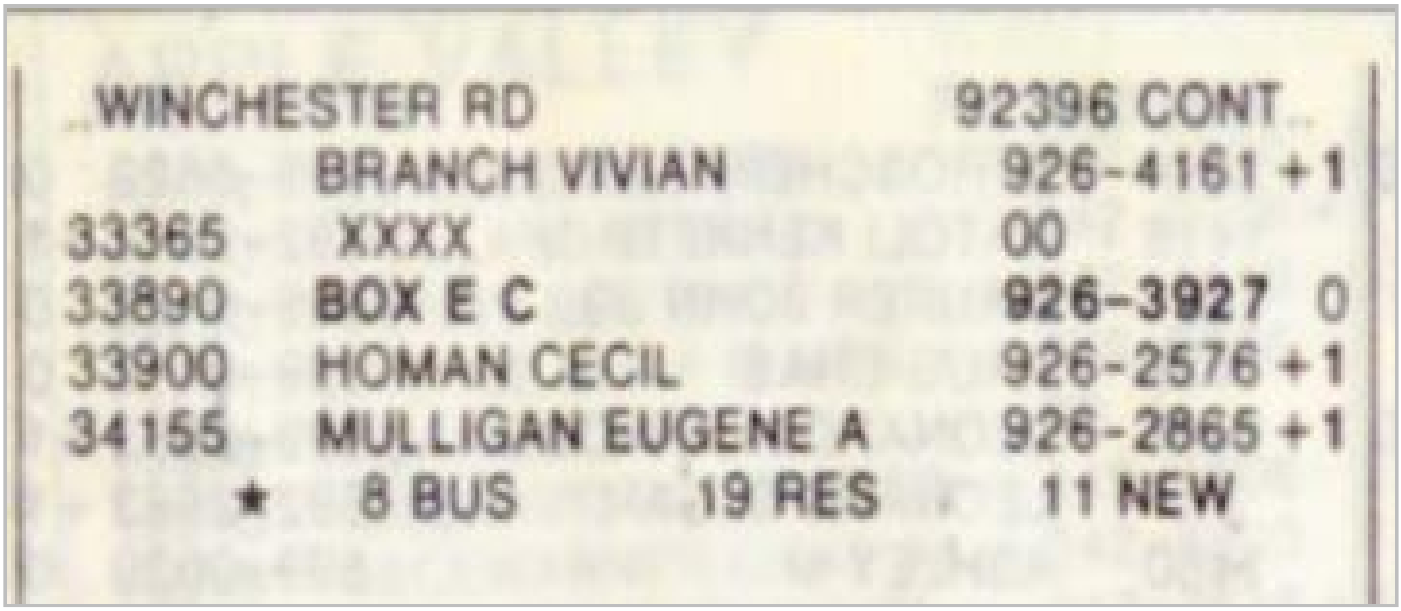
WINCHESTER RD 1981

WINCHESTER RD 92396
WINCHESTER

27055	HACKETT PHIL	926-4360 +1
28090	LOWE ROBERT	926-3929 +1
28091	XXXX	00
28275	FRICKER LARRY INC	926-1559
	LARRY FRICKER CO	926-1559
28314	WINCHESTER INN	926-9924
28316	VON EUW PAUL	926-3611
28349	HEROLD DENNYS	926-1061
28369	AUZENNES GARAGE DRS	926-1209
28401	XXXX	00
28453	XXXX	00
28481	BIDART A	926-2384
28532	XXXX	00
28535	WINCHESTER STORE	926-1682
28539	DONS PLACE	926-9990
28599	DORAN JESS E	926-1995
28604	HELMANS HONEY HSE	926-2746
28975	GATES JERRY C	926-3827 +1
	GATES THOS	926-3398
30093	VANHORN WAYNE	926-2404 +1
31851	DOMENIGONI ANDY	926-1763 +1
33187	ALLEN ALTA	926-4161 +1

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

WINCHESTER RD 1981



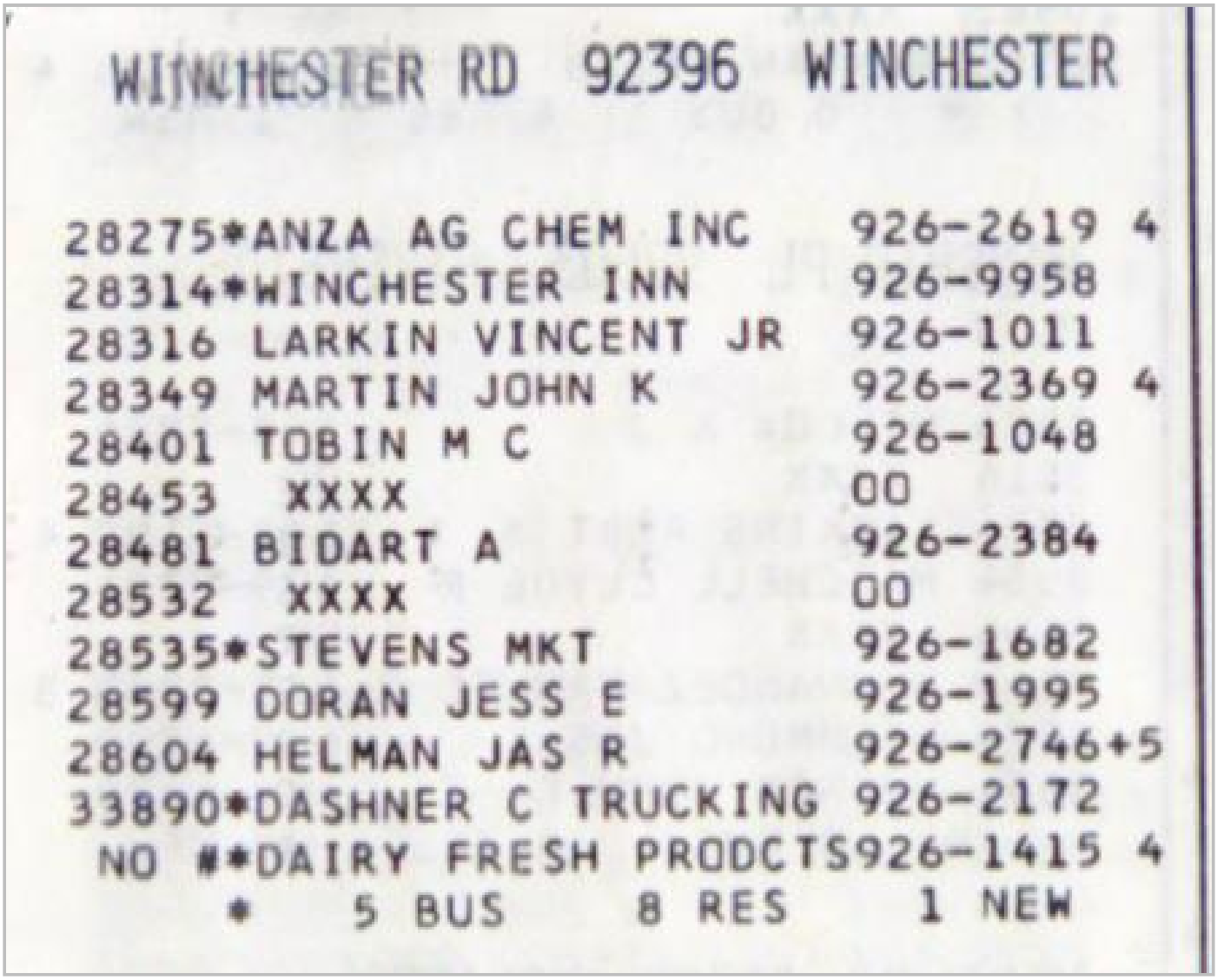
WINCHESTER RD 92396 CONT

	BRANCH VIVIAN	926-4161 +1
33365	XXXX	00
33890	BOX E C	926-3927 0
33900	HOMAN CECIL	926-2576 +1
34155	MULLIGAN EUGENE A	926-2865 +1

★ 8 BUS 19 RES 11 NEW

Target Street	Cross Street	Source
-	✓	Haines Criss-Cross Directory

WINCHESTER RD 1975



WINCHESTER RD 92396 WINCHESTER

28275	*ANZA AG CHEM INC	926-2619 4
28314	*WINCHESTER INN	926-9958
28316	LARKIN VINCENT JR	926-1011
28349	MARTIN JOHN K	926-2369 4
28401	TOBIN M C	926-1048
28453	XXXX	OO
28481	BIDART A	926-2384
28532	XXXX	OO
28535	*STEVENS MKT	926-1682
28599	DORAN JESS E	926-1995
28604	HELMAN JAS R	926-2746+5
33890	*DASHNER C TRUCKING	926-2172
NO #	*DAIRY FRESH PRODCTS	926-1415 4

* 5 BUS 8 RES 1 NEW

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APPENDIX F

WATER QUALITY MANAGEMENT PLAN

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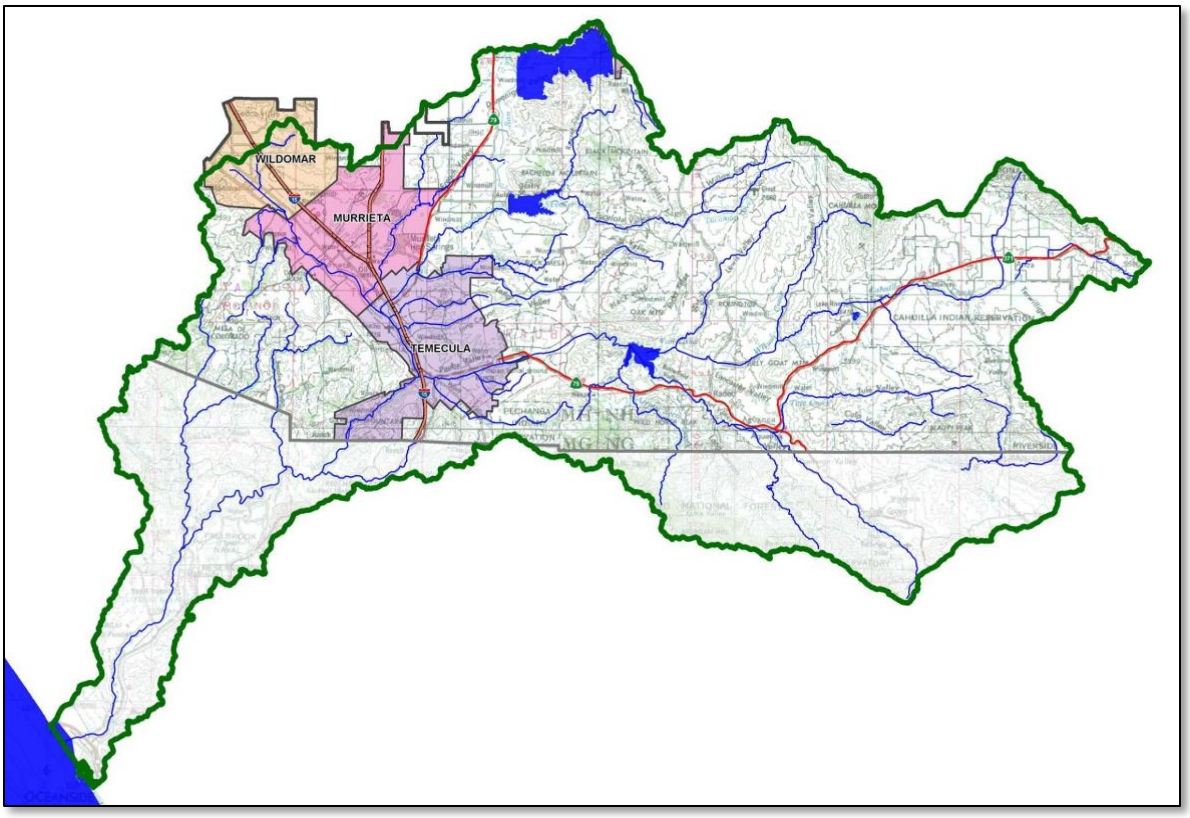
Project Specific Water Quality Management Plan

*A Template for preparing Project Specific WQMPs for Priority Development Projects located within the **Santa Margarita Region** of Riverside County*

Project Title: EDA-French Valley Library

Development No:

Design Review/Case No:



☒ **Preliminary**
Final

Original Date Prepared: 10/3/19

Revision Date(s):

Prepared for Compliance with
Regional Board Order No. **R9-2010-0016**

Contact Information:
Prepared for: Riverside County Economic Development Agency
3403 10th Street, Suite 400
Riverside, CA 92501
(951) 955-6686
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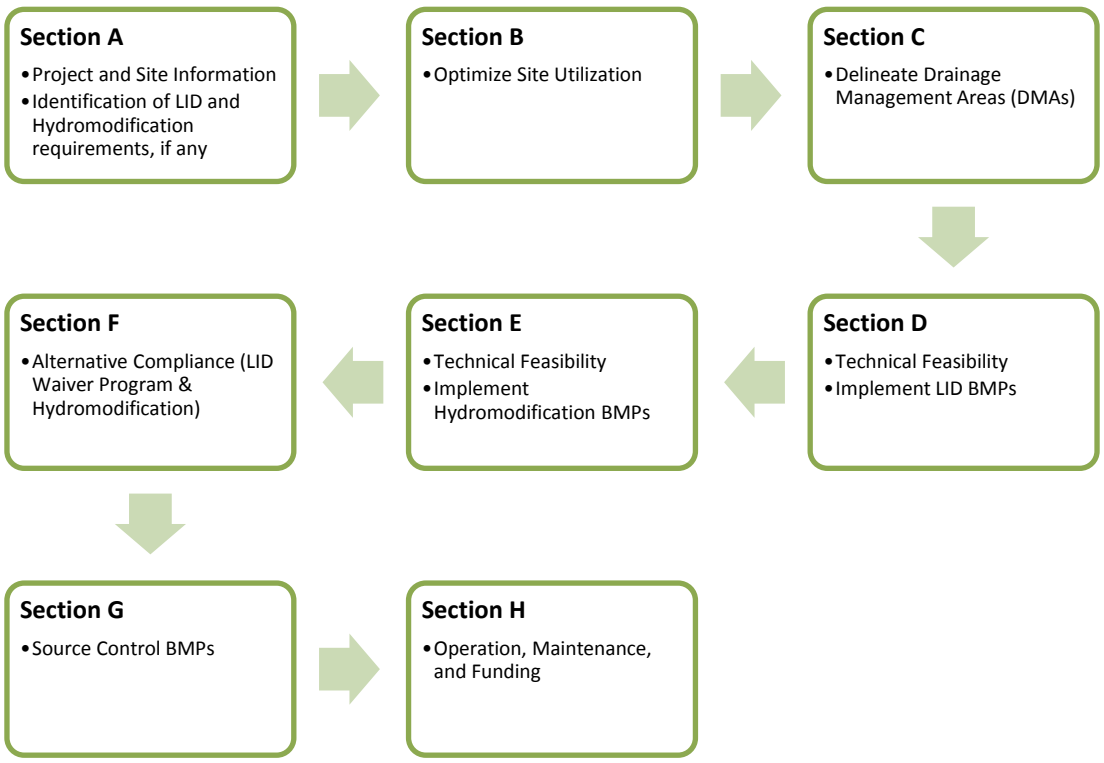
1350 East Chase Drive
Corona, CA 92881
(951) 372-8400

A Brief Introduction

The Municipal Separate Stormwater Sewer System (MS4) Permit[1] for the **Santa Margarita Region** (SMR) requires preparation of a Project-Specific Water Quality Management Plan (WQMP) for all Development Projects as defined in section F.1.d.(1) of the Permit. This Project-Specific WQMP Template for Development Projects in the **Santa Margarita Region** has been prepared to help document compliance and prepare a WQMP submittal. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



[1] Order No. R9-2010-0016, NPDES No. CAS0108766, Waste Discharge Requirements for Discharges from the MS4 Draining the County of Riverside, the Incorporated Cities of Riverside County, and the Riverside County Flood Control and Water Conservation District within the San Diego Region, California Regional Water Quality Control Board, November 10, 2010.

OWNER'S CERTIFICATION

This Project-Specific WQMP has been prepared for Riverside County Economic Development Agency by Armstrong & Brooks Consulting Engineers for the EDA-French Valley Library project.

This WQMP is intended to comply with the requirements of the County of Riverside for XII.D which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater Best Management Practices until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under Riverside County Water Quality Ordinance (Municipal Code Section XII.D).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control Best Management Practices in this plan meet the requirements of Regional Water Quality Control Board Order No. **R9-2010-0016** and any subsequent amendments thereto."

Preparer's Signature	Date
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

Table of Contents

List of Tables

List of Appendices

Section A: Project and Site Information

PROJECT INFORMATION			
Type of Project:	Public		
Planning Area:			
Community Name:	N/A		
Development Name:			
PROJECT LOCATION			
Latitude & Longitude (DMS): 33.609371, -117.107724			
Project Watershed and Sub-Watershed: Santa Margarita River			
APN(s): 480-160-021			
Map Book and Page No.: PM 224/91			
PROJECT CHARACTERISTICS			
Proposed or potential land use(s)	Public Facility - Library		
Proposed or Potential SIC Code(s)	8231		
Area of Impervious Project Footprint (SF)	81,000		
Total area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement	81,000		
Total Project Area (ac)	11.33		
Does the project consist of offsite road improvements?	☐ Y	☒ N	
Does the project propose to construct unpaved roads?	☐ Y	☒ N	
Is the project part of a larger common plan of development (phased project)?	☐ Y	☒ N	
Is the project exempt from HMP Performance Standards?	☐ Y	☒ N	
EXISTING SITE CHARACTERISTICS			
Total area of existing Impervious Surfaces within the project limits (SF)	0		
Is the project located within any Multi-Species Habitat Conservation Plan (MSHCP Criteria Cell?	☐ Y	☒ N	
If so, identify the Cell number:	N/A		
Are there any natural hydrologic features on the project site?	☐ Y	☒ N	
Is a Geotechnical Report attached?	☒ Y	☐ N	
If no Geotech. Report, list the Natural Resources Conservation Service (NRCS) soils type(s) present on the site (A, B, C and/or D)	N/A		
What is the Water Quality Design Storm Depth for the project?	0.54		

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the Project vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas (DMAs)
- Proposed Structural Best Management Practices (BMPs)
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces

- Drainage Path
- Drainage infrastructure, inlets, overflows
- Standard Labeling

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Copermittee plan reviewer must be able to easily analyze your Project utilizing this template and its associated site plans and maps.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the Receiving Waters that the Project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated Beneficial Uses, and proximity, if any, to a RARE Beneficial Use. Include a map of the Receiving Waters in Appendix 1. *(http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/)*

Table A.1 Identification of Receiving Waters

Receiving Waters	USEPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Warm Springs Creek	Chlorpyrifos, E. Coli, Fecal Coliform, Iron, Manganese, Phosphorus, Nitrogen	MUN, AGR, IND, PROC, REC2, WARM, WILD	N/A
Murrieta Creek	Chlorpyrifos, copper, Iron, Manganese, Phophorus, Nitrogen, toxicity	MUN, AGR, IND, PROC, REC2, WARM, WILD	N/A
Santa Margarita River	Phosphorus, toxicity	MUN, AGR, IND, REC1, REC2, WARM, COLD, WILD, RARE	9.6 miles

A.3 Drainage System Susceptibility to Hydromodification

Using Table A.2 below, list in order of the point of discharge at the project site down to the Santa Margarita River, each drainage system or receiving water that the project site is tributary to. Continue to fill each row with the material of the drainage system, the storm drain susceptibility using the SWCT2 (Stormwater & Water Conservation Tracking Tool - http://rivco.permitrack.com/) or Map 2 of the Hydromodification Susceptibility Documentation Report and Mapping: Santa Margarita Region (Appendix D of the SMR HMP), and the condition for exempting the drainage system, if applicable. If the exemption includes receiving waters that were not evaluated in Appendix D, provide supporting documentation in Appendix 7 to demonstrate that they classify as Engineered, Fully Hardened and Maintained (EFHM) channels, consistent with the definition provided in Appendix D. Include a map exhibiting each drainage system and the associated susceptibility in Appendix 1.

Table A.2 Identification of Susceptibility to Hydromodification

Drainage System	Drainage System Material	Susceptibility of Drainage System	Hydromodification Exemption
Warm Springs Creek	Earth	Potentially susceptible	Potentially Not Exempt
Murrieta Creek	Earth	Not susceptible (over 20,000 cfs)	Potentially Exempt
Santa Margarita River	Earth	Not susceptible (over 20,000 cfs)	Potentially Exempt

A.4 Additional Permits/Approvals required for the Project:

Table A.3 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☐ N
State Water Resources Control Board, Clean Water Act Section 401 Water Quality Certification	☐ Y	☐ N
US Army Corps of Engineers, Clean Water Act Section 404 Permit	☐ Y	☐ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☐ N
Statewide Construction General Permit Coverage	☐ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☐ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☐ N
Other *(please list in the space below as required)*	☐ Y	☐ N

If yes is answered to any of the questions above, the Copermittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for LID Bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your Low Impact Development (LID) design and explain your design decisions to others.

The 2010 SMR MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Yes, the existing site drains northeasterly towards the existing flood zone. The proposed site will continue to drain in that direction after runoff has been treated.

Did you identify and protect existing vegetation? If so, how? If not, why?

No, the existing project site is undeveloped and minimal vegetation.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Yes, the site is not expected to infiltrate, based on the hydrologic soil type.

Did you identify and minimize impervious area? If so, how? If not, why?

Yes, the site has been designed per regional standards to minimize imperviousness and maximize LID principles. The site will be graded so that runoff from paved areas will be conveyed toward earthen swales.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Yes, all runoff from the site will be conveyed towards proposed BMPs or landscaped areas.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your Project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or Identification	Surface Type(s)[1]	Area (Sq. Ft.)	DMA Type
DMA A	Mixed	80,939	Type D
DMA B	Mixed	14,968	Type A

[1] *Reference Table 2-1 in the WQMP Guidance Document to populate this column*

Table C.2 Type 'A', Self-Treating Areas

DMA Name or Identification	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
DMA B	14,968	Existing Landscaping	

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Runoff factor	Product		Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]	DMA name /ID	[D]	[C]/[D]

Note: (See Section 3.3 of WQMP Guidance Document) Ensure that partially pervious areas draining to a Self-Retaining area do not exceed the following ratio:

$$\left(\frac{2}{Impervious\ Fraction}\right) : 1$$

(Tributary Area**:** Self-Retaining Area)

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA A	BMP 1

Note: More than one DMA may drain to a single LID BMP; however, one DMA may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

An assessment of the feasibility of utilizing Infiltration BMPs is required for all projects, *except in the following case:*

☐ Harvest and Use BMPs will be implemented to address the Design Capture Volume (see the Harvest and Use Assessment below) for all Drainage Management Areas AND the project is exempt from HMP Performance Standards (*Proceed to Section D.2 and Section E*).

If the above box remains unchecked, perform a site-specific evaluation of the feasibility of Infiltration BMPs using each of the applicable criteria identified in Chapter 3.4.1 of the WQMP Guidance Document and complete the remainder of Section D.1.

Is there an infiltration concern (see discussion in Chapter 2.3.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, both Infiltration BMPs and Hydrologic Control BMPs that include an infiltration functionalities may not be feasible for the site. It is recommended that you contact your Copermittee to verify whether or not infiltration within the Project is infeasible.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Copermittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.3.4. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: DMA A		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final		X

infiltration surface?		
If Yes, list affected DMAs:		
…have any contaminated groundwater plume in the vicinity of the site?		X
If Yes, list affected DMAs:		
…geotechnical report identifies other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the Project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume (DCV) will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the DCV will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If neither of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 0.36 acres

Type of Landscaping (Conservation Design or Active Turf): Conservation Design

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 1.86 acres

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-4 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 0.72

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: 1.34 acres

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
1.34 acres	0.36 acres

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: 30

Project Type: Schools

Step 2: Identify the planned total of all impervious areas on the proposed Project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the Project site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 1.86 acres

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-3 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 28

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 52

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the Project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
52	30

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the Wet Season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: Projected Average Daily Use (gpd)

Step 2: Identify the planned total of all impervious areas on the proposed Project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the Project site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: Insert Area (Acres)

Step 3: Enter the Design Storm Depth for the Project site (see Exhibit A) into the left column of Table 2-5 in Chapter 2 to determine the minimum demand for non-potable uses of stormwater runoff per tributary impervious acre.

Enter the factor from Table 2-3: Enter Value

Step 4: Multiply the unit value obtained from Step 4 by the total of impervious areas from Step 3 to develop the minimum gpd of non-potable use that would be required.

Minimum required use: Minimum use required (gpd)

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the Project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
Minimum use required (gpd)	Projected Average Daily Use (gpd)

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment BMPs, unless a site-specific analysis has been completed that demonstrates technical infeasibility as noted in D.3 below.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.3 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the Project as noted below in Section D.4

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee with jurisdiction over the Project site to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Other Limiting Geotechnical Conditions

Onsite retention may not be feasible due to specific geotechnical concerns identified in the Geotechnical Report. If any, describe below. If no, write N/A:

N/A

Table D.2 Geotechnical Concerns for Onsite Retention Table

Type of Geotechnical Concern	DMAs Feasible (By Name or ID)	DMAs Infeasible (By Name or ID)
Collapsible Soil		
Expansive Soil		
Slopes		
Liquefaction		
Other		

D.5 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.3 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.3 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA A	☐	☐	☒	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

N/A

D.6 LID BMP Sizing

Each LID BMP must be designed to ensure that the DCV will be addressed by the selected BMPs. First, calculate the DCV for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee with jurisdiction over the Project site. Utilize the worksheets found in the LID BMP Design Handbook or consult with the Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.4 below to document the DCV and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.4 DCV Calculations for LID BMPs

DMA Type/ID	DMA (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*BMP 1*		
	[A]		[B]	[C]	[A] x [C]			
DMA A	*76,876*	*Paved*	*1*	*0.9*	*69,188*	*Design Storm Depth (in)*	*DCV, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	4,063	*Natural (C Soil)*	*0.3*	*0.9*	*3,657*			
	A_T = 80,939				Σ= 72,845	0.54	3,278	3,300

[B], [C] is obtained as described in Section 2.5 of the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Each LID BMP must be designed to ensure that the Design Capture Volume (DCV) will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the 'V_{BMP}' worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee. Complete Table D.5 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. You can add rows to the table as needed. Alternatively, the Santa Margarita Hydrology Model (SMRHM) can be used to size LID BMPs to address the DCV and, if applicable, to size Hydrologic Control BMPs to meet the Hydrologic Performance Standard of the SMR HMP, as identified in Section E.

Table D.5 LID BMP Sizing

BMP Name / ID	DMA No.	BMP Type / Description	Design Capture Volume (ft^3)	Proposed Volume (ft^3)
BMP 1	DMA A	Bioretention BMP	3,278	3,300

Section E: Implement Hydrologic Control BMPs and Sediment Supply BMPs

If a completed Table A.2 demonstrates that the project is exempt from HMP Performance Standards, specify N/A of proceed to Section F, if applicable, and Section G.

E.1 Onsite Feasibility of Hydrologic Control BMPs

An assessment of the feasibility of implementing onsite Hydrologic Control BMPs is required for all projects.

Select one of the following:

☒ Yes – The implementation of Hydrologic Control BMPs is feasible onsite. *(Proceed to Step E.3 and Step E.4)*

- *Or* -

☐ No – The project site is larger than one acre and the implementation of Hydrologic Control BMPs is not feasible onsite. *(Proceed to Step E.5 and Step F for Alternative Compliance upon approval of the Technical Feasibility Assessment by the Copermittee)*

☐ No – The project site is smaller than one acre and the implementation of Hydrologic Control BMPs is not feasible onsite. *(Proceed to Step E.2)*

If the reasons for infeasibility are different from those listed in Section D.1, describe the technical or spatial reasons that preclude the implementation of onsite Hydrologic Control BMPs. If none, write N/A:

N/A

Approval of the condition for infeasibility, if any, is required by the Copermittee. Has the condition for infeasibility been approved by the Copermittee?

☐ Y ☐ N ☒ N/A

E.2 Meeting the HMP Performance Standard for Small Project Sites

Select one of the following:

☐ Yes – The project site is equal to or larger than one acre. *(Proceed to Step E.3, Step E.4, and Step E.5)*

- *Or* -

☐ No – The project site is less than one acre. *(Follow the remainder of Step E.2)*

Only a Simplified Technical Feasibility Study is required from the applicant. Complete the Simplified Technical Feasibility Study in Appendix 7, which must include, at a minimum, the soil conditions at the PDP, a demonstration of the lack of available space for onsite Hydrologic Control BMPs, an explanation of prohibitive costs to implement Hydrologic Control BMPs, and a written opinion from a Registered Geotechnical Engineer identifying the infeasibility due to geotechnical concerns.

Select one of the following:

☐ Yes – Onsite Hydrologic Control BMPs are feasible. *(Proceed to Step E., Step E.4, and Step E.5)*

- *Or* -

☐ No – Onsite Hydrologic Control BMPs are not feasible per the Simplified Technical Feasibility Study. *(Proceed to Section E.5 for Sediment Supply Performance Standard and Section F for Alternative Compliance)*

E.3 Hydrologic Control BMP Selection

Capture of the DCV and achievement of the Hydrologic Performance Standard may be met by combined and/or separate structural BMPs. Similarly, compliance with the two identified requirements may be fully or partially achieved onsite.

For each DMA, identify in Table E.1 if the DCV is fully or partially captured onsite, if the Hydrologic Performance Standard is fully or partially met onsite (by using the SMRHM identified in Step E.4), and if structural BMPs for compliance with the LID requirement and the Hydrologic Performance Standard are combined.

Table E.1 LID & Hydromodification BMP Location

DMA	LID BMP	Hydrologic Control BMP	Combined BMP	BMP type and ID
A	☒ Onsite ☐ Partially Onsite ☐ Offsite ☐ None Required	☒ Onsite ☐ Partially Onsite ☐ Offsite ☐ None Required	☒ Yes ☐ No	BMP 1 will capture all runoff from DMA A and release it at a rate similar to existing conditions.
	☐ Onsite ☐ Partially Onsite	☐ Onsite ☐ Partially Onsite	☐ Yes ☐ No	Identify the ID and type of Hydrologic Control BMP to mitigate 2nd DMA

	☐ Offsite ☐ None Required	☐ Offsite ☐ None Required		
	☐ Onsite ☐ Partially Onsite ☐ Offsite ☐ None Required	☐ Onsite ☐ Partially Onsite ☐ Offsite ☐ None Required	☐ Yes ☐ No	Identify the ID and type of Hydrologic Control BMP to mitigate 3rd DMA

For each DMA provide a narrative describing if the DCV and the Hydrologic Performance Standard are to be fully managed onsite. If not, the narrative should detail how and where offsite structural BMPs will achieve management of the DCV and the Hydrologic Performance Standard.

DMA A – Runoff from DMA A will be captured by a bioretention facility, BMP 1, and released at a rate similar to the existing conditions.

Hydrologic Control BMP Sizing

Each Hydrologic Control BMP must be designed to ensure that the flow duration curve of the post-development DMA will not exceed that of the pre-existing, naturally occurring, DMA by more than ten percent over a one-year period. Using SMRHM, the applicant shall demonstrate that the performance of each designed Hydrologic Control BMP complies with the Hydrologic Performance Standard. Complete Table E.2 below and identify, for each DMA, the type of Hydrologic Control BMP, if the SMRHM model confirmed the management (Identified as "passed" in SMRHM), the total volume capacity of the Hydrologic Control BMP, the Hydrologic Control BMP footprint at top floor elevation, and the drawdown time of the Hydrologic Control BMP. SMRHM summary reports should be documented in Appendix 7. Refer to the SMRHM Guidance Document for additional information on SMRHM. You can add rows to the table as needed.

Table E.2 Hydrologic Control BMP Sizing

BMP Name / ID	DMA No.	BMP Type / Description	SMRHM Passed	BMP Volume (ac-ft)	BMP Footprint (ac)	Drawdown time (hr)
BMP 1	DMA A	Bioretention Basin	☒	0.21	0.069	26 hr
			☐			
			☐			
			☐			

E.4 Implement Sediment Supply BMPs

The applicant may refer to Section 2.3 of the SMR HMP for a comprehensive description of the methodology to meet the Sediment Supply Performance Standard. Complete the following steps to determine compliance with the Sediment Supply Performance Standard:

Step 1: Identify if the site is a Significant Source of Bed Sediment Supply to the receiving channel

☐ Step 1.A – Is the Bed Sediment of onsite streams similar to that of receiving streams?

Rate the similarity:
- ☐ High
- ☒ Medium
- ☐ Low

Results from the geotechnical and sieve analysis to be performed both onsite and in the receiving channel should be documented in Appendix 7. Of particular interest, the results of the sieve analysis, the soil erodibility factor, a description of the topographic relief of the project area, and the lithology of onsite soils should be reported in Appendix 7.

☐ Step 1.B – Are onsite streams capable of delivering Bed Sediment Supply from the site, if any, to the receiving channel?

Rate the potential:
- ☐ High
- ☒ Medium
- ☐ Low

Results from the analyses of the sediment delivery potential to the receiving channel should be documented in Appendix 7 and identify, at a minimum, the Sediment Source, the distance to the receiving channel, the onsite channel density, the project watershed area, the slope, length, land use, and rainfall intensity.

☐ Step 1.C – Will the receiving channel adversely respond to a change in Bed Sediment Load?

Rate the need for bed sediment supply:
- ☐ High
- ☐ Medium
- ☒ Low

Results from the in-stream analysis to be performed both onsite should be documented in Appendix 7. The analysis should, at a minimum, quantify the bank stability and the degree of incision, provide a gradation of the Bed Sediment within the receiving channel, and identify if the channel is sediment supply-limited.

☐ Step 1.D – Summary of Step 1

Summarize in Table E.3 the findings of Step 1 and associate a score (in parenthesis) to each step. The sum of the three individual scores determines if a stream is a significant contributor to the receiving stream.

- Sum is equal to or greater than eight - Site is a significant source of sediment bed material – all on-site streams must be preserved or by-passed within the site plan. The applicant shall proceed to Step 2 for all onsite streams.
- Sum is greater than five but lower than eight. Site is a source of sediment bed material – some of the on-site streams must be preserved (with identified streams noted). The applicant shall proceed to Step 2 for the identified streams only.
- Sum is equal to or lower than five. Site is not a significant source of sediment bed material. The applicant may advance to Section F.

Table E.3 Triad Assessment Summary

Step	**Rating**			**Total Score**
1.A	☐ High (3)	☒ Medium (2)	☐ Low (1)	2
1.B	☐ High (3)	☒ Medium (2)	☐ Low (1)	2
1.C	☐ High (3)	☐ Medium (2)	☒ Low (1)	1
Significant Source Rating of Bed Sediment to the receiving channel(s)				5

Step 2: Preservation of Identified Onsite Channels

Onsite streams identified as a Significant Source of Bed Sediment should be avoided in the site design.

Check one of the following:

☒ The site design does avoid all onsite channels identified as a Significant Source of Bed Sediment *(The applicant may disregard subsequent steps of Section E.5 and directly advance directly to Section F.*)

- *Or* -

☐ The site design **does NOT avoid** all onsite channels identified as a Significant Source of Bed Sediment *(The applicant may proceed with the subsequent steps of Section E.5).*

Provide in Appendix 7 a site map that identifies all onsite channels and highlights those onsite channels that were identified as a Significant Source of Bed Sediment. The site map shall demonstrate, if feasible, that the site design avoids those onsite channels identified as a Significant Source of Bed Sediment. In addition, the applicant shall describe the characteristics of each onsite channel identified as a Significant Source of Bed Sediment. If the design plan cannot avoid the onsite channels, please provide a rationale for each channel individually.

Identified Channel #1 - Insert narrative description here

Identified Channel #2 - Insert narrative description here

Identified Channel #3 - Insert narrative description here

Step 3: By-Pass of Upstream Drainage(s) to Preserve the discharge of Bed Sediment Supply to the receiving channel(s)

Onsite channels identified as a Significant Source of Bed Sediment Supply should be by-passed the discharge of Bed Sediment Supply to the receiving channel(s).

Check one of the following:

☐ The site design does avoid and/or bypass all onsite channels identified as a source of Bed Sediment Supply *(The applicant may directly advance to Section F.*)

- *Or* -

☐ The site design **does NOT avoid or by-pass** all onsite channels identified as a source of Bed Sediment Supply *(The applicant may proceed to an Alternative Approach, as defined in Section F).*

Provide in Appendix 7 a site map that identifies all onsite channels and highlights those onsite channels that were identified as a Significant Source of Bed Sediment Supply. The site map shall demonstrate, if feasible, that the site design avoids or by-passes those onsite channels of significant Bed Sediment Supply to the receiving channel(s). In addition, the applicant shall describe the characteristics of each onsite channel identified as a Significant Source of Bed Sediment Supply. If the design plan cannot avoid or by-pass the onsite channels, please provide a rationale for each channel individually.

Identified Channel #1 - Insert narrative description here

Identified Channel #2 - Insert narrative description here

Identified Channel #3 - Insert narrative description here

Section F: Alternative Compliance

LID BMPs and Hydrologic Control BMPs are expected to be feasible on virtually all projects. Where LID BMPs and/or Hydrologic Control BMPs have been demonstrated to be infeasible as documented in Section D and/or Section E, respectively, other Treatment Control BMPs or alternative compliance approaches must be used (subject LID waiver and/or HMP alternative compliance approval by the Copermittee).

In addition, if supporting documentation demonstrates the infeasibility to implement Sediment Supply BMPs onsite (See Section E.5), the applicant may refer to Section F.5.

Check one of the following boxes:

☒ LID Principles, LID BMPs, Hydrologic Control BMPs, and Sediment Supply BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ LID Principles and LID BMPs have NOT been incorporated into the site design to fully address the LID requirements for all Drainage Management Areas AND HMP Performance Standards are not fully addressed in the following Drainage Management Areas.

- The following Drainage Management Areas are unable to be addressed using LID BMPs. A site specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Copermittee and included in Appendix 5. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated. The applicant should complete Section F.1, Section F.2, and Section F.3, as applicable.
- A site specific analysis demonstrating technical infeasibility of Hydrologic Control BMPs and Sediment Supply BMPs has been approved by the Copermittee and included in Appendix 7. Projects less than one acre have completed the Simplified Technical Feasibility Study. The applicant should complete Section F.5 and/or Section F.6, as applicable.

List DMAs Here.

- Or -

☐ LID Principles and LID BMPs have been incorporated into the site design to fully address the DCV for all Drainage Management Areas. However, HMP Performance Standards are not fully addressed in the following Drainage Management Areas. A site specific analysis demonstrating technical infeasibility of Hydrologic Control BMPs and Sediment Supply BMPs has been approved by the Copermittee and included in Appendix 7. Projects less than one acre have completed the Simplified Technical Feasibility. The applicant should complete Section F.5 and/or Section F.6, as applicable.

List DMAs Here.

F.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's Receiving Waters and their associated USEPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table F.1 below. If the identified General Pollutant Categories are the same as those listed for your Receiving Waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table F.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☐ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☒ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☒	☒	☐	☐	☐	☐	☐

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

F.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement Smart Growth Principles are potentially eligible for Stormwater Credits. Utilize Table 3-7 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

N/A

Table F.2 Stormwater Credits

Qualifying Project Categories	Credit Percentage[2]
Total Credit Percentage[1]	

[1] *Cannot Exceed 50%*
[2] *Obtain corresponding data from Table 3-7 in the WQMP Guidance Document*

F.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your Project, utilize Table F.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.5 of the WQMP Guidance Document for further information.

Table F.3 Treatment Control BMP Sizing

DMA Type/ID	DMA (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA x Runoff Factor		*Enter BMP Name / Identifier Here*		
	[A]		[B]	[C]	[A] x [C]				
						Design Storm Depth (in)	*Minimum DCV or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T = Σ[A]				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.5 from the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Stormwater Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

F.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential Pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table F.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
BMP 1	Bacteria, Metals, Nutrients	H, H, M

[1] *Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.*
[2] *Cross Reference Table E.1 above to populate this column.*
[3] *As documented in a Copermittee Approved Study and provided in Appendix 6.*

F.5 Hydrologic Performance Standard – Alternative Compliance Approach

Alternative compliance options are only available if the governing Copermittee has acknowledged the infeasibility of onsite Hydrologic Control BMPs and approved an alternative compliance approach. Attach to Appendix 7 the Technical Feasibility Study (Projects equal or greater than one acre) or Simplified Technical Feasibility Study (Projects less than one acre) along with a written approval from the Copermittee. The applicant may refer to Section 2.2.iv of the SMR HMP for extensive guidelines on the alternative compliance approach.

Select the pursued alternative and describe the specifics of the alternative:

☐ Offsite Hydrologic Control Management within the same channel system

Insert narrative description here

☐ In-Stream Restoration Project

Insert narrative description here

For Offsite Hydrologic Control BMP Option

Each Hydrologic Control BMP must be designed to ensure that the flow duration curve of the post-development DMA will not exceed that of the pre-existing, naturally occurring, DMA by more than ten percent over a one-year period. Using SMRHM, the applicant shall demonstrate that the performance of each designed Hydrologic Control BMP is equivalent with the Hydrologic Performance Standard for

onsite conditions. Complete Table F.4 below and identify, for each Hydrologic Control BMP, the equivalent DMA the Hydrologic Control BMP mitigates, that the SMRHM model passed, the total volume capacity of the BMP, the BMP footprint at top floor elevation, and the drawdown time of the BMP. SMRHM summary reports for the alternative approach should be documented in Appendix 7. Refer to the SMRHM Guidance Document for additional information on SMRHM. You can add rows to the table as needed.

Table F.5 Offsite Hydrologic Control BMP Sizing

BMP Name / Type	Equivalent DMA (ac)	SMRHM Passed	BMP Volume (ac-ft)	BMP Footprint (ac)	Drawdown time (hr)
		☐			
		☐			
		☐			
		☐			

For Instream Restoration Option

Attach to Appendix 7 the technical report detailing the condition of the receiving channel subject to the proposed hydrologic and sediment regimes. Provide the full design plans for the in-stream restoration project that have been approved by the Copermittee.

F.6 Sediment Supply Performance Standard - Alternative Compliance

The alternative compliance option to the Sediment Supply Performance Standard is only available if the governing Copermittee has approved the investigation of alternative Bed Sediment Supply options. Attach to Appendix 7 the Technical Feasibility Study, along with the modeling analysis, the long-term monitoring program, and the potential corrective actions, that demonstrate the performance of the overall alternative compliance program. The applicant may refer to Section 2.3.ii of the SMR HMP for extensive guidelines on the alternative compliance approach.

Provide a narrative describing the alternative Bed Sediment Supply approach, including the long-term monitoring program and the findings of the numerical modeling.

Insert narrative description here

Section G: Source Control BMPs

Source Control BMPs include permanent, structural features that may be required in your Project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The Maximum Extent Practicable (MEP) standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective structural BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. ***Identify Pollutant Sources*:** Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. ***Note Locations on Project-Specific WQMP Exhibit*:** Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. ***Prepare a Table and Narrative*:** Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. ***Identify Operational Source Control BMPs:*** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Structural and Operational Source Control BMP

Potential Sources of Runoff Pollutants	Structural Source Control BMPs	Operational Source Control BMPs
On-site storm drain inlets	Mark all inlets with the words "Only Rain Down the Storm Drain" or similar.	Drainage System Maintenance (SC-44)
Landscaping/Outdoor Pesticide Use	Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to	Building and Grounds Maintenance (SC-41), Landscape Maintenance (SC-73) Maintain landscaping using minimum or no pesticides.

	stormwater pollution. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	
Refuse Areas	State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	Building and Grounds Maintenance (SC-41), Parking and storage area maintenance (SC-43)
Roofing, gutters, and trim	Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	
Plazas, sidewalks, and parking lots.		Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)
BMP1	Bioretention Basin	CGP

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. The Copermittee with jurisdiction over the Project site can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Section I: Operation, Maintenance and Funding

The Copermittee with jurisdiction over the Project site will periodically verify that BMPs on your Project are maintained and continue to operate as designed. To make this possible, the Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement maintenance of BMPs in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized Operations and Maintenance or inspections but will require typical landscape maintenance as noted in Chapter 5, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

The Copermittee with jurisdiction over the Project site will also require that you prepare and submit a detailed BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: Owner-maintained

Will the proposed BMPs be maintained by a Homeowners' Association (HOA) or Property Owners Association (POA)?

☐ Y ☒ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Acronyms, Abbreviations and Definitions

2010 SMR MS4 Permit	Order No. R9-2010-0016, an NPDES Permit issued by the San Diego Regional Water Quality Control Board.
Applicant	Public or private entity seeking the discretionary approval of new or replaced improvements from the Copermittee with jurisdiction over the project site. The Applicant has overall responsibility for the implementation and the approval of a Priority Development Project. The WQMP uses consistently the term "user" to refer to the applicant such as developer or project proponent. The WQMP employs also the designation "user" to identify the Registered Professional Civil Engineer responsible for submitting the Project-Specific WQMP, and designing the required BMPs.
Best Management Practice (BMP)	Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.
BMP Fact Sheets	BMP Fact Sheets are available in the LID BMP Design Handbook. Individual BMP Fact Sheets include sitting considerations, and design and sizing guidelines for seven types of structural BMPs (infiltration basin, infiltration trench, permeable pavement, harvest-and-use, bioretention, extended detention basin, and sand filter).
California Stormwater Quality Association (CASQA)	Publisher of the California Stormwater Best Management Practices Handbooks, available at www.cabmphandbooks.com.
Conventional Treatment Control BMP	A type of BMP that provides treatment of stormwater runoff. Conventional treatment control BMPs, while designed to treat particular Pollutants, typically do not provide the same level of volume reduction as LID BMPs, and commonly require more specialized maintenance than LID BMPs. As such, the 2010 SMR MS4 Permit and this WQMP require the use of LID BMPs wherever feasible, before Conventional Treatment BMPs can be considered or implemented.
Copermittees	The 2010 SMR MS4 Permit identifies the Cities of Murrieta, Temecula, and Wildomar, the County, and the District, as Copermittees for the SMR.
County	The abbreviation refers to the County of Riverside in this document.
CEQA	California Environmental Quality Act - a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

CIMIS	California Irrigation Management Information System - an integrated network of 118 automated active weather stations all over California managed by the California Department of Water Resources.
CWA	Clean Water Act - is the primary federal law governing water pollution. Passed in 1972, the CWA established the goals of eliminating releases of high amounts of toxic substances into water, eliminating additional water pollution by 1985, and ensuring that surface waters would meet standards necessary for human sports and recreation by 1983. CWA Section 402(p) is the federal statute requiring NPDES permits for discharges from MS4s.
CWA Section 303(d) Waterbody	Impaired water in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of urban runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.
Design Storm	The 2010 SMR MS4 Permit has established the 85th percentile, 24-hour storm event as the "Design Storm". The applicant may refer to Exhibit A to identify the applicable Design Storm Depth (D85) to the project.
DCV	Design Capture Volume (DCV) is the volume of runoff produced from the Design Storm to be mitigated through LID Retention BMPs, Other LID BMPs and Volume Based Conventional Treatment BMPs, as appropriate.
Design Flow Rate	The design flow rate represents the minimum flow rate capacity that flow-based conventional treatment control BMPs should treat to the MEP, when considered.
DCIA	Directly Connected Impervious Areas - those impervious areas that are hydraulically connected to the MS4 (i.e. street curbs, catch basins, storm drains, etc.) and thence to the structural BMP without flowing over pervious areas.
Discretionary Approval	A decision in which a Copermittee uses its judgment in deciding whether and how to carry out or approve a project.
District	Riverside County Flood Control and Water Conservation District.
DMA	A Drainage Management Area - a delineated portion of a project site that is hydraulically connected to a common structural BMP or conveyance point. The Applicant may refer to Section 3.3 for further guidelines on how to delineate DMAs.
Drawdown Time	Refers to the amount of time the design volume takes to pass through the BMP. The specified or incorporated drawdown times are to ensure that adequate contact or detention time has occurred for treatment, while not creating vector or other nuisance issues. It is important to abide by the drawdown time requirements stated in the fact sheet for each specific BMP.

Effective Area	Area which 1) is suitable for a BMP (for example, if infiltration is potentially feasible for the site based on infeasibility criteria, infiltration must be allowed over this area) and 2) receives runoff from impervious areas.
ESA	An Environmental Sensitive Area (ESA) designates an area "in which plants or animals life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments". (Reference: California Public Resources Code § 30107.5).
ET	Evapotranspiration (ET) is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is also an indicator of how much water crops, lawn, garden, and trees need for healthy growth and productivity
FAR	The Floor Area Ratio (FAR) is the total square feet of a building divided by the total square feet of the lot the building is located on.
Flow-Based BMP	Flow-based BMPs are conventional treatment control BMPs that are sized to treat the design flow rate.
FPPP	Facility Pollution Prevention Plan
HCOC	Hydrologic Condition of Concern - Exists when the alteration of a site's hydrologic regime caused by development would cause significant impacts on downstream channels and aquatic habitats, alone or in conjunction with impacts of other projects.
HMP	Hydromodification Management Plan – Plan defining Performance Standards for PDPs to manage increases in runoff discharge rates and durations.
Hydrologic Control BMP	BMP to mitigate the increases in runoff discharge rates and durations and meet the Performance Standards set forth in the HMP.
HSG	Hydrologic Soil Groups – soil classification to indicate the minimum rate of infiltration obtained for bare soil after prolonged wetting. The HSGs are A (very low runoff potential/high infiltration rate), B, C, and D (high runoff potential/very low infiltration rate)
Hydromodification	The 2010 SMR MS4 Permit identifies that increased volume, velocity, frequency and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses.
JRMP	A separate Jurisdictional Runoff Management Plan (JRMP) has been developed by each Copermittee and identifies the local programs and activities that the Copermittee is implementing to meet the 2010 SMR MS4 Permit requirements.

LID	Low Impact Development (LID) is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of storm water runoff.
LID BMP	A type of stormwater BMP that is based upon Low Impact Development concepts. LID BMPs not only provide highly effective treatment of stormwater runoff, but also yield potentially significant reductions in runoff volume – helping to mimic the pre-project hydrologic regime, and also require less ongoing maintenance than Treatment Control BMPs. The applicant may refer to Chapter 2.
LID BMP Design Handbook	The LID BMP Design Handbook was developed by the Copermittees to provide guidance for the planning, design and maintenance of LID BMPs which may be used to mitigate the water quality impacts of PDPs within the County.
LID Bioretention BMP	LID Bioretention BMPs are bioretention areas are vegetated (i.e., landscaped) shallow depressions that provide storage, infiltration, and evapotranspiration, and provide for pollutant removal (e.g., filtration, adsorption, nutrient uptake) by filtering stormwater through the vegetation and soils. In bioretention areas, pore spaces and organic material in the soils help to retain water in the form of soil moisture and to promote the adsorption of pollutants (e.g., dissolved metals and petroleum hydrocarbons) into the soil matrix. Plants use soil moisture and promote the drying of the soil through transpiration. The 2010 SMR MS4 Permit defines "retain" as to keep or hold in a particular place, condition, or position without discharge to surface waters.
LID Biotreatment BMP	BMPs that reduce stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration, and other biological and chemical processes. As stormwater passes down through the planting soil, pollutants are filtered, adsorbed, biodegraded, and sequestered by the soil and plants, and collected through an underdrain.
LID Harvest and Reuse BMP	BMPs used to facilitate capturing Stormwater Runoff for later use without negatively impacting downstream water rights or other Beneficial Uses.
LID Infiltration BMP	BMPs to reduce stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Typical LID Infiltration BMPs include infiltration basins, infiltration trenches and pervious pavements.
LID Retention BMP	BMPs to ensure full onsite retention without runoff of the DCV such as infiltration basins, bioretention, chambers, trenches, permeable pavement and pavers, harvest and reuse.

LID Principles	Site design concepts that prevent or minimize the causes (or drivers) of post-construction impacts, and help mimic the pre-development hydrologic regime.
MEP	Maximum Extent Practicable - standard established by the 1987 amendments to the CWA for the reduction of Pollutant discharges from MS4s. Refer to Attachment C of the 2010 SMR MS4 Permit for a complete definition of MEP.
MF	Multi-family – zoning classification for parcels having 2 or more living residential units.
MS4	Municipal Separate Storm Sewer System (MS4) is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.
New Development Project	Defined by the 2010 MS4 permit as 'Priority Development Projects' if the project, or a component of the project meets the categories and thresholds described in Section 1.1.1.
NPDES	National Pollution Discharge Elimination System - Federal program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project - Includes New Development and Redevelopment project categories listed in Section F.1.d(2) of Order No. R9-2009-0002.
Priority Pollutants of Concern	Pollutants expected to be present on the project site and for which a downstream water body is also listed as Impaired under the CWA Section 303(d) list or by a TMDL.
Project-Specific WQMP	A plan specifying and documenting permanent LID Principles and Stormwater BMPs to control post-construction Pollutants and stormwater runoff for the life of the PDP, and the plans for operation and maintenance of those BMPs for the life of the project.
Receiving Waters	Waters of the United States.

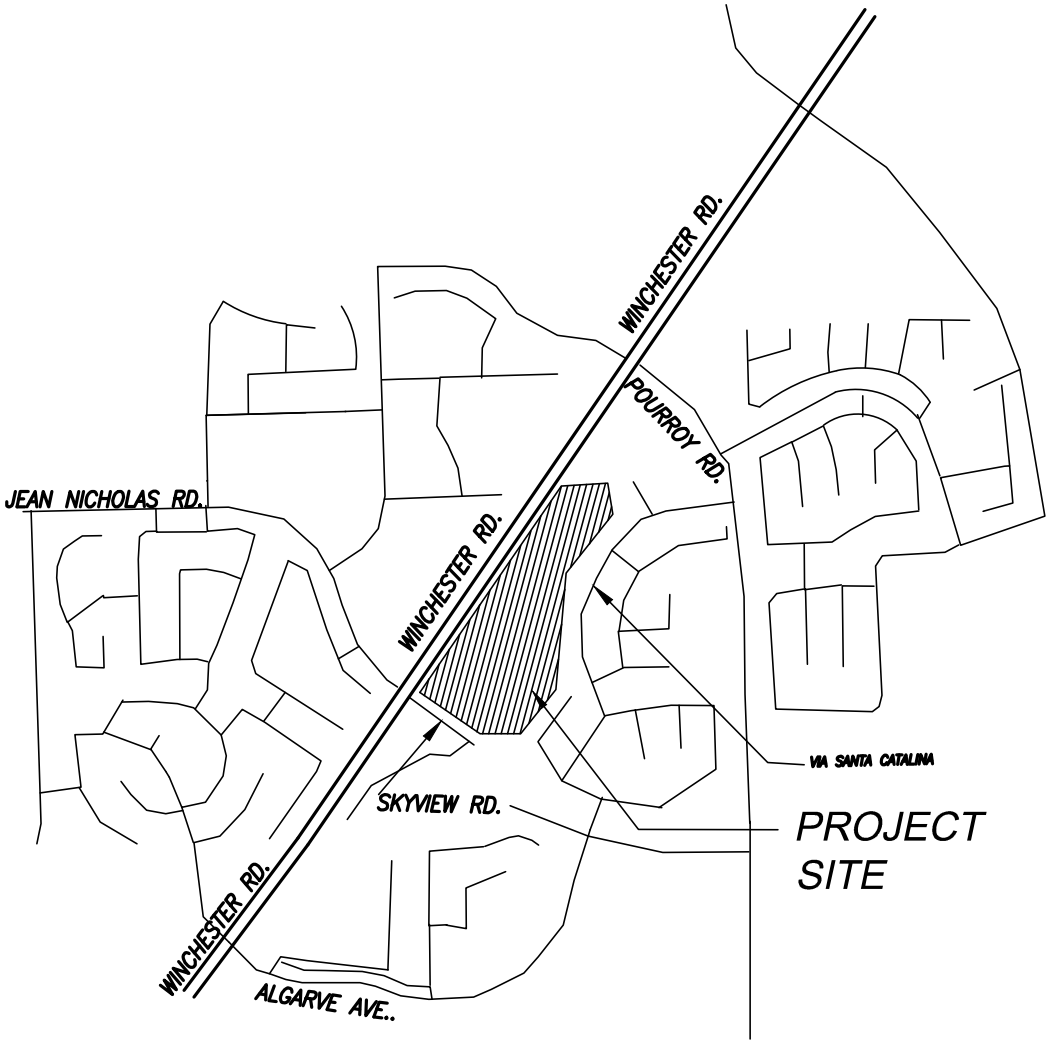
Redevelopment Project	The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; resurfacing existing roadways; new sidewalk construction, pedestrian ramps, or bike lane on existing roads; and routine replacement of damaged pavement, such as pothole repair. Project that meets the criteria described in Section 1.
Runoff Fund	Runoff Funds have not been established by the Copermittees and are not available to the Applicant. If established, a Runoff Fund will develop regional mitigation projects where PDPs will be able to buy mitigation credits if it is determined that implementing onsite controls is infeasible.
San Diego Regional Board	San Diego Regional Water Quality Control Board - The term "Regional Board", as defined in Water Code section 13050(b), is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200. State agency responsible for managing and regulating water quality in the SMR.
SCCWRP	Southern California Coastal Water Research Project
Site Design BMP	Site design BMPs prevent or minimize the causes (or drivers) of post-construction impacts, and help mimic the pre-development hydrologic regime.
SF	Parcels with a zoning classification for a single residential unit.
SMC	Southern California Stormwater Monitoring Coalition
SMR	The Santa Margarita Region (SMR) represents the portion of the Santa Margarita Watershed that is included within the County of Riverside.
Source Control BMP	Source Control BMPs land use or site planning practices, or structural or nonstructural measures that aim to prevent runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between Pollutants and runoff.
Stormwater Credit	Stormwater Credit can be claimed by an Applicant if certain development practices that provide broad-scale environmental benefits to communities are incorporated into the project design. Refer to Section 3.5.4 for additional information on Stormwater Credits.
Structural BMP	Structures designed to remove pollutants from stormwater runoff and mitigate hydromodification impacts.
SWPPP	Storm Water Pollution Prevention Plan

Tentative Tract Map	Tentative Tract Maps are required for all subdivision creating five (5) or more parcels, five (5) or more condominiums as defined in Section 783 of the California Civil Code, a community apartment project containing five (5) or more parcels, or for the conversion of a dwelling to a stock cooperative containing five (5) or more dwelling units.
TMDL	Total Maximum Daily Load - the maximum amount of a Pollutant that can be discharged into a waterbody from all sources (point and non-point) and still maintain Water Quality Standards. Under CWA Section 303(d), TMDLs must be developed for all waterbodies that do not meet Water Quality Standards after application of technology-based controls.
USEPA	United States Environmental Protection Agency
Volume-Based BMP	Volume-Based BMPs applies to BMPs where the primary mode of pollutant removal depends upon the volumetric capacity such as detention, retention, and infiltration systems.
WQMP	Water Quality Management Plan
Wet Season	The 2010 SMR MS4 Permit defines the wet season from October 1 through April 30.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

VICINTY MAP



NTS

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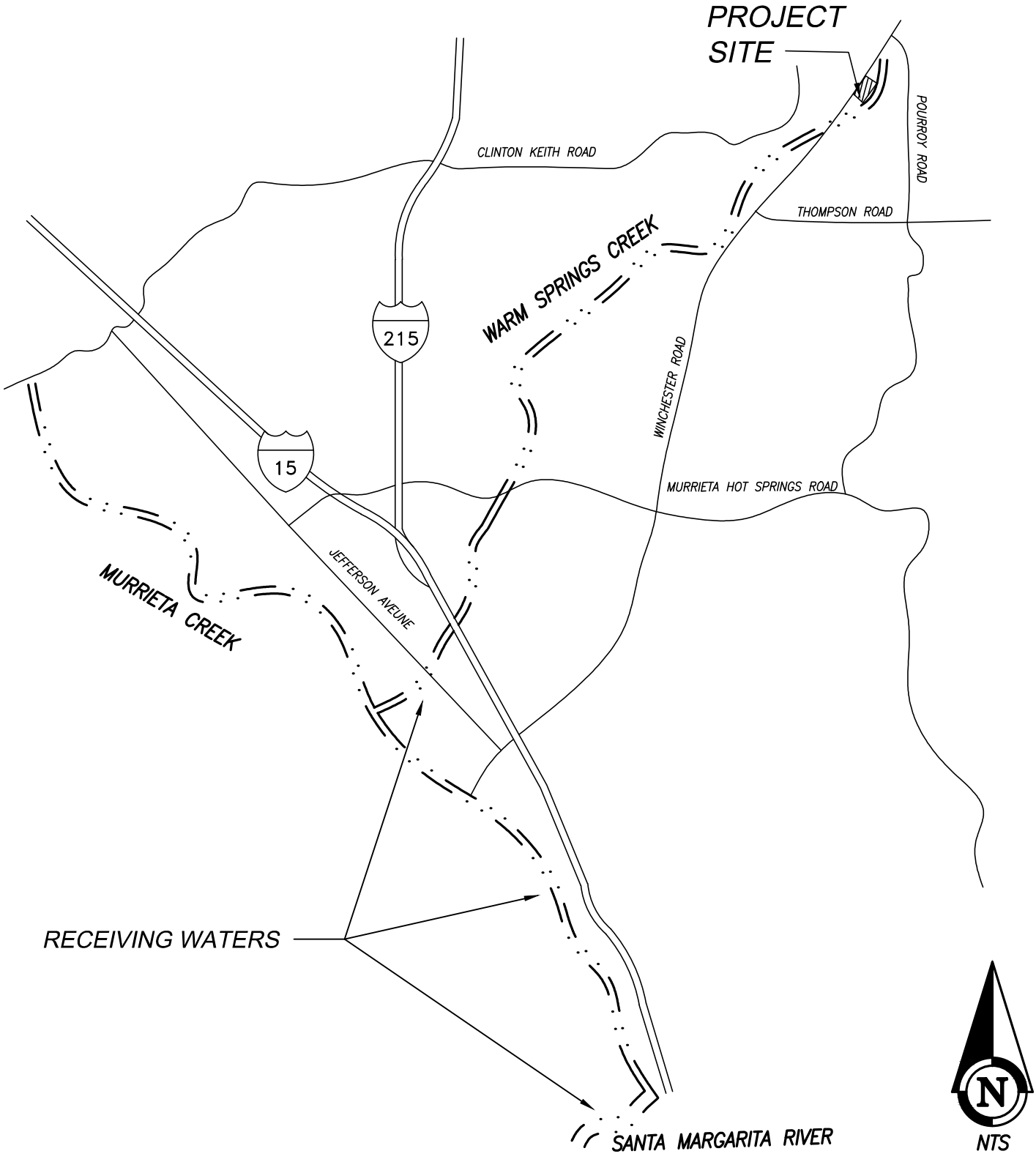
VICINITY MAP
FOR
FRENCH VALLEY LIBRARY

RECEIVING WATERS



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RECEIVING WATERS
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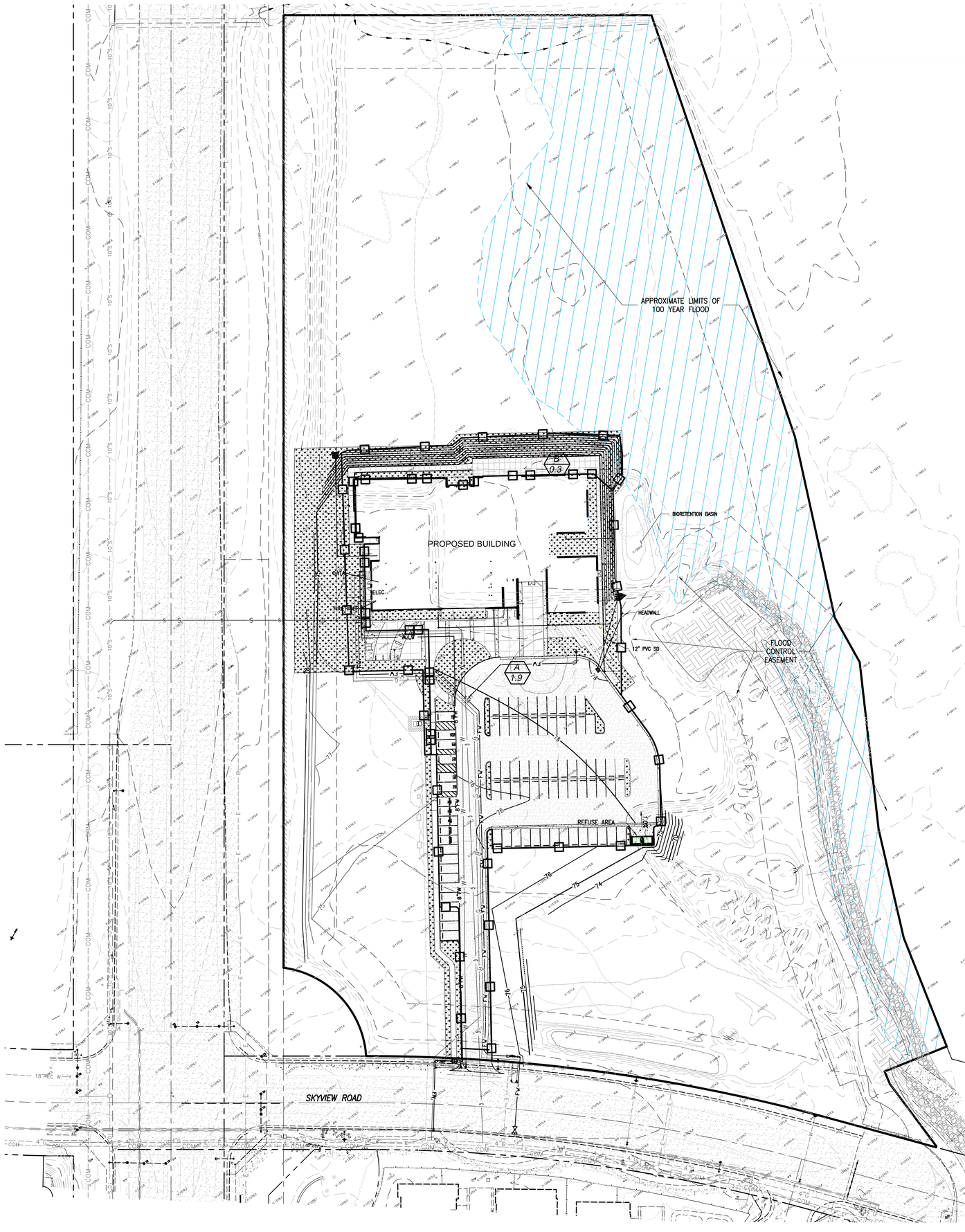
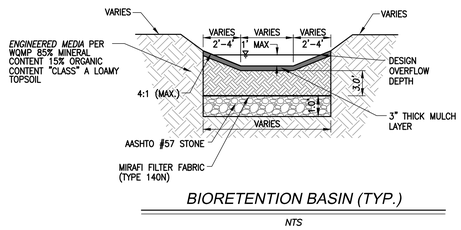
WATER QUALITY MANAGEMENT PLAN

FOR

FRENCH VALLEY LIBRARY

WINCHESTER, CA





BIORETENTION BASIN (TYP.)

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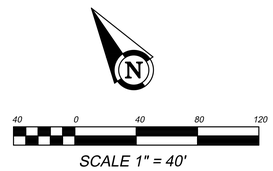
LEGEND

- CATCH BASIN
- U/G ELECTRICAL CONDUITS/DUCT BANK
- U/G STORM DRAIN
- U/G GAS
- U/G SEWER
- U/G TELEPHONE
- U/G WATER
- EXISTING GROUND CONTOUR
- CENTERLINE
- R/W LINE
- EXISTING PCC PAVING
- EXISTING AC PAVING
- EXISTING LANDSCAPED AREA
- RIP-RAP / GRAVEL
- PROPOSED AC PAVING
- PROPOSED PCC PAVING
- PROPOSED LANDSCAPING
- FUTURE BUILDING FOOTPRINT
- DAYLIGHT JOIN
- SUBAREA BOUNDARY
- A / X.X — SUBAREA/ACREAGE



SCALE 1" = 40'

WATER QUALITY MANAGEMENT PLAN

FOR

FRENCH VALLEY LIBRARY

WINCHESTER, CA

PREPARED BY:

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Appendix 2: Construction Plans

Grading and Drainage Plans

GRADING NOTES

GENERAL

1. ALL GRADING SHALL CONFORM TO THE 2016 CALIFORNIA BUILDING CODE CHAPTERS 17, 18 & APPENDIX CHAPTER– J AS AMENDED BY ORD. 457.
2. ALL PROPERTY CORNERS SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION/GRADING.
3. ALL WORK UNDER THIS GRADING PERMIT SHALL BE LIMITED TO WORK WITHIN THE PROPERTY LINES. ALL WORK WITHIN THE ROAD RIGHT–OF–WAY WILL REQUIRE SEPARATE PLANS AND A SEPARATE REVIEW/APPROVAL (PERMIT) FROM THE TRANSPORTATION DEPARTMENT.
4. GRADING SHALL BE DONE UNDER THE SUPERVISION OF A SOILS ENGINEER IN CONFORMANCE WITH RECOMMENDATIONS OF THE FINAL GEOTECHNICAL EVALUATION REPORT BY TWINING, INC. DATED OCTOBER 18, 2019.
5. COMPACTED FILL TO SUPPORT ANY STRUCTURES SHALL COMPLY WITH SECTION 1803.5. PROJECTS WITHOUT PRELIMINARY SOILS REPORT SHALL HAVE DETAILED SPECIFICATIONS SATISFYING THE REQUIREMENTS IN SECTION 1803.5 PREPARED BY THE EOR.
6. THE CONTRACTOR SHALL NOTIFY THE BUILDING AND SAFETY DEPARTMENT AT LEAST 24 HOURS IN ADVANCE TO REQUEST FINISH LOT GRADE AND DRAINAGE INSPECTION. THIS INSPECTION MUST BE APPROVED PRIOR TO BUILDING PERMIT FINAL INSPECTION FOR EACH LOT.
7. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT, TWO DAYS BEFORE DIGGING AT 811.

CUT / FILL

8. MAXIMUM CUT AND FILL SLOPE = 2:1.
9. NO FILL SHALL BE PLACED ON EXISTING GROUND UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL AND OTHER DELETERIOUS MATERIAL. FILLS SHOULD BE PLACED IN THIN LIFTS (8–INCH MAX OR AS RECOMMENDED IN SOILS REPORT), COMPACTED AND TESTED AS GRADING PROCESS UNTIL MASS GRADES ARE ATTAINED. ALL FILLS ON SLOPES STEEPER THAN 5 TO 1 (H/V) AND A HEIGHT GREATER THAN 5 FEET SHALL BE KEYED AND BENCHED INTO FIRM NATURAL SOIL FOR FULL SUPPORT. THE BENCH UNDER THE TOE MUST BE 10 FEET WIDE MIN.
10. THE SLOPE STABILITY FOR CUT AND FILL SLOPES OVER 30' IN VERTICAL HEIGHT, OR SLOPES STEEPER THAN 2:1 MUST BE VERIFIED WITH A FACTOR OF SAFETY OF AT LEAST 1.5.
11. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 12 INCHES SHALL BE BURIED OR PLACED IN CLOSER THAN 10 FEET TO THE FINISHED GRADE.

DRAINAGE AND EROSION/ DUST CONTROL

12. DRAINAGE ACROSS THE PROPERTY LINE SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS FOR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON SITE OR DIRECTED TO AN APPROVED DRAINAGE FACILITY.
13. PROVIDE A SLOPE INTERCEPTOR DRAIN ALONG THE TOP OF CUT SLOPES WHERE THE DRAINAGE PATH IS GREATER THAN 40 FEET TOWARDS THE CUT SLOPE.
14. PROVIDE 5' WIDE BY 1' HIGH BERM ALONG THE TOP OF ALL FILL SLOPES STEEPER THAN 3:1.
15. THE GROUND IMMEDIATELY ADJACENT TO THE BUILDING FOUNDATION SHALL BE SLOPED AWAY WITH 2% MIN FOR A MIN DISTANCE OF 10 HORIZONTAL FEET. SWALES WITHIN 10 FEET FROM BUILDING SHALL HAVE 2% MINIMUM SLOPE.
16. NO OBSTRUCTION OF NATURAL WATER COURSES SHALL BE PERMITTED.
17. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT PROPERTIES.
18. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
19. ALL EXISTING DRAINAGE COURSES ON THE PROJECT SITE MUST CONTINUE TO FUNCTION. PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING OPERATIONS.
20. FOR SLOPES 3 TO 1 (H/V) OR STEEPER:
    ALL SLOPES EQUAL TO OR GREATER THAN 3' IN VERTICAL HEIGHT, ARE REQUIRED TO BE PROTECTED PER THE EROSION CONTROL PLANS UNTIL THE FINAL GRADING AND LANDSCAPING PLANS ARE PREPARED AND APPROVED BY THE COUNTY OF RIVERSIDE.

COMPLETION OF WORK

21. A REGISTERED CIVIL ENGINEER SHALL PREPARE FINAL COMPACTION REPORT/ GRADING REPORT AND IT SHALL BE SUBMITTED FOR REVIEW AND APPROVAL. THE REPORT SHALL ALSO PROVIDE BUILDING FOUNDATION DESIGN PARAMETERS INCLUDING ALLOWABLE SOIL PRESSURES, EXPANSION INDEX AND REMEDIAL MEASURES IF EI > 20, WATER SOLUBLE SULFATE CONTENT, CORROSIVITY AND REMEDIAL MEASURES IF NECESSARY.
22. EXCEPT FOR NON–TRACT SINGLE RESIDENTIAL LOT GRADING, THE COMPACTION REPORT SHALL INCLUDE THE SPECIAL INSPECTION VERIFICATIONS LISTED IN TABLE 1704.7 OF 2016 CBC.
23. A REGISTERED CIVIL ENGINEER SHALL SUBMIT TO THE EDA (RIVERSIDE COUNTY) WRITTEN CERTIFICATION OF COMPLETION OF GRADING IN ACCORDANCE WITH THE APPROVED ROUGH GRADING PLAN PRIOR TO REQUESTING INSPECTION AND ISSUANCE OF THE BUILDING PERMIT. CERTIFICATION SHALL INCLUDE LINE GRADE, SURFACE DRAINAGE, ELEVATION, AND LOCATION OF PERMITTED GRADING ON THE LOT.

NPDES: WHEN ONE OR MORE ACRE IS BEING DISTURBED:

1. CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMPS) FOR THE MANAGEMENT OF STORM WATER AND NON–STORM WATER DISCHARGES SHALL BE DOCUMENTED ON THE GRADING PLAN WHICH THEREBY BECOMES THE SITE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). ARRANGEMENTS SHALL BE MADE BY THE DEVELOPER TO RETAIN THE SWPPP ON THE JOBSITE THROUGHOUT THE TIME OF CONSTRUCTION. THE IMPLEMENTATION AND MAINTENANCE OF SITE BMPS IS REQUIRED TO MINIMIZE JOBSITE EROSION AND SEDIMENTATION. CERTAIN BMPS MAY BE REQUIRED TO REMAIN IN PLACE THROUGHOUT THE YEAR TO MINIMIZE EROSION AND SEDIMENTATION. ARRANGEMENTS SHALL BE MADE BY THE DEVELOPER TO MAINTAIN THOSE BMPS THROUGHOUT THE TIME OF CONSTRUCTION.
2. EROSION CONTROL BMPS SHALL BE IMPLEMENTED AND MAINTAINED TO MINIMIZE THE ENTRAINMENT OF SOIL IN RUNOFF FROM DISTURBED SOIL AREAS ON CONSTRUCTION SITES.
3. SEDIMENT CONTROL BMPS SHALL BE IMPLEMENTED AND MAINTAINED TO MINIMIZE THE TRANSPORT OF SOIL FROM THE CONSTRUCTION SITE.
4. GRADING SHALL BE PHASED TO LIMIT THE AMOUNT OF DISTURBED AREAS EXPOSED TO THE EXTENT FEASIBLE.
5. AREAS THAT ARE CLEARED AND GRADED SHALL BE LIMITED TO ONLY THE PORTION OF THE SITE THAT IS NECESSARY FOR CONSTRUCTION. THE CONSTRUCTION SITE SHALL BE MANAGED TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF GRADING AND THE USE OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
6. ONCE DISTURBED, SLOPES (TEMPORARY OR PERMANENT) SHALL BE STABILIZED IF THEY WILL NOT BE WORKED WITHIN 21 DAYS. DURING THE STORM SEASON, ALL SLOPES SHALL BE STABILIZED PRIOR TO A PREDICTED STORM EVENT. CONSTRUCTION SITES SHALL BE RE–VEGETATED AS EARLY AS FEASIBLE AFTER SOIL DISTURBANCE.
7. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO ELIMINATE OR REDUCE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OTHER THAN STORM WATER (NON–STORM WATER DISCHARGES) ARE PROHIBITED, EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT, THE STATEWIDE GENERAL PERMIT–CONSTRUCTION ACTIVITY. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, SOLVENTS, DETERGENTS, GLUES, LIME, PESTICIDES, HERBICIDES, FERTILIZERS, WOOD PRESERVATIVES, AND ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; CONCRETE AND RELATED CUTTING OR CURING RESIDUES; FLOATABLE WASTES; WASTES FROM ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING; WASTES FROM STREET CLEANING; AND SUPER–CHLORINATED POTABLE WATER FROM LINE FLUSHING AND TESTING. DURING CONSTRUCTION, DISPOSAL OF SUCH MATERIALS SHOULD OCCUR IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON–SITE PHYSICALLY SEPARATED FROM POTENTIAL STORM WATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
9. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITE AND MUST NOT BE DISCHARGED TO RECEIVING WATERS OR THE LOCAL STORM DRAIN SYSTEM.
10. APPROPRIATE BMPS FOR CONSTRUCTION–RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED TO ELIMINATE OR REDUCE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
11. ALL CONSTRUCTION CONTACTORS AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BMPS AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
12. DISCHARGING CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING GROUNDWATER THAT HAS INFILTRATED INTO THE CONSTRUCTION SITE IS PROHIBITED. DISCHARGING OF CONTAMINATED SOILS VIA SURFACE EROSION IS ALSO PROHIBITED. DISCHARGING NON–CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING ACTIVITIES MAY REQUIRE A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE REGIONAL WATER QUALITY CONTROL BOARD.
13. BMPS SHALL BE MAINTAINED AT ALL TIMES. IN ADDITION, BMPS SHALL BE INSPECTED PRIOR TO PREDICTED STORM EVENTS AND FOLLOWING STORM EVENTS.
14. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED OF IN TRASH OR RECYCLE BINS.

NOTICE TO CONTRACTORS

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS, OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES, SHOWN OR NOT SHOWN ON THESE PLANS

CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS DURING THE COURSE OF CONSTRUCTION ON THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS OR PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE COUNTY, THE OWNER, AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (USA) PH. 811, TWO (2) WORKING DAYS PRIOR TO DIGGING. NO CONSTRUCTION PERMIT ISSUED BY THE DEPARTMENT OF BUILDING & SAFETY SHALL BE VALID INVOLVING UNDERGROUND FACILITIES UNLESS THE APPLICANT HAS AN INQUIRY IDENTIFICATION NUMBER ISSUED BY U.S.A.

CARE SHOULD BE TAKEN TO PREVENT GRADED DITCHES AND SWALES FROM UNDERMINING STREET IMPROVEMENTS. UPON INSPECTION OF THE SITES, THE CITY ENGINEER MAY REQUIRE TEMPORARY GUNITE SWALES, ENTERING OR LEAVING IMPROVEMENTS.

PRECISE GRADING PLANS

FOR

FRENCH VALLEY LIBRARY (APN 480-160-021)
COUNTY OF RIVERSIDE, CALIFORNIA

N

100 0 100 200 300

SCALE 1" =100'

INDEX MAP

EARTHWORK QUANTITIES

NOTE: THE SITE HAS ALREADY BEEN GRADED PER ROUGH GRADING PLANS.

NET (APPROX) : <50 YDS REMEDIAL GRADING

LEGEND

FH	FIRE HYDRANT
SMH	SEWER MANHOLE
SDMH	STORM DRAIN MANHOLE
WV	WATER VALVE
	CATCH BASIN
	TREE (DIA. PER L/A PLAN)
— E —	ELECTRICAL DUCT BANK
— C —	COMMUNICATIONS
— G —	GAS
— S —	SEWER
— T —	TELEPHONE
— W —	WATER
590	EXISTING GROUND CONTOUR
	CENTERLINE
	R/W LINE
	BOUNDARY
	DAYLIGHT JOIN
	EXISTING PCC PAVING
	EXISTING AC PAVING
	EXISTING LANDSCAPED AREA
	RIP–RAP / GRAVEL
	PROPOSED AC PAVING
	PROPOSED BMP
	PROPOSED PCC PAVING (GREY)
	PROPOSED PCC PAVING (COLORED)
	PROPOSED LANDSCAPING
	FUTURE BUILDING FOOTPRINT

ABBREVIATIONS

AC	ASPHALT CONCRETE
BSL	BUILDING SETBACK LINE
℄	CENTERLINE
C.L.	CHAINLINK
C&G	CURB & GUTTER
C.O.W.	CITY OF WINCHESTER
CONC.	CONCRETE
E	EAST
DIA.	DIAMETER
DWG.	DRAWING
FD.	FOUND
HDR	HIGH DENSITY RESIDENTIAL
I.P.	IRON PIPE
LDR	LOW DENSITY RESIDENTIAL
N	NORTH
PCC	PORTLAND CEMENT CONCRETE
ℙ	PROPERTY LINE
R	RANGE
RCFC&WCD	RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
R/W	RIGHT–OF–WAY
S	SOUTH
SCG	SOUTHERN CALIFORNIA GAS COMPANY
S.B.B.M.	SAN BERNARDINO BASELINE MEDIAN
SD	STORM DRAIN
SE'LY	SOUTHEASTERLY
SW'LY	SOUTHWESTERLY
SPK	SPIKE
T	TOWNSHIP
W	WEST

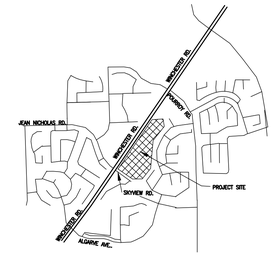
SHEET INDEX

NOTE TO DEVELOPER/CONTRACTOR

A PRE–GRADING/PRE–CONSTRUCTION MEETING AND SITE INSPECTION SHALL BE ARRANGED BY THE SITE DEVELOPER PRIOR TO COMMENCING GRADING OPERATIONS. THOSE PARTIES REQUIRED TO ATTEND THE PRE–CONSTRUCTION MEETING SHALL INCLUDE BUT ARE NOT LIMITED TO THE DEVELOPER, PROJECT SUPERINTENDENT, ENGINEER OF RECORD, SOIL ENGINEER, GRADING CONTRACTOR AND THE UNDERGROUND UTILITY CONTRACTOR. REPRESENTING THE DEPARTMENT OF BUILDING AND SAFETY SHALL BE THE GRADING PLAN–CHECKER AND/OR GRADING INSPECTOR. THE FOCUS OF THE PRE–CONSTRUCTION MEETING SHALL BE TO DISCUSS THE VARIOUS ASPECTS AND RESPONSIBILITIES OF THE GRADING PROJECT AND TO PROVIDE AN APPROXIMATE TIME TABLE FOR THE COMPLETION OF ROUGH GRADING. ARRANGE FOR A PRE–GRADING/PRECONSTRUCTION MEETING BY CALLING THE DISTRICT OFFICE RESPONSIBLE FOR PROVIDING YOUR GRADING AND BUILDING INSPECTIONS.

CIVIL ENGINEER'S ACKNOWLEDGEMENT

"THE ENGINEER WHO PREPARED AND SIGNED THIS GRADING PLAN HAS VERIFIED THAT ALL INFORMATION ON THE DRAWINGS IS CONSISTENT WITH THE GEOTECHNICAL ENGINEERING REPORT & RECOMMENDATIONS FOR THIS PROJECT. IN ADDITION, THE SITE IN NOT LOCATED WITHIN A FLOOD ZONE."



VICINITY MAP

TOWNSHIP 6S,
RANGE 2W, SECTION 24

N
NTS

ASSESSOR'S PARCEL NOS.

480–160–021

TITLE REFERENCE

LAWYERS TITLE COMPANY
ATTN: BARBARA NORTHRUP, TITLE OFFICER
ORDER NO. 615674763
DATED: JULY 18, 2019

SITE ADDRESS

31526 SKYVIEW ROAD
WINCHESTER, CA 92596
(COUNTY OF RIVERSIDE JURISDICTION)

GENERAL CONTRACTOR

MCCARTHY BUILDING COMPANY
20401 SW BIRCH ST., STE 300
NEWPORT BEACH, CA 92660
ATTN: VERNAN IBONG

RECORD OWNER

COMMUNITY FACILITY PARTNERS – SPE
18336 MINNETOKA BLVD, CENTER, SUITE C
DEEPHAVEN, MN 55391
(612) 349–5649
ATTN: STEVE COLLINS

DEVELOPER

OMNI WEST GROUP, INC.
3943 IRVINE BLVD, 607
IRVINE, CA 92602
(949) 215–9790
ATTN: MR. KIP DUBBS

ENGINEER

ARMSTRONG & BROOKS CONSULTING ENGINEERS
1350 E. CHASE DRIVE
CORONA, CA. 92881
MAIL TO: P.O. BOX 78088, CORONA, 92877–9998
PH. (951) 372–8400 FAX (951) 372–8430
ATTN: BILL BROOKS

SOILS ENGINEER

TWINING
2883 EAST SPRING STREET, SUITE 300
LONG BEACH, CA 90806
PH. (562) 426–3355
ATTN: PAUL SOLTIS

SITE ACREAGE

11.33± AC

DISTURBED SITE ACREAGE

2.89± AC

LEGAL DESCRIPTION (PER TITLE REPORT)

REAL PROPERTY IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1 OF PARCEL MAP NO. 32914, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 224, PAGES 91 THROUGH 93 OF PARCELS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

NOTE TO DEVELOPER/CONTRACTOR

A PRE–GRADING/PRE–CONSTRUCTION MEETING AND SITE INSPECTION SHALL BE ARRANGED BY THE SITE DEVELOPER PRIOR TO COMMENCING GRADING OPERATIONS. THOSE PARTIES REQUIRED TO ATTEND THE PRE–CONSTRUCTION MEETING SHALL INCLUDE BUT ARE NOT LIMITED TO THE DEVELOPER, PROJECT SUPERINTENDENT, ENGINEER OF RECORD, SOIL ENGINEER, GRADING CONTRACTOR AND THE UNDERGROUND UTILITY CONTRACTOR. REPRESENTING THE DEPARTMENT OF BUILDING AND SAFETY SHALL BE THE GRADING PLAN–CHECKER AND/OR GRADING INSPECTOR. THE FOCUS OF THE PRE–CONSTRUCTION MEETING SHALL BE TO DISCUSS THE VARIOUS ASPECTS AND RESPONSIBILITIES OF THE GRADING PROJECT AND TO PROVIDE AN APPROXIMATE TIME TABLE FOR THE COMPLETION OF ROUGH GRADING. ARRANGE FOR A PRE–GRADING/PRECONSTRUCTION MEETING BY CALLING THE DISTRICT OFFICE RESPONSIBLE FOR PROVIDING YOUR GRADING AND BUILDING INSPECTIONS.

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FLOOD ZONE

SAID DESCRIBED PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION "D" BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, ON FLOOD INSURANCE RATE MAP NO. 06065C2730G, NOT PRINTED, FOR COMMUNITY NUMBER 060245 IN RIVERSIDE COUNTY, STATE OF CALIFORNIA, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED; HOWEVER THE BUILDING PAD HAD BEEN SET MORE THAN 1' ABOVE THE MAPPED 100–YEAR FLOOD EVELVATION.

County of Riverside
French Valley Library

APN: 480-160-021
31526 Skyview Rd.
Winchester, 92596

CANNONDESIGN
2355 Main Street, Suite 220
Irvine, CA 92614
P: 949.250.1500

656 Fifth Ave, Suite A
San Diego, CA 92101
P: 619.398.0215

www.cannondesign.com

M C r d C
Contractor

20401 S.W. Birch St.
Newport Beach, CA 92660
949.851.8383

Armstrong & Brooks Consulting Engineers, Inc.
Civil Engineering · Water Resources · Surveying
1350 E. Chase Drive, Corona, CA 92881
Mail: P.O. Box 78088, Corona, CA 92887
Ph. (951) 372-8400, Fax (951) 372-8430

REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. BROOKS
No. 53114
Exp. 6/30/21
CIVIL
STATE OF CALIFORNIA

CERT. NO. 53114

Rev.	Description	Date
	95% CD SUBMITTAL	17 DEC 2019
	DESIGN DEVELOPMENT	19 NOV 2019
	SCHEMATIC DESIGN	30 OCT 2019

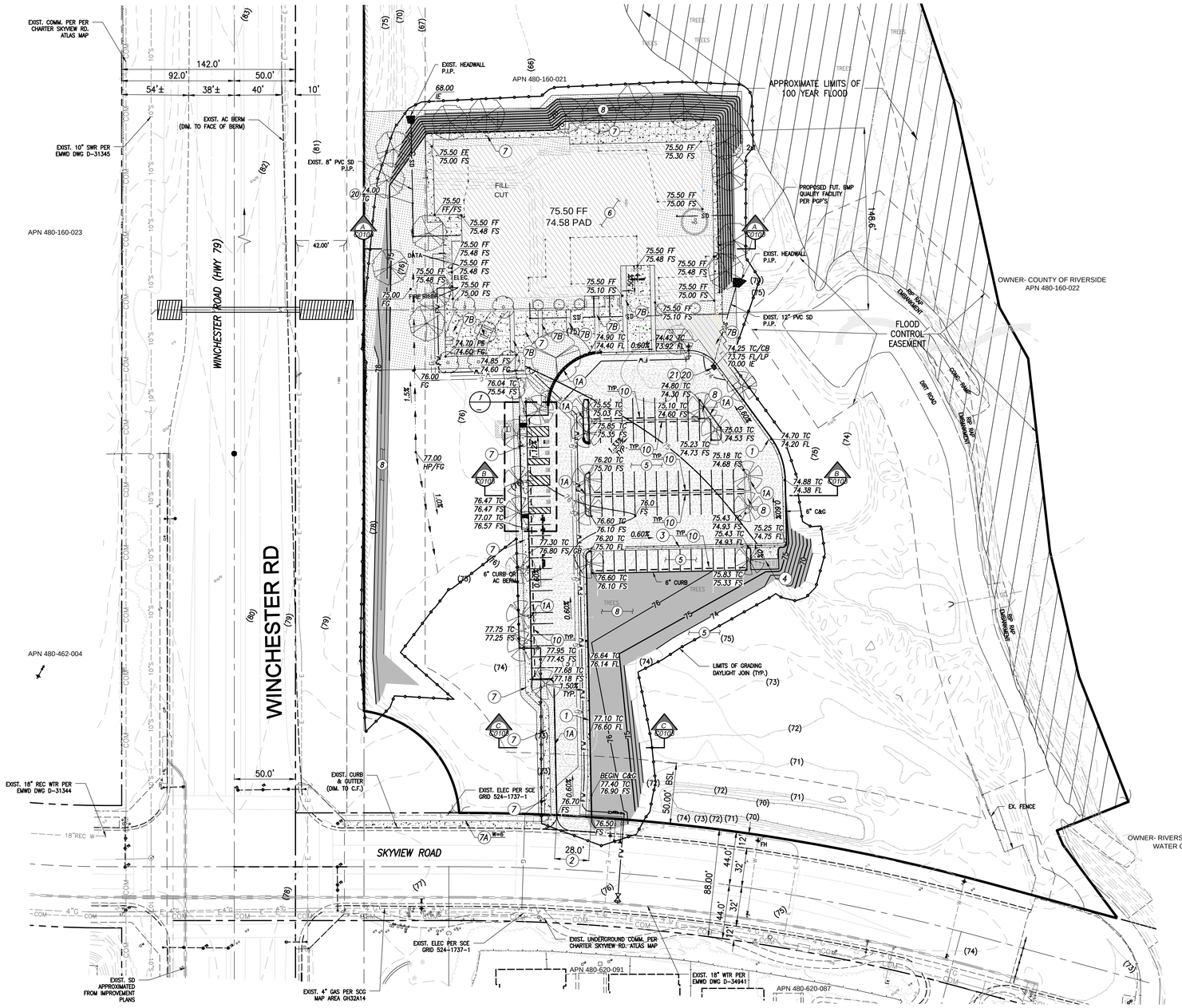
TRUE NORTH N

Drawing Title:

TITLE SHEET

Project No.: 005810.00 Checked by:

C



NOTE*: EXIST. WINCHESTER ROAD
6" AC OVER 12" CL II AB PER I.P. 050126

EXIST. SKYVIEW ROAD
4" AC OVER 11" CL II AB
PER I.P. 030178

LEGEND

- FH — FIRE HYDRANT
- SMH — SEWER MANHOLE
- SDMH — STORM DRAIN MANHOLE
- WV — WATER VALVE
- CATCH BASIN
- TREE (DIA. PER L/A PLAN)
- E — ELECTRICAL DUCT BANK
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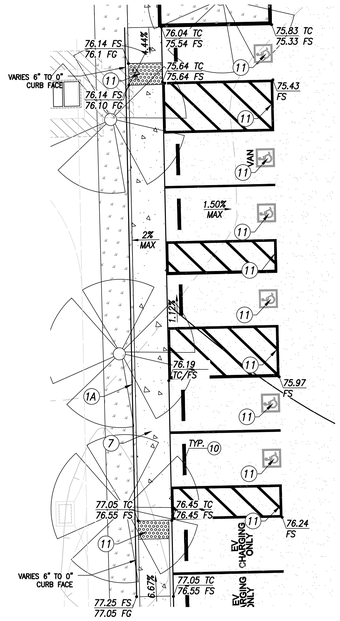
- EXISTING LANDSCAPED AREA
- RIP-RAP / GRAVEL
- PROPOSED AC PAVING
- PROPOSED BMP
- PROPOSED PCC PAVING (GREY)
- PROPOSED PCC PAVING (COLORED)
- PROPOSED LANDSCAPING
- FUTURE BUILDING FOOTPRINT



DETAIL "1"
ADA CURB RAMP
1"=10'

CONSTRUCTION NOTES - HARDSCAPE

1	CONSTRUCT TYPE A-6 CURB (& GUTTER) PER C.O.R. STD. NO. 200
1A	CONSTRUCT 6" TYPE "D" CURB PER C.O.R. STD. NO. 204
2	CONSTRUCT COMMERCIAL DWY W/ SIDEWALK & CURB PER C.O.R. STD. NO. 207A
3	CONSTRUCT PCC SWALE PER DETAIL "A" ON SHEET C0103
4	CONSTRUCT TRASH ENCLOSURE PER AS102
5	CONSTRUCT 4" AC OVER 7" CL II AGGREGATE BASE
6	CONSTRUCT STRUCTURAL BLDG SLAB 5" PCC REINFORCEMENT W/ NO-4'S @ 18" B.W. OVER 6" DRAINAGE COURSE W/ MOISTURE BARRIER PER STRUCTURAL PLANS
7	CONSTRUCT 4" PCC PER DETAILS ON SHEET C0103 (FINISH PER L.A. PLANS)
7A	CONSTRUCT 4" PCC SIDEWALK AT CURB 6' WIDE PER C.O.R. STD. NO 400
7B	CONSTRUCT PAVERS PER L.A. PLANS
8	CONSTRUCT LANDSCAPING PER L.A. PLANS
9	CONSTRUCT DG PATHWAY PER L.A. PLANS
10	CONSTRUCT WHEEL STOP PER ARCH. DETAILS SHEET AS103
11	CONSTRUCT ADA SIGNAGE AND STRIPING (INCLUDING TRUNCATED DOMES) PER AS103

CONSTRUCTION NOTES - DRAINAGE

20	REMOVE EXIST. TEMP. 24" CMP RISER
21	CONSTRUCT 3636 SERIES SD CATCH BASIN PER DETAIL "B" ON SHEET C0103
22	CONSTRUCT BMP FACILITY (INFILTRATION BASIN) PER WQMP & DETAIL "G" ON SHEET C0103

40 0 40 80 120

SCALE 1" = 40'

County of Riverside
French Valley Library
APN: 480-160-021
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CANNONDESIGN
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REGISTERED PROFESSIONAL ENGINEER WILLIAM D. BROOKS No. 053114 Exp. 6/30/21 CIVIL STATE OF CALIFORNIA

CERT. NO. 53114

Rev.	Description	Date
	95% CD SUBMITTAL	17 DEC 2019
	DESIGN DEVELOPMENT	19 NOV 2019
	SCHEMATIC DESIGN	30 OCT 2019

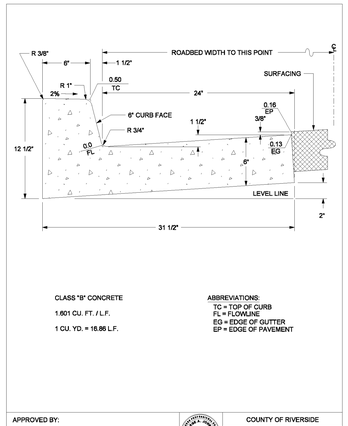
TRUE NORTH

Drawing Title:

PRECISE GRADING PLAN

Project No.: 005810.00 Checked by:

C□□□□



CLASS "B" CONCRETE

1.601 CU. FT. / L.F.

1 CU. YD. = 16.86 L.F.

ABBREVIATIONS:
TC = TOP OF CURB
FL = FLOWLINE
EG = EDGE OF GUTTER
EP = EDGE OF PAVEMENT

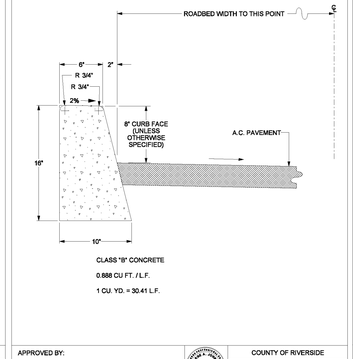
APPROVED BY:
DIRECTOR OF TRANSPORTATION
GEORGE A. JOHNSON, RCE 42328
DATE: 05/01/07

COUNTY OF RIVERSIDE

TYPE A-6 CURB

STANDARD NO. 200

REVISIONS	REV.	BY:	APPD	DATE	REV.	BY:	APPD	DATE
8-71, 9-86	1				4			
2-90, 11-04	2				5			
	3				6			



CLASS "B" CONCRETE

0.888 CU FT. / L.F.

1 CU. YD. = 30.41 L.F.

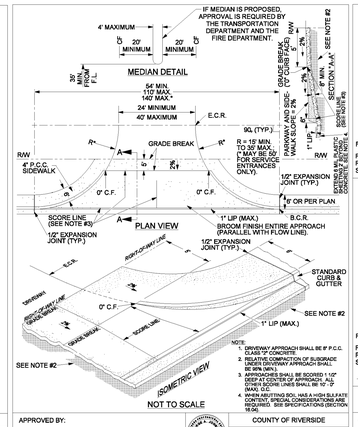
APPROVED BY:
DIRECTOR OF TRANSPORTATION
GEORGE A. JOHNSON, RCE 42328
DATE: 05/01/07

COUNTY OF RIVERSIDE

TYPE "D" CURB

STANDARD NO. 204

REVISIONS	REV.	BY:	APPD	DATE	REV.	BY:	APPD	DATE
8-71, 2-90	1				4			
11-04	2				5			
	3				6			



NOTES:
1. DRIVEWAY APPROACH SHALL BE P.C.C. CLASS "B" CONCRETE
2. RELATIVE COMPACTION OF SUBGRADE UNDER DRIVEWAY APPROACH SHALL BE 90% (MIN.).
3. SCORE LINES SHALL BE SCORED 1 1/2" DEEP AT CENTER OF APPROACH. ALL OTHER SCORE LINES SHALL BE 1/2" DEEP (MAX.).
4. ALL CONCRETE SLOPES SHALL HAVE A NON-SLIP STATE CONTACT. SPECIAL CONSIDERATIONS ARE REQUIRED. SEE SPECIFICATIONS (SECTION 18.04).

NOT TO SCALE

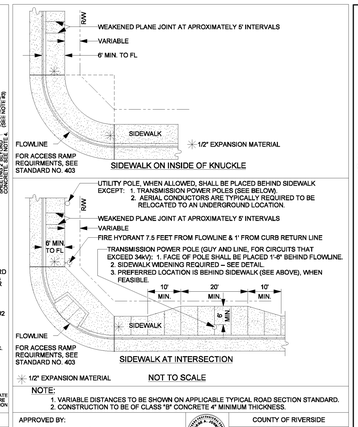
APPROVED BY:
DIRECTOR OF TRANSPORTATION
GEORGE A. JOHNSON, RCE 42328
DATE: 11/15/04

COUNTY OF RIVERSIDE

COMMERCIAL DRIVEWAY (WITH SIDEWALK AT CURB)

STANDARD NO. 207A (1 OF 2)

REVISIONS	REV.	BY:	APPD	DATE	REV.	BY:	APPD	DATE
11-04	1				4			
	2				5			
	3				6			



NOT TO SCALE

NOTE:
1. VARIABLE DISTANCES TO BE SHOWN ON APPLICABLE TYPICAL ROAD SECTION STANDARD.
2. CONSTRUCTION TO BE OF CLASS "B" CONCRETE 4" MINIMUM THICKNESS.

APPROVED BY:
DIRECTOR OF TRANSPORTATION
GEORGE A. JOHNSON, RCE 42328
DATE: 05/01/07

COUNTY OF RIVERSIDE

SIDEWALK, FIRE HYDRANT, & UTILITY POLE LOCATION (SIDEWALK AT CURB)

STANDARD NO. 400 (1 OF 2)

REVISIONS	REV.	BY:	APPD	DATE	REV.	BY:	APPD	DATE
8-71, 8-77	1				4			
11-77, 8-83	2				5			
9-86, 11-04	3				6			

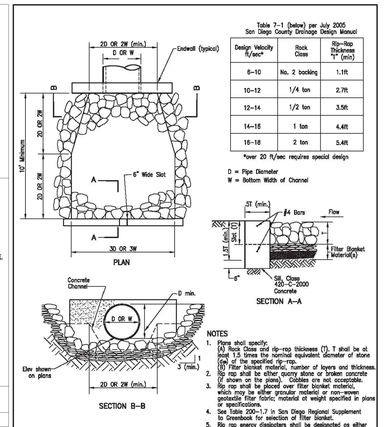


Table 7–1 (below) per July 2005 San Diego County Drainage Design Manual

Design Velocity ft/sec*	Rock Class	Rip–Rap Thickness "T" (min)
6–10	No. 2 backing	1.1ft
10–12	1/4 ton	2.7ft
12–14	1/2 ton	3.5ft
14–16	1 ton	4.4ft
16–18	2 ton	5.4ft

*over 20 ft/sec requires special design

D = Pipe Diameter
W = Bottom Width of Channel

NOTES
1. Plans shall specify: A) Rock Class and rip–rap thickness (T). T shall be at least 1.5 times the nominal equivalent diameter of stone for all the specified rip–rap.
2. Rip rap shall be placed to the minimum of layers and thickness. Rip rap shall be either quarry stone or broken concrete (if shown on the plans). Cobbles are not acceptable.
3. Rip rap shall be placed over filter blanket material, which may be either granular material or non–woven geotextile filter fabric; material of weight specified in plans or specifications.
4. See Table 200–1.7 in San Diego Regional Supplement to Greenbook for selection of filter blanket.
5. Rip rap energy dissipaters shall be designated as either Type 1 or Type 2. Type 2 shall be with concrete sill; Type 1 shall be without sill.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Add Metric		T. Stanton	03/03
Ref. Std. No.		S. Brady	04/09
Edited		T. Stanton	02/09
Edited	S.S.	T. Reyelts	03/11

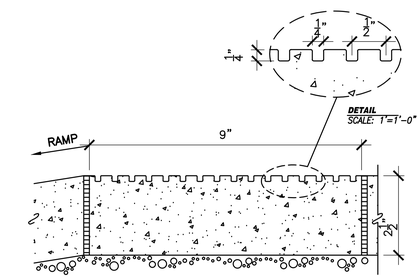
SAN DIEGO REGIONAL STANDARD DRAWING

RIP RAP ENERGY DISSIPATER

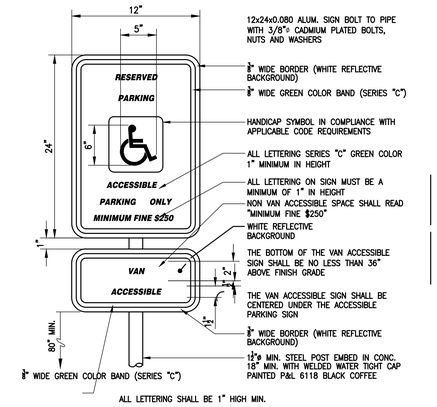
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Chairperson R.C.E. 19246 Date

DRAWING NUMBER **D-40**

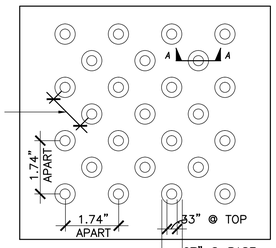


C.3 GROOVED BORDER DETAIL 76
NTS

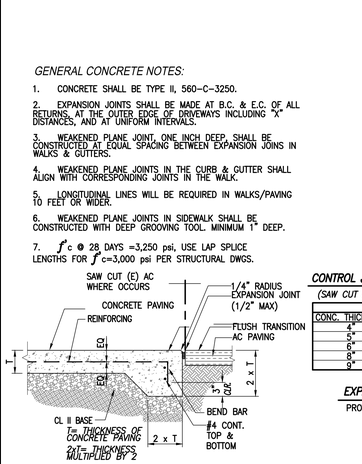


ALL LETTERING SHALL BE 1" HIGH MIN.

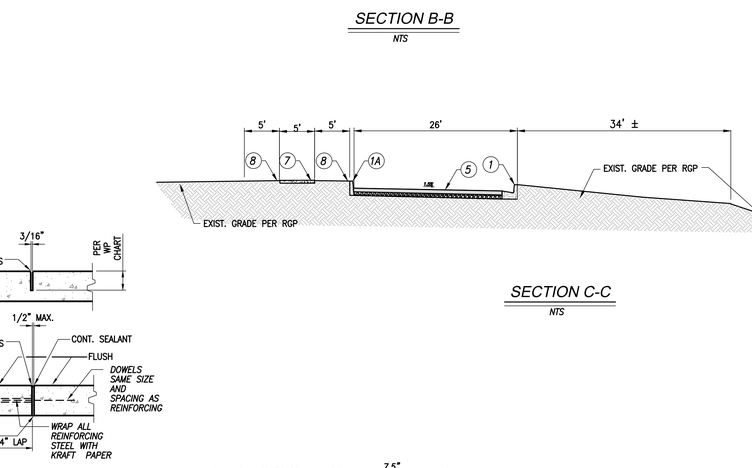
C.2 SIGN DETAIL 78
NTS



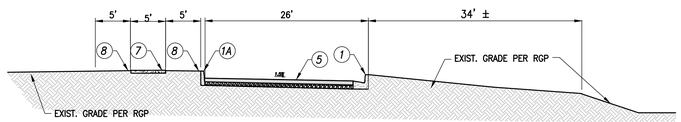
TYPICAL PLAN
SCALE: 6"=1'-0"



SECTION A-A
NTS



SECTION B-B
NTS



SECTION C-C
NTS

SYMBOL PROPORTIONS (ALL EQUAL SQUARES)

WHITE (TYPICAL)

BLUE COLOR TO BE EQUAL TO COLOR #15090 IN FEDERAL STANDARD 599–B

THIS INTERNATIONAL SYMBOL OF ACCESSIBILITY IS USED TO IDENTIFY ACCESSIBLE FACILITIES.

FACILITIES AND ELEMENTS REQUIRED TO BE IDENTIFIED AS ACCESSIBLE SHALL USE THIS INTERNATIONAL SYMBOL OF ACCESSIBILITY.

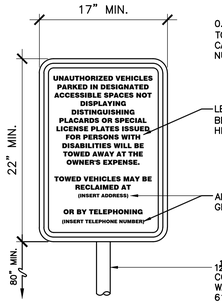
THE SYMBOL SHALL CONSIST OF A WHITE FIGURE ON A BLUE BACKGROUND. THE BLUE SHALL BE EQUAL TO COLOR NO. 15090 IN FEDERAL STD. NO. 595a. THE APPROPRIATE ENFORCEMENT AGENCY MAY APPROVE SPECIAL SIGNS AND IDENTIFICATION NECESSARY TO COMPLIMENT THE PREVAILING DECOR OR UNIQUE DESIGN WHEN IT IS DETERMINED THAT SUCH SIGNS AND IDENTI– FICATION PROVIDES ADEQUATE DIRECTION TO HANDICAP PERSONS. CONTRAST SHALL BE EITHER LIGHT CHARACTERS ON A DARK BACKGROUND OR DARK CHARACTER ON A LIGHT BACKGROUND.

CHARACTER SHALL BE RAISED WHERE USED FOR THE VISUALLY IMPAIRED A MINIMUM OF 5/8 INCHES OR RECESSED A MINIMUM OF 1/4".

ALL BUILDING ENTRANCES THAT ARE ACCESSIBLE TO A USABLE BY PHYSICALLY HANDICAPPED SHALL BE IDENTIFIED WITH AT LEAST ONE STD. SIGN AND WITH ADDITIONAL DIRECTIONAL SIGNS AS REQUIRED, TO BE VISIBLE TO PERSONS ALONG APPROACHING PEDESTRIAN WAYS.

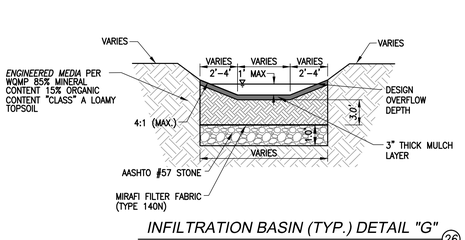
THE U.B.C. REQUIRES THIS SYMBOL AT THE FOLLOWING LOCATIONS:
ACCESSIBLE PARKING SPACES
ACCESSIBLE AREAS OF REFUGE
ACCESSIBLE PASSENGER LOADING ZONES
ACCESSIBLE TOILET AND BATHING FACILITIES (IN ADDITION TO DOOR SYMBOLS)

C.5 ACCESSIBILITY SYMBOL 76
NTS

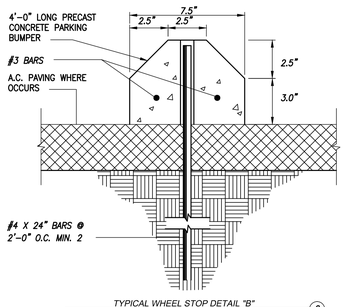


C.4 SIGN DETAIL 70
NTS

DETAIL "C" 7
ADA CURB RAMP
NTS

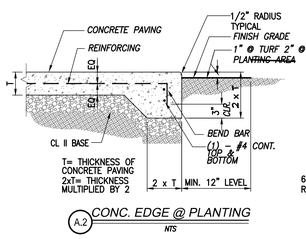


INFILTRATION BASIN (TYP.) DETAIL "G" 26
NTS



TYPICAL WHEEL STOP DETAIL "B" 6
SCALE 1"=4"

A.1 CONC. EDGE @ PAVING
NTS

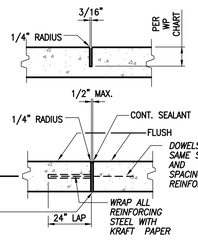


A.2 CONC. EDGE @ PLANTING
NTS

CONTROL JOINT
(SAW CUT AFTER TOOLING)

WP CHART	
CONC. THICKNESS	MIN. CUT DEPTH
4"	1–1/2"
5"	2–0"
6"	2–1/2"
8"	3"
9"	3–1/2"

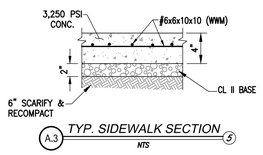
EXPANSION JOINT (E.J.)
PROVIDE @ 60'–0" O/C MAX.
EXPANSION JOINT FILLER MATERIAL



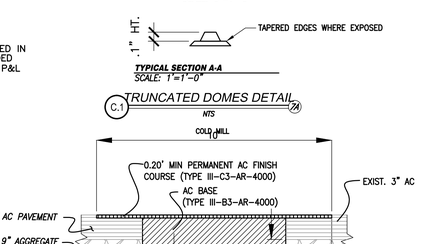
A.4 TYP. CONC. JOINTS 76
SEE ARCH FOR LOCATIONS
NTS

SEE ARCH. FOR LOCATIONS

DETAIL "A" 5
PCC PAVING
NTS

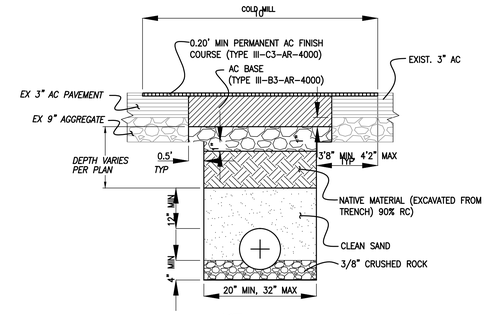


A.3 TYP. SIDEWALK SECTION 5
NTS



TYPICAL SECTION A-A
SCALE: 1"=1'-0"

C.1 TRUNCATED DOMES DETAIL 74
NTS



NOTE:
IN EXIST. CONCRETE SECTIONS, REPLACE CONCRETE TO NEAREST EXIST. COLD JOINT, NO PCC TRENCH CUTS TO REMAIN.

TRENCH BEDDING DETAIL "D" 20 21 22
ON–SITE PERMANENT ASPHALT REPAIR/CONCRETE SECTION

GENERAL CONCRETE NOTES:

1. CONCRETE SHALL BE TYPE II, 560–C–3250.
2. EXPANSION JOINTS SHALL BE MADE AT B.C. & E.C. OF ALL RETURNS, AT THE OUTER EDGE OF DRIVEWAYS INCLUDING "X" DISTANCES, AND AT UNIFORM INTERVALS.
3. WEAKENED PLANE JOINT, ONE INCH DEEP, SHALL BE CONSTRUCTED AT EQUAL SPACING BETWEEN EXPANSION JOINS IN WALKS & GUTTERS.
4. WEAKENED PLANE JOINTS IN THE CURB & GUTTER SHALL ALIGN WITH CORRESPONDING JOINTS IN THE WALK.
5. LONGITUDINAL LINES WILL BE REQUIRED IN WALKS/PAVING TO FEET OR WIDER.
6. WEAKENED PLANE JOINTS IN SIDEWALK SHALL BE CONSTRUCTED WITH DEEP GROOVING TOOL. MINIMUM 1" DEEP.
7. $f'c$ @ 28 DAYS =3,250 psi, USE LAP SPLICE LENGTHS FOR $f'c$=3,000 psi PER STRUCTURAL DWGS.

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Ph. (951) 372-8400, Fax (951) 372-8430

REGISTERED PROFESSIONAL ENGINEER — No:053114 Exp: 6/30/21 — CIVIL — STATE OF CALIFORNIA

CERT. NO. 53114

Rev.	Description	Date
	95% CD SUBMITTAL	17 DEC 2019
	DESIGN DEVELOPMENT	19 NOV 2019
	SCHEMATIC DESIGN	30 OCT 2019

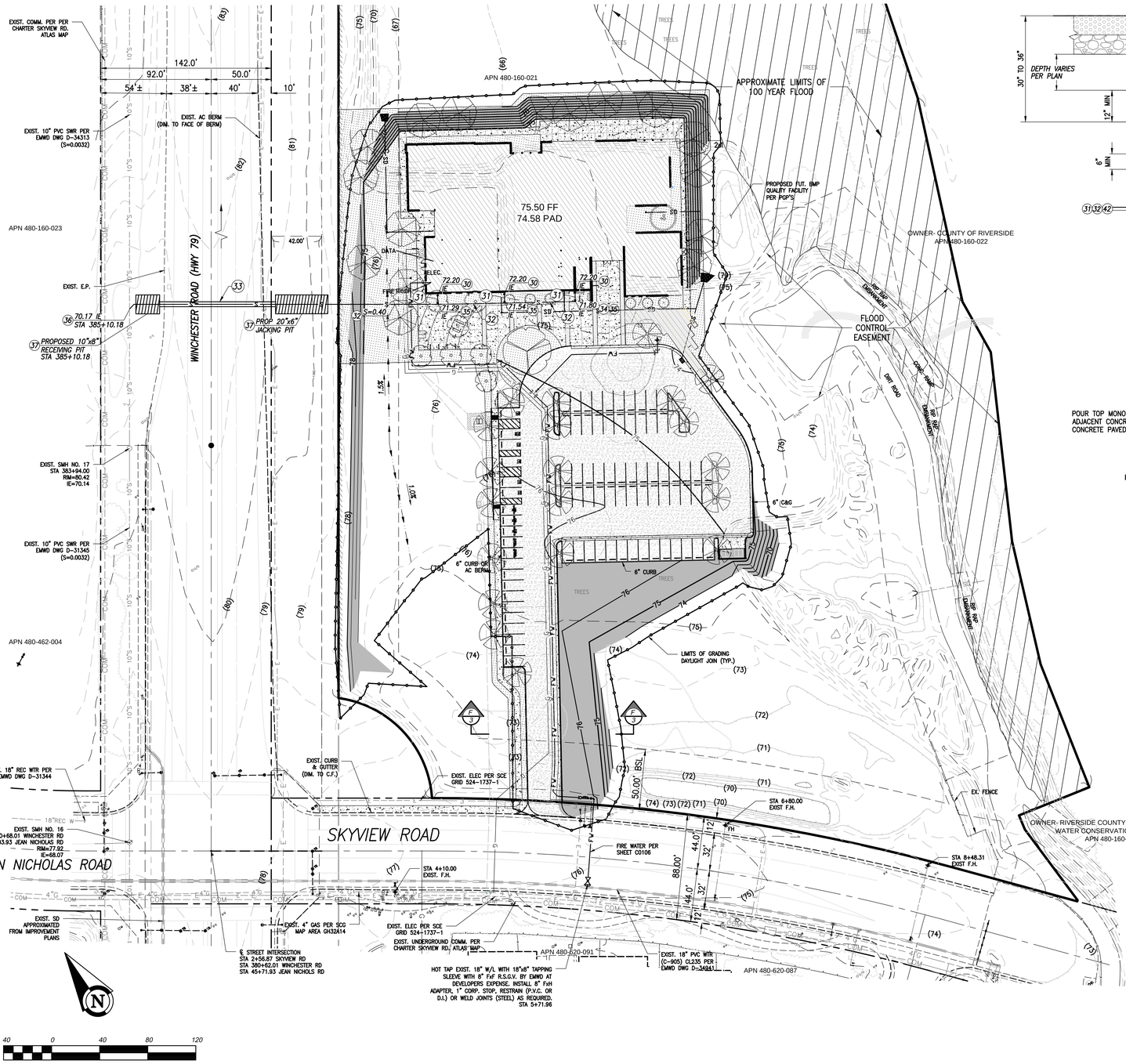
TRUE NORTH

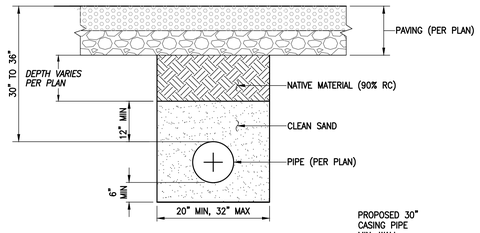
Drawing Title:

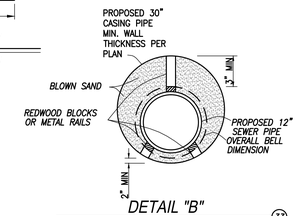
MISCELLANEOUS DETAIL S□EET

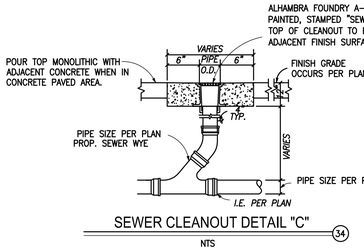
Project No.: 005810.00 Checked by:

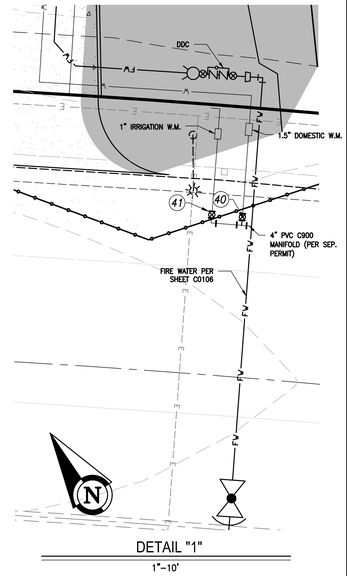
C□□□□











CONSTRUCTION NOTES - SEWER

30	JOIN EXIST. BLDG. SEWER P.O.C. (SEE PUMPING PLAN FOR CONTINUATION)
31	CONSTRUCT 4" PVC SEWER (SDR 35) GREEN IN TRENCH BEDDING PER DETAIL "A" THIS SHEET
32	CONSTRUCT 8" PVC SEWER (SDR 35) GREEN IN TRENCH BEDDING PER DETAIL "A" THIS SHEET
33	CONSTRUCT 8" DIP SEWER WITH FUSION BONDED EPOXY LINING AND ASPHALTIC COATING IN 21" STEEL JACKED PIPING (0.375" MIN WALL THICKNESS) PER DETAIL "B" THIS SHEET
34	CONSTRUCT SEWER CLEANOUTS PER DETAIL "C" THIS SHEET
35	CONSTRUCT 8"x4" SEWER WYE (PVC) SDR 35
36	CONSTRUCT 10"x8" SEWER CUT-IN-SADDLE PER EMWD STD. SB-176 (PER SEPARATE PLAN)
37	CONSTRUCT PROP. JACKING/RECEIVING PITS PER SEPARATE PERMIT (CALTRANS/EMWD)

CONSTRUCTION NOTES - WATER

40	CONSTRUCT 1 ½" W.M. & 2" W.S. PER EMWD STD B-342 & B-344A (PER SEPARATE PERMIT)
41	CONSTRUCT 1" IRRIGATION W.S. & W.M. PER EMWD STD B-590A & B-591 (PER SEPARATE PERMIT)
42	CONSTRUCT 2 ½" PVC SCH. 40 W.M. IN TRENCH BEDDING PER DETAIL "A" THIS SHEET

CONSTRUCTION NOTES - FIRE WATER

SEE SHEET C0106

LEGEND

- FH — FIRE HYDRANT
- SMH — SEWER MANHOLE
- SDMH — STORM DRAIN MANHOLE
- WV — WATER VALVE
- CATCH BASIN
- TREE (DIA. PER L/A PLAN)
- E — ELECTRICAL DUCT BANK
- C — COMMUNICATIONS
- G — GAS
- S — SEWER
- T — TELEPHONE
- W — WATER
- 590 — EXISTING GROUND CONTOUR
- CENTERLINE
- R/W LINE
- BOUNDARY
- DAYLIGHT JOIN
- EXISTING PCC PAVING
- EXISTING AC PAVING
- EXISTING LANDSCAPED AREA
- RIP-RAP / GRAVEL
- PROPOSED AC PAVING
- PROPOSED BMP
- PROPOSED PCC PAVING (GREY)
- PROPOSED PCC PAVING (COLORED)
- PROPOSED LANDSCAPING
- FUTURE BUILDING FOOTPRINT

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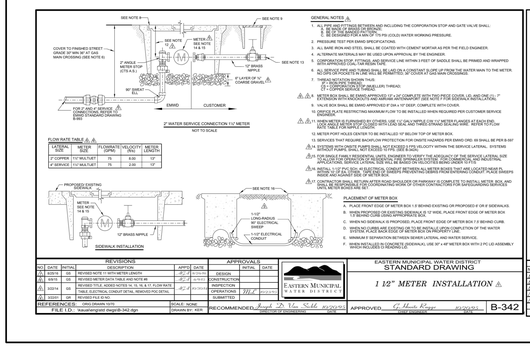
TRUE NORTH

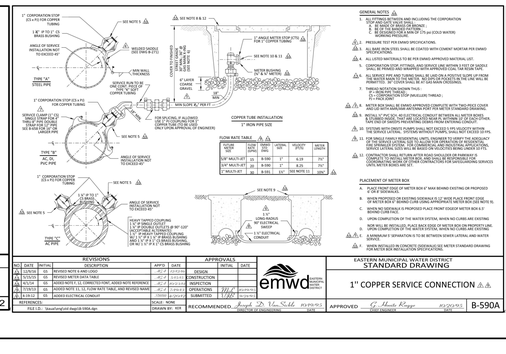
Drawing Title:

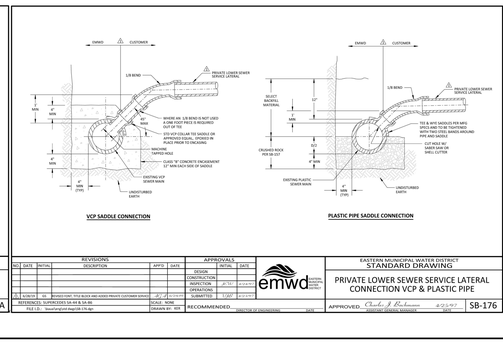
ON□SITE □ ATER □ SE□ ER PLAN

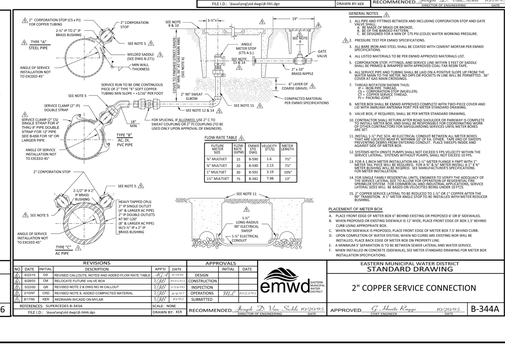
Project No.: 005810.00 Checked by:

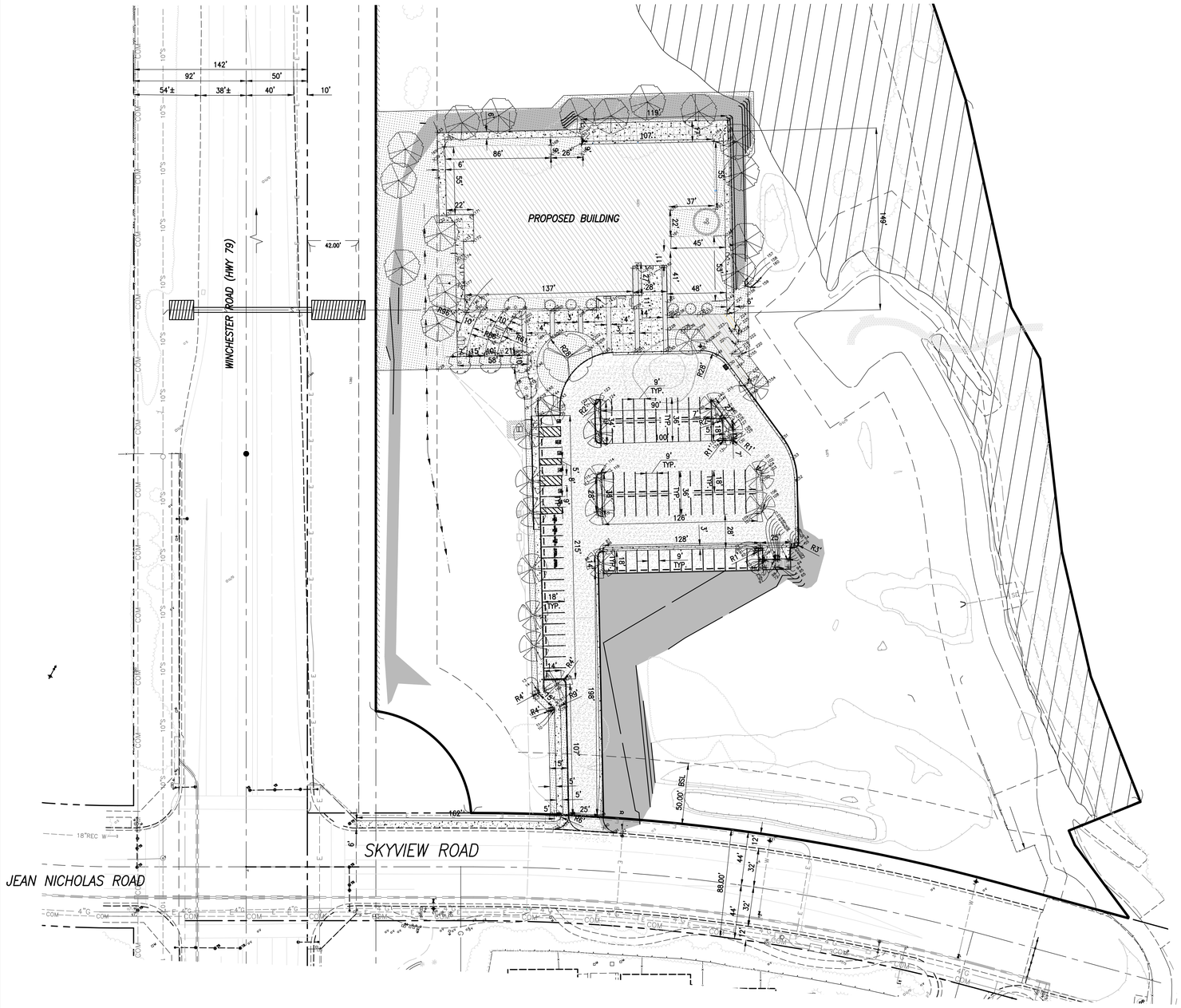
C□□□□











LEGEND

- FH — FIRE HYDRANT
- SMH — SEWER MANHOLE
- SDMH — STORM DRAIN MANHOLE
- WV — WATER VALVE
- CATCH BASIN
- TREE (DIA. PER L/A PLAN)
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- EXISTING AC PAVING
- EXISTING LANDSCAPED AREA
- RIP-RAP / GRAVEL
- PROPOSED AC PAVING
- PROPOSED BMP
- PROPOSED PCC PAVING (GREY)
- PROPOSED PCC PAVING (COLORED)
- PROPOSED LANDSCAPING
- FUTURE BUILDING FOOTPRINT

Point Table		
Point #	Northing	Easting
1	11654.86	19186.54
2	11724.20	19234.53
3	11738.45	19231.84
4	11741.04	19231.64
5	11743.56	19232.26
6	11943.99	19367.97
7	11968.52	19375.66
8	11956.80	19370.07
9	11651.53	19190.88
10	11721.73	19238.89
11	11723.18	19239.51
12	11724.75	19239.52
13	11740.08	19236.53
14	11743.10	19237.16
15	11949.95	19378.63
16	11970.49	19390.57
17	11961.21	19382.88
18	11935.86	19375.65
19	11936.41	19378.58
20	11920.27	19386.08

Point Table		
Point #	Northing	Easting
21	11915.35	19382.68
22	11925.23	19368.38
23	11643.41	19181.66
24	11640.91	19190.40
25	11645.49	19198.57
26	11736.72	19261.26
27	11746.96	19246.46
28	12003.79	19324.41
29	12145.06	19421.03
30	12003.14	19342.76
31	12093.88	19404.82
32	12101.00	19394.41
33	12161.64	19435.88
34	12095.93	19531.95
35	12090.41	19529.52
36	12153.30	19437.57
37	12148.70	19434.43
38	12024.26	19615.90
39	12018.03	19625.11
40	12031.62	19634.30

Point Table		
Point #	Northing	Easting
41	12098.90	19536.04
42	12085.42	19526.55
43	11926.51	19391.37
44	11931.92	19388.27
45	11937.88	19386.44
46	11958.60	19391.21
47	11945.34	19433.58
48	11891.41	19507.17
49	11881.50	19516.06
50	11868.60	19519.36
51	11794.40	19520.18
52	11759.87	19509.71
53	11776.33	19517.60
54	11717.07	19480.43
55	11715.81	19478.51
56	11716.28	19476.26
57	11716.85	19475.44
58	11717.32	19473.19
59	11716.06	19471.27
60	11710.58	19467.51

Point Table		
Point #	Northing	Easting
61	11711.00	19466.90
62	11711.07	19466.58
63	11710.90	19466.32
64	11705.79	19462.82
65	11710.70	19455.63
66	11715.81	19459.13
67	11716.12	19459.19
68	11716.39	19459.02
69	11717.19	19457.85
70	11717.26	19457.54
71	11717.08	19457.27
72	11711.97	19453.78
73	11716.89	19446.59
74	11721.93	19450.04
75	11722.30	19450.12
76	11722.62	19449.91
77	11723.00	19449.36
78	11729.31	19453.67
79	11730.81	19453.99
80	11732.09	19453.15

Point Table		
Point #	Northing	Easting
81	11732.40	19451.65
82	11731.57	19450.37
83	11718.36	19441.34
84	11789.49	19337.33
85	11804.35	19347.50
86	11804.91	19346.67
87	11805.54	19343.68
88	11803.87	19341.11
89	11629.49	19218.51
90	11620.53	19215.73
91	11612.44	19220.06
92	11608.74	19224.38
93	11711.14	19465.17
94	11706.60	19462.07
95	11710.37	19456.57
96	11714.91	19459.67
97	11717.21	19456.30
98	11712.67	19453.20
99	11716.44	19447.69
100	11720.98	19450.80

Point Table		
Point #	Northing	Easting
101	11786.04	19487.63
102	11785.75	19488.06
103	11780.83	19489.46
104	11783.54	19489.65
105	11775.68	19486.60
106	11756.81	19473.69
107	11755.77	19468.13
108	11755.14	19471.13
109	11756.33	19467.31
110	11827.46	19363.30
111	11830.59	19360.81
112	11833.59	19361.43
113	11856.70	19377.24
114	11857.74	19382.80
115	11858.40	19380.00
116	11857.18	19383.63
117	11792.34	19333.22
118	11876.99	19397.18
119	11880.11	19394.68
120	11883.11	19395.31

Point Table		
Point #	Northing	Easting
121	11906.22	19411.11
122	11907.89	19413.68
123	11907.27	19416.67
124	11906.70	19417.50
125	11825.36	19491.84
126	11824.16	19491.66
127	11823.06	19491.14
128	11817.67	19487.45
129	11816.83	19486.17
130	11817.15	19484.67
131	11819.97	19480.54
132	11821.25	19479.71
133	11822.75	19480.02
134	11821.25	19479.71
135	11834.30	19487.92
136	11835.80	19488.24
137	11837.08	19487.40
138	11841.04	19481.62
139	11852.86	19489.71
140	11853.26	19490.83

Point Table		
Point #	Northing	Easting
141	11852.31	19491.54
142	11975.53	19463.02
143	11967.73	19457.25
144	12028.90	19368.86
145	12037.85	19375.05
146	12019.91	19621.97
147	11956.17	19578.38
148	11912.67	19548.63
149	11903.28	19542.21
150	11930.71	19502.09
151	11939.62	19508.25
152	11838.38	19519.70
153	11838.57	19537.19
154	11864.75	19536.91
155	11906.47	19565.40
156	11916.38	19569.43
157	11913.21	19567.73
158	11909.59	19570.59
159	11910.49	19578.70
160	11981.26	19542.10

Point Table		
Point #	Northing	Easting
161	11999.01	19554.23
162	11978.40	19584.36
163	12024.20	19615.68
164	12085.47	19526.12
165	12078.98	19521.71
166	12092.81	19501.48
167	12098.86	19505.61
168	12148.61	19433.71
169	12090.19	19420.84
170	12072.19	19408.62
171	12076.77	19401.60
172	12064.85	19393.45
173	12067.60	19389.42
174	12049.78	19377.09
175	12046.81	19381.36
176	12037.94	19375.12
177	12030.15	19386.54
178	11960.38	19488.52
179	12001.08	19395.16
180	11978.26	19501.39

Point Table		
Point #	Northing	Easting
181	11963.88	19522.72
182	11936.07	19441.11
183	11971.03	19414.91
184	11970.71	19418.56
185	11906.39	19485.26
186	11718.90	19243.02
187	11725.71	19244.42
188	11722.16	19244.41
189	11738.30	19241.97
190	11741.33	19242.61
191	11739.88	19241.98
192	12028.27	19369.77
193	11999.07	19348.71
194	12021.76	19379.30
195	11990.54	19361.18
196	12011.28	19394.32
197	11984.83	19369.52
198	12003.47	19405.60
199	12001.08	19395.16
200	11978.36	19379.08
201	11976.37	19381.96

Point Table		
Point #	Northing	Easting
202	12002.30	19399.91
203	11988.79	19426.81
204	11970.71	19418.56
205	11986.80	19429.69
206	11969.64	19454.49
207	11950.22	19441.06
208	11945.28	19441.90
209	11951.18	19482.52
210	11922.07	19462.38
211	11920.29	19464.94
212	11976.74	19503.99
213	11964.91	19521.14
214	11908.53	19482.13
215	11847.38	19519.60
216	11847.45	19526.60
217	11874.49	19526.33
218	11874.51	19529.83
219	11869.51	19529.85
220	11869.53	19533.35
221	11879.53	19533.30

Point Table		
Point #	Northing	Easting
222	11879.55	19536.80
223	11889.57	19536.63
224	11889.61	19540.13
225	11884.60	19540.19
226	11884.69	19543.68
227	11905.13	19543.56
228	11920.85	19495.26
229	11906.94	19515.36
230	11894.36	19515.58
231	11894.39	19522.58
232	11847.42	19523.10
233	11914.46	19525.86
234	11916.87	19522.33
235	11911.86	19508.37
236	11914.29	19504.86
237	11928.87	19504.78
238	11926.47	19508.29

40 0 40 80 120

SCALE 1" = 40'

County of Riverside
French Valley Library

APN: 480-160-021
31526 Skyview Rd.
Winchester, 92596

CANNONDESIGN
2355 Main Street, Suite 220
Irvine, CA 92614
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Contractor

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REGISTERED PROFESSIONAL ENGINEER
WILLIAM D. BROOKS
No. 053114
Exp. 6/30/21
CIVIL
STATE OF CALIFORNIA

CERT. NO. 53114

Rev.	Description	Date
	95% CD SUBMITTAL	17 DEC 2019
	DESIGN DEVELOPMENT	19 NOV 2019
	SCHEMATIC DESIGN	30 OCT 2019

TRUE NORTH

Drawing Title:

□ORI□ONTAL CONTROL PLAN

Project No.: 005810.00 Checked by:

C□□□□

GENERAL FIRE PLAN NOTES (NFPA 24)

A. PRIOR TO INSTALLATION, REQUIRED PERMITS SHALL BE SECURED FROM THE FIRE DEPARTMENT.

B. INSTALLATION, INSPECTION AND TESTING SHALL CONFORM TO THE 2016 EDITION OF NFPA STANDARD 13 AND THE 2016 EDITION OF NFPA STANDARD 24, AS AMENDED.

B.1. THE POTABLE WATER SUPPLY SHALL BE PROTECTED AGAINST BACKFLOW IN ACCORDANCE WITH HEALTH & SAFETY CODE SECTION 13114.7. THE LOCATION AND TYPE OF CONTROL DEVICES SHALL BE APPROVED BY THE FIRE DEPARTMENT AND THE DEPARTMENT OF WATER AND POWER.

C. APPROVED FIRE DEPARTMENT CONNECTIONS (FDC) SHALL BE LOCATED WITHIN 50' OF A PUBLIC FIRE HYDRANT. THE FDC SHALL BE ORIENTED TO FACE THE FIRE DEPARTMENT ACCESS ROAD. THE FDC SHALL BE PROPERLY SUPPORTED AND SHALL BE PROTECTED AGAINST MECHANICAL DAMAGE. FIRE DEPARTMENT INLET CONNECTIONS SHALL BE PAINTED OSHA SAFETY RED.

D. FDCs SHALL BE ON THE ADDRESS SIDE OF THE BUILDING AND LOCATED IMMEDIATELY ADJACENT TO THE APPROVED FIRE DEPARTMENT ACCESS ROAD. THE FDC SHALL BE IN A POSITION ALLOWING HOSE LINES TO BE READILY AND CONVENIENTLY ATTACHED. THE FDC SHALL CONTAIN A MINIMUM OF TWO 2½" INLETS. SITES CONTAINING PUBLIC OR PRIVATE HYDRANTS SHALL HAVE FDCs WITH A MINIMUM OF TWO 2½" INLETS AND TWO 4" INLETS TO ACCOMMODATE LARGE DIAMETER HOSE. SPECIFIC CONFIGURATION SHALL BE DETERMINED BY THE FIRE CODE OFFICIAL.

E. PRIVATE FIRE HYDRANTS SHALL MEET LOCAL AGENCY STANDARDS, WITH A MINIMUM OF ONE 2½" AND ONE 4" OUTLET. HYDRANT SIZE AND OUTLETS SHALL BE DETERMINED BY THE FIRE CODE OFFICIAL. ALL OUTLETS SHALL BE PROVIDED WITH NATIONAL STANDARD THREADS (NST). ALL FIRE HYDRANTS SHALL BE INSTALLED ON A 6" RISER. 4" OUTLET(S) SHALL FACE TOWARD THE FIRE DEPARTMENT ACCESS ROADS FIRE HYDRANTS SHALL BE LOCATED A MINIMUM OF 40' FROM ALL STRUCTURES. A KEYED GATE VALVE SHALL BE PROVIDED FOR EACH HYDRANT IN AN ACCESSIBLE LOCATION (VALVES SHALL NOT BE LOCATED IN PARKING STALLS). SUPER HYDRANTS ENHANCED SHALL CONTAIN TWO 4" OUTLETS AND ONE 2½" OUTLET.

F. LARGE PRIVATE FIRE SERVICE MAIN SYSTEMS SHALL HAVE POST INDICATOR TYPE SECTIONAL CONTROLLING VALVES AT APPROPRIATE POINTS IN ORDER TO PERMIT SECTIONALIZING THE SYSTEM IN THE EVENT OF A BREAK, OR FOR THE MAKING OF REPAIRS OR EXTENSIONS.

G. ALL PIPE SHALL BE APPROVED FOR USE IN "FIRE SERVICE SYSTEMS", CLASS 150 MINIMUM. CLASS 200 SHALL BE PROVIDED WHERE THE PRESSURE EXCEEDS 150 POUNDS PER SQUARE INCH (PSI). ALL FERROUS METAL PIPE SHALL BE LINED. ALL FERROUS PIPE AND FITTINGS SHALL BE PROTECTED WITH A LOOSE 8-MIL POLYETHYLENE TUBE. THE ENDS OF THE TUBES SHALL BE SEALED WITH 2" TAPE APPROVED FOR UNDERGROUND USE. ALL BOLTED JOINT ACCESSORIES SHALL BE CLEANED AND THOROUGHLY COATED WITH ASPHALT OF OTHER CORROSION RETARDING MATERIAL AFTER ASSEMBLY AND PRIOR TO POLY-TYBE INSTALLATION.

H. A SIX-INCH BED OF CLEAN FILL SAND SHALL BE PROVIDED BOTH BELOW AND 12 INCHES ABOVE THE PIPE (TOTAL OF 18" PLUS OUTER DIAMETER OF THE PIPING).

I. PIPE SHALL BE CENTER LOADED WITH CLEAN SAND TO PREVENT UPLIFT DURING HYDROSTATIC TEST. ALL JOINTS SHALL REMAIN EXPOSED.

J. A MINIMUM OF 30" OF COVER FROM FINISHED GRADE TO TOP OF PIPE SHALL BE PROVIDED ABOVE THE PIPE. WHEN SURFACE LOADS ARE EXPECTED, A MINIMUM OF 36" OF COVER SHALL BE PROVIDED.

L. LISTED AND APPROVED PIPING SHALL BE INSTALLED UNDER THE BUILDING FOOTINGS. ADEQUATE CLEARANCE SHALL BE PROVIDED OVER PIPE THAT RUNS UNDER FOOTINGS TO PREVENT DAMAGE FROM BUILDING SETTLING. A MINIMUM OF 2" CLEARANCE (INTERSTITIAL SPACE) SHALL BE PROVIDED WHERE PIPE PASSES THROUGH THE FLOOR OR WALL. UNDERGROUND PIPING SERVING FIRE SPRINKLER RISERS SHALL TERMINATE WITHIN 18" OF AN EXTERIOR WALL AND 6" ABOVE FINISHED FLOOR.

NOTE: UNDERGROUND PIPING SERVING FIRE SPRINKLERS SHALL NOT TERMINATE 5' FROM THE BUILDING.

M. THRUST BLOCKS OR OTHER APPROVED METHOD OF THRUST RESTRAINT SHALL BE PROVIDED WHEREVER PIPE CHANGES DIRECTION. CONCRETE THRUST BLOCKS SHALL BE SIZED PER N.F.P.A. 24 A.10.6.1.

FIELD INSPECTION NOTES AND REQUIREMENTS

A. FINAL INSPECTION IS REQUIRED. SCHEDULE ALL INSPECTIONS AND TESTS SEVENTY-TWO (72) HOURS IN ADVANCE.

B. THE TRENCH SHALL BE EXCAVATED FOR THRUST BLOCKS AND INSPECTED PRIOR BEING COVERED. ALL CORROSION PROTECTION SHALL BE IN PLACE. CARE SHALL BE TAKEN WHEN FORMING AND POURING THRUST BLOCS THAT FITTINGS AND JOINTS ARE NOT BURIED IN CONCRETE.

C. A HYDROSTATIC TEST (200 PSI PRESSURE FOR 2 HOURS OR 50 PSI OVER THE MAXIMUM STATIC PRESSURE WHEN IT IS OVER 150 PSI) SHALL BE WITNESSED BY AN INSPECTOR BEFORE BACKFILL AND SOIL COMPACTION. THE TRENCH SHALL BE BACKFILLED BETWEEN JOINTS BEFORE TESTING TO PREVENT MOVEMENT OF PIPE.

D. THE SYSTEM SHALL BE CONNECTED TO THE CITY MAIN AND FLUSHED THOROUGHLY PRIOR TO CONNECTION TO THE OVERHEAD SYSTEM. FLOW RATE SHALL BE A MINIMUM OF 10 FT./SEC THROUGH NOT LESS THAN 4 INCH PIPE OR HOSE. APPROVED EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR, TO ENSURE SAFETY. THE FLUSH SHALL BE WITNESSED BY AN INSPECTOR.

E. PRIVATE FIRE HYDRANTS, SPRINKLER CONTROL VALVES, DETECTOR CHECK ASSEMBLIES, POST INDICATOR VALVES AND FIRE DEPARTMENT CONNECTIONS SHALL BE PAINTED OSHA SAFETY RED.

F. ALL CONTROL VALVES SHALL BE PROVIDED WITH PERMANENT SIGNS THAT CLEARLY INDICATE THE BUILDING, SYSTEM AND FUNCTION THE VALVE SERVES.

G. ALL FIRE SPRINKLER SYSTEM CONTROL VALVES (INCLUDING DETECTOR CHECK ASSEMBLIES), THAT CONTROL 20 OR MORE FIRE SPRINKLER HEADS, SHALL BE SUPERVISED BY AN APPROVED CENTRAL MONITORING STATION LISTED BY UL, UNLESS OTHERWISE APPROVED BY RIVERSIDE COUNTY FIRE DEPARTMENT.

ELECTRIC CLEARANCE

A MINIMUM PARALLELING CLEARANCE OF 5' AND 1' WHEN CROSSING UNDERGROUND ELECTRIC UTILITY LINES WILL REQUIRED WHEN INSTALLING FIRE APERTURE. CONTRACTOR TO POTHOLE EXISTING CONDUITS BEFORE WET UTILITY INSTALLATION TO ENSURE CLEARANCE.

RCTD NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNER OR CONTRACTOR TO APPLY TO THE RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT, PERMIT SECTION, FOR AN ENCROACHMENT PERMIT FOR ALL WORK PERFORMED WITHIN PUBLIC RIGHT-OF-WAY, DEDICATED AND ACCEPTED FOR PUBLIC USE; AND TO BE RESPONSIBLE FOR SATISFACTORY COMPLIANCE FOR ALL CURRENT ENVIRONMENTAL REGULATIONS DURING THE LIFE OF CONSTRUCTION ACTIVITIES FOR THIS PROJECT. ADDITIONAL STUDIES AND/OR PERMITS MAY BE REQUIRED.

2. THE CONTRACTOR/DEVELOPER SHALL BE RESPONSIBLE FOR THE CLEARING OF THE PROPOSED WORK AREA, AND RELOCATION COSTS OF ALL EXISTING UTILITIES. THIS INCLUDES UNDERGROUNDING OF EXISTING OVERHEAD LINES ALONG THE PROJECT FRONTAGE AS REQUIRED BY THE CONDITIONS OF APPROVAL. PERMITTEE MUST INFORM COUNTY OF CONSTRUCTION SCHEDULE AT LEAST 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION.
PHONE: (951) 955-6790 FOR PERMIT CASES

3. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE RIVERSIDE COUNTY TRANSPORTATION DEPARTMENT IMPROVEMENT STANDARDS AND SPECIFICATIONS, LATEST EDITION, COUNTY ORDINANCE NO. 461 AND SUBSEQUENT AMENDMENTS.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR OR DEVELOPER TO INSTALL AND MAINTAIN ALL CONSTRUCTION, REGULATORY, GUIDE AND WARNING SIGNS WITHIN THE PROJECT LIMITS AND ITS SURROUNDINGS TO PROVIDE SAFE PASSAGE FOR THE TRAVELING PUBLIC AND WORKERS UNTIL THE FINAL COMPLETION AND ACCEPTANCE OF THE PROJECT BY THE COUNTY. A TRAFFIC CONTROL PLAN MUST BE SUBMITTED FOR REVIEW TO THE PERMITS SECTION OR INSPECTION SECTION PRIOR TO OBTAINING AN ENCROACHMENT PERMIT.

EMWD WATER NOTES

1. WATER PIPELINE AND APPURTENANT CONSTRUCTION SHALL BE IN ACCORDANCE WITH EMWD STANDARDS AND SPECIFICATIONS.
2. PRIOR TO CONSTRUCTION OF PIPELINE, CONTRACTOR SHALL EXPOSE EXISTING WATER SYSTEM AND VERIFY ITS EXISTING ELEVATION AND LOCATION.
3. INSTALL LOCATOR WIRE OVER WATER MAIN PER STD. DWG. B-656.
4. FIRE HYDRANT ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH STD. DWG'S. B-362.
5. BLOW-OFF ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH STD. DWG. B-357.
6. TEMPORARY BLOW-OFF ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH STD. DWG. B-568.
7. ALL P.V.C. PIPE THROUGH 12" SHALL BE TYPE C-900, CLASS 150, EXCEPT WHERE NOTED OTHERWISE. PIPE SHALL CONFORM TO AWWA SPECIFICATIONS. 18" AND LARGER SHOULD BE C-950, CLASS 235.
8. FITTINGS FOR P.V.C. PIPE SHALL BE DUCTILE OR GRAY IRON. FITTINGS SHALL BE FLANGED, BOLTED MECHANICAL JOINTS, OR PUSH-ON JOINTS, AND SHALL BE CEMENT MORTAR LINED AND TAR (SEAL) COATED PER EMWD STANDARDS AND SPECIFICATIONS.
9. ALL DUCTILE OR GRAY IRON FITTINGS SHALL BE POLYETHYLENE ENCASED AT THE TIME OF INSTALLATION PER EMWD STANDARDS AND SPECIFICATIONS.
10. A JOINT RESTRAIN DEVICE SHALL BE USED ON ALL MAIN PIPE JOINTS WITHIN SPECIFIED LIMITS AND ALL JOINTS OF WATER APPURTENANCE LATERALS OFF MAIN LINE, PER EMWD STD. DWG. B-663.
11. DUCTILE IRON PIPE SHALL BE TAR (SEAL) COATED AND CEMENT MORTAR LINED WITH BOLTED MECHANICAL OR PUSH-ON JOINTS.
12. ALL DUCTILE OR GRAY IRON PIPE & FITTINGS SHALL BE ENCASED AT THE TIME OF INSTALLATION WITH POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH ANSI/AWWA C150.

TIME LIMITATIONS

THE TIME LIMIT ON DRAWING(S) APPROVAL SHALL BE SIX (6) MONTHS FROM THE DATE ON THE CERTIFICATION. IF CONSTRUCTION HAS NOT COMMENCED WITHIN STATED TIME, EMWD REQUIRES DRAWING(S) TO BE REVIEWED BY THE DEVELOPER/DESIGN ENGINEER AND RESUBMITTED TO EMWD FOR POSSIBLE CHANGES IN MASTER PLANNED SIZING AND CHANGES IN SPECIFICATIONS AND STANDARDS.

NOTIFICATIONS

AT LEAST 48 HOURS PRIOR TO CONSTRUCTION, CONTRACTOR SHALL NOTIFY:

1. EASTERN MUNICIPAL WATER DISTRICT,
FIELD ENGINEERING DEPARTMENT, (909) 928-3777, ext. 4830
2. RIVERSIDE COUNTY ROAD DEPARTMENT
(951) 955-6885
3. UNDERGROUND SERVICE ALERT (USA)
1 (800) 227-2600

GENERAL NOTES

1. PERMITS FROM OTHER AGENCIES: APPROVAL BY EMWD IMPLIES NO PERMISSION OTHER THAN THAT WITHIN THE DISTRICT'S JURISDICTION. ALL PERMITS REQUIRED BY LAW SHALL BE ACQUIRED BY THE DEVELOPER OR HIS CONTRACTOR. REQUIREMENTS OF EMWD SHALL TAKE PRECEDENCE OVER REQUIREMENTS OF OTHER AGENCIES ONLY WHERE EMWD REQUIREMENTS ARE GREATER.

2. COORDINATION OF WORK: THE PROPOSED WORK SHALL BE SUBORDINATED TO ANY OPERATIONS EMWD MAY CONDUCT, AND SHALL BE COORDINATED WITH SUCH OPERATIONS AS DIRECT BY EMWD.

3. APPROVAL OF GRADES: APPROVAL BY EMWD OF A PROPOSED CONNECTION TO AN EMWD FACILITY DOES NOT IMPLY APPROVAL OF THE CORRECTNESS OF THE ELEVATIONS SHOWN ON THE PLAN.

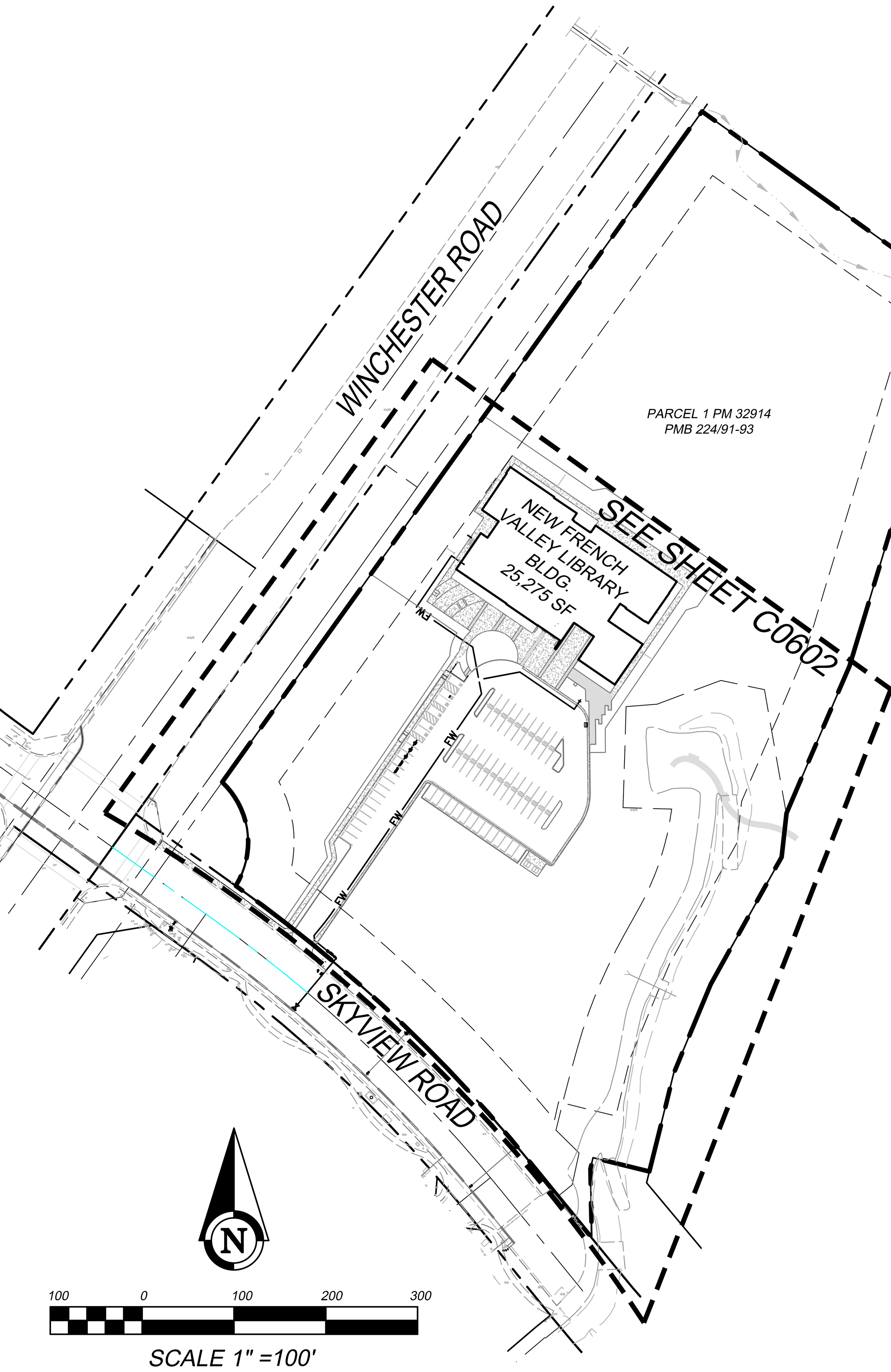
4. STANDARDS OF CONSTRUCTION: ALL WORK SHALL CONFORM TO RECOGNIZED STANDARDS OF CONSTRUCTION, AS REQUIRED AND APPROVED BY EMWD

5. WATER AND SEWER SEPARATION SHALL CONFORM TO STATE HEALTH CODE STANDARDS.

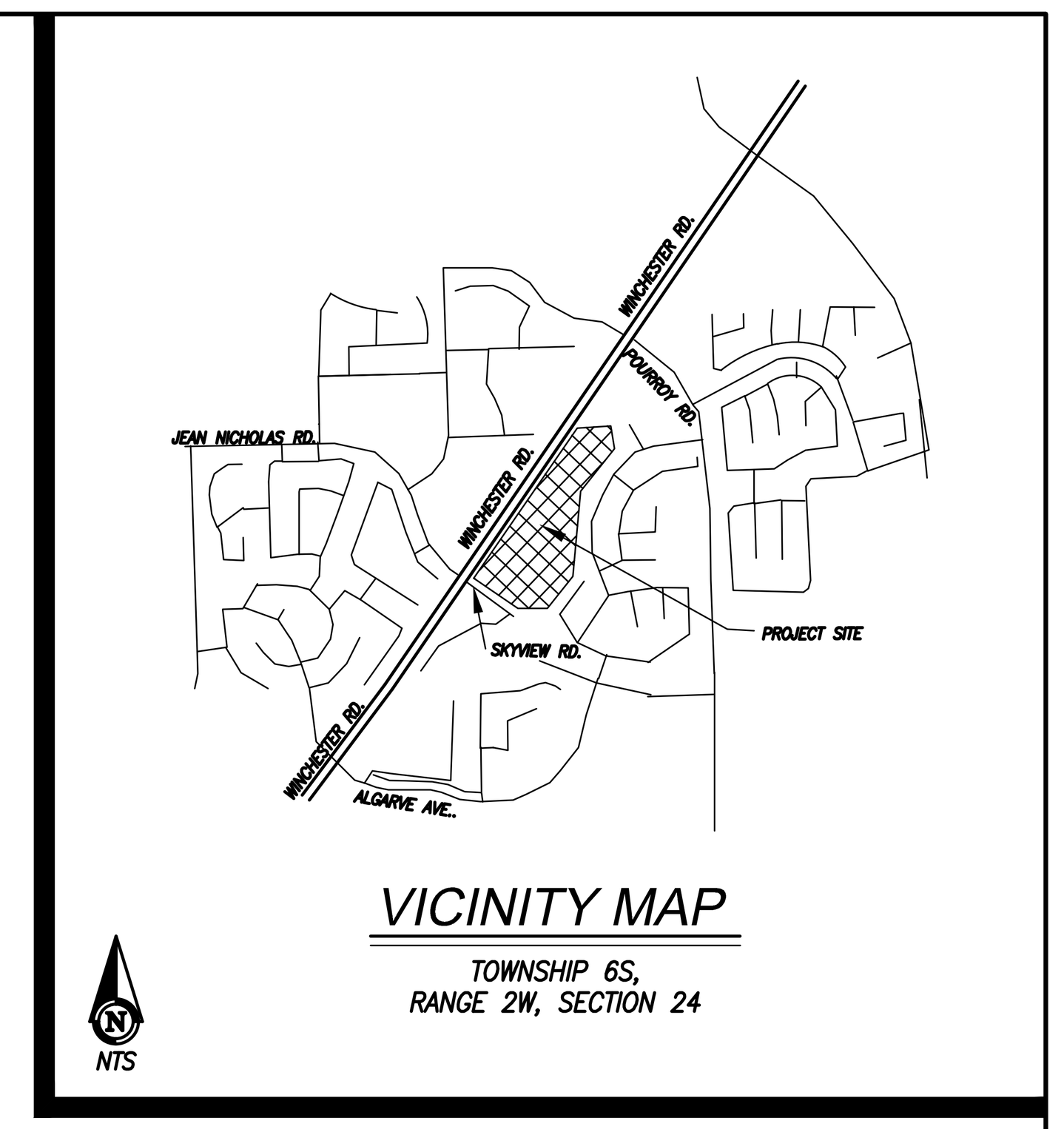
6. THE TYPES, LOCATIONS, SIZES AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE IMPROVEMENT PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION TO REVEAL THE TYPES. EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING FACILITIES.

7. THE CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION HE IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND REQUESTING A VERIFICATION AT THE CONSTRUCTION SITE OF THE LOCATION OF THEIR UNDERGROUND UTILITIES WHERE SUCH FACILITIES MAY POSSIBLY CONFLICT WITH PLACEMENT OF IMPROVEMENTS AS SHOWN ON THESE IMPROVEMENT PLANS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS CONTRACT WILL BE REQUIRED TO NOTIFY MEMBERS OF UNDERGROUND SERVICE ALERT (USA) 48 HOURS IN ADVANCE OF PERFORMING WORK, BY CALLING 811.

FIRE SUPPLY PLAN
FOR
FRENCH VALLEY LIBRARY - 31526 SKYVIEW ROAD
IN THE COUNTY OF RIVERSIDE, CA



INDEX MAP



VICINITY MAP
TOWNSHIP 6S,
RANGE 2W, SECTION 24

ASSESSOR'S PARCEL NO.
480-160-021

SITE ADDRESS
31526 SKYVIEW ROAD
WINCHESTER, CA 92596

LEGAL DESCRIPTION
REAL PROPERTY IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1 OF PARCEL MAP NO. 32914, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 224, PAGES 91 THROUGH 93 OF PARCELS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

OWNER
COMMUNITY FACILITY PARTNERS - SPE
18336 MINNETOKA BLVD, CENTER, SUITE C
DEEPHAVEN, MN 55391
(612) 349-5649
ATTN: STEVE COLLINS

DEVELOPER
OMNI WEST GROUP, INC.
3943 IRVINE BLVD, 607
IRVINE, CA 92602
(949) 215-9790
ATTN: KIP DUBBS

CONTRACTOR

CIVIL ENGINEER
ARMSTRONG & BROOKS CONSULTING ENGINEERS
1350 E. CHASE DRIVE
(MAIL TO: P.O. BOX 78088)
CORONA, CA 92881
PH. (951) 372-8400 FAX (951) 372-8430
CONTACT: DENNIS ARMSTRONG
EMAIL: dennis@armstrongbrooks.com

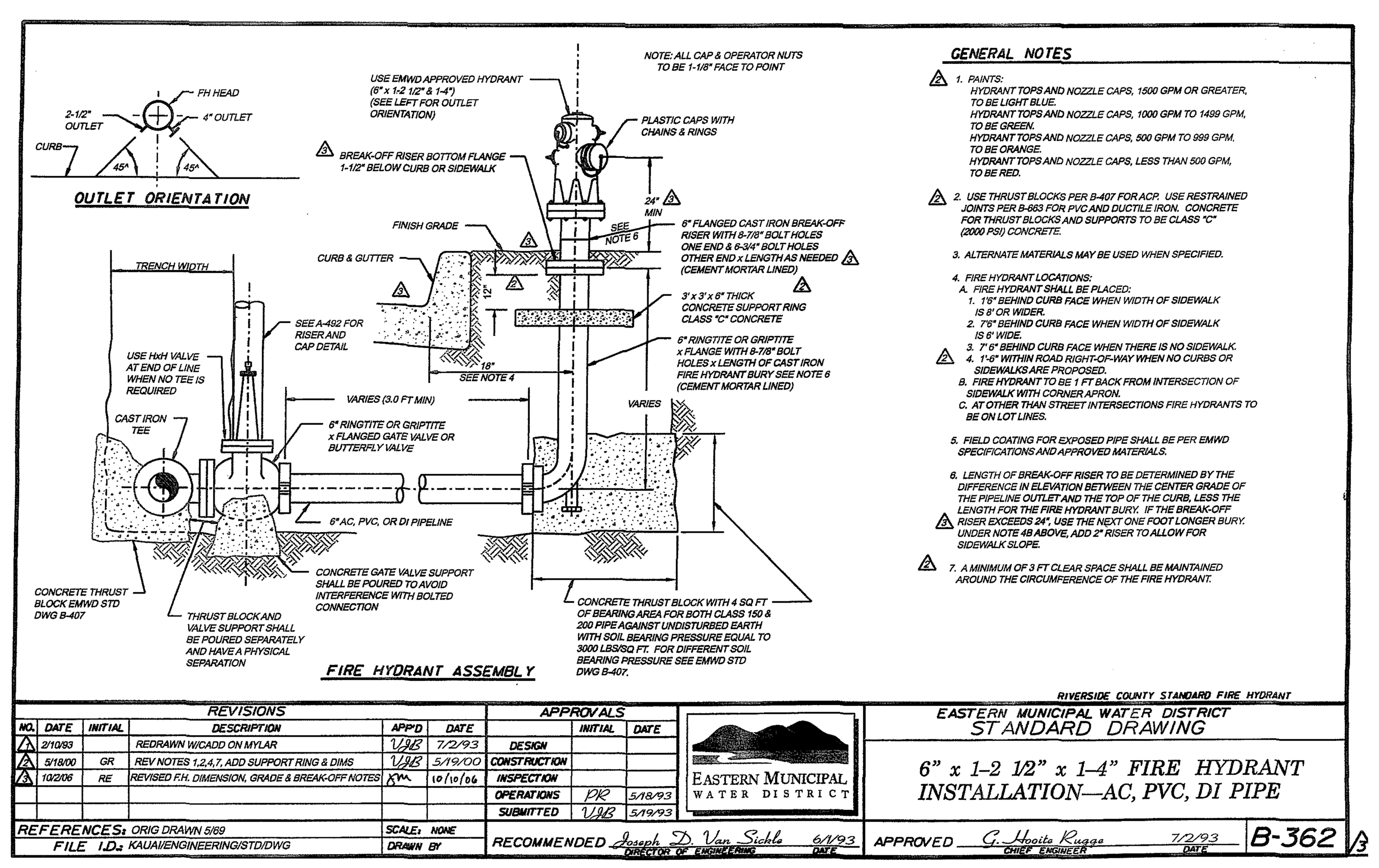
FIRE FLOW
1,625 GPM

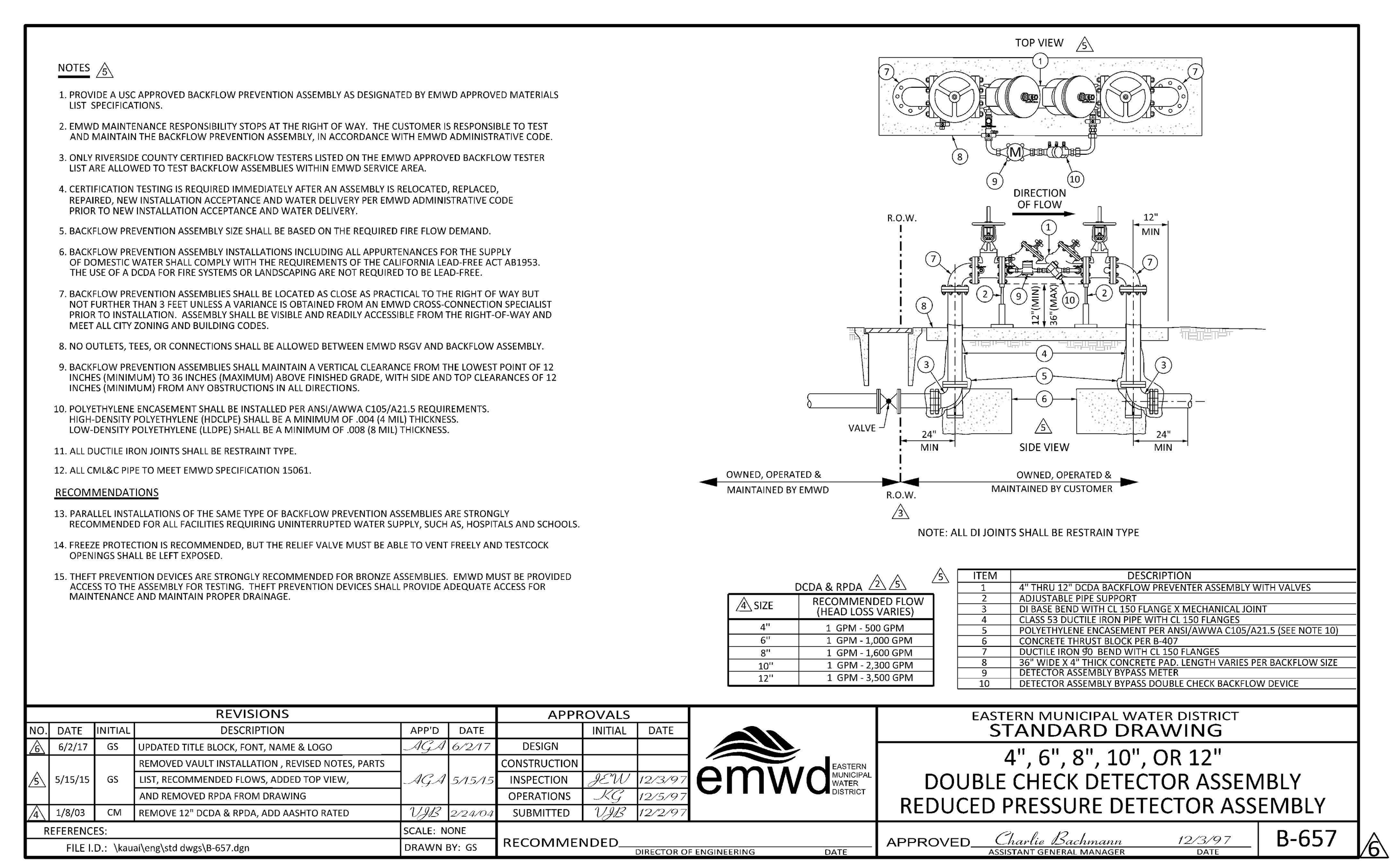
WATER / SEWER / RECYCLED WATER APPROVED BY:
EASTERN MUNICIPAL WATER DISTRICT

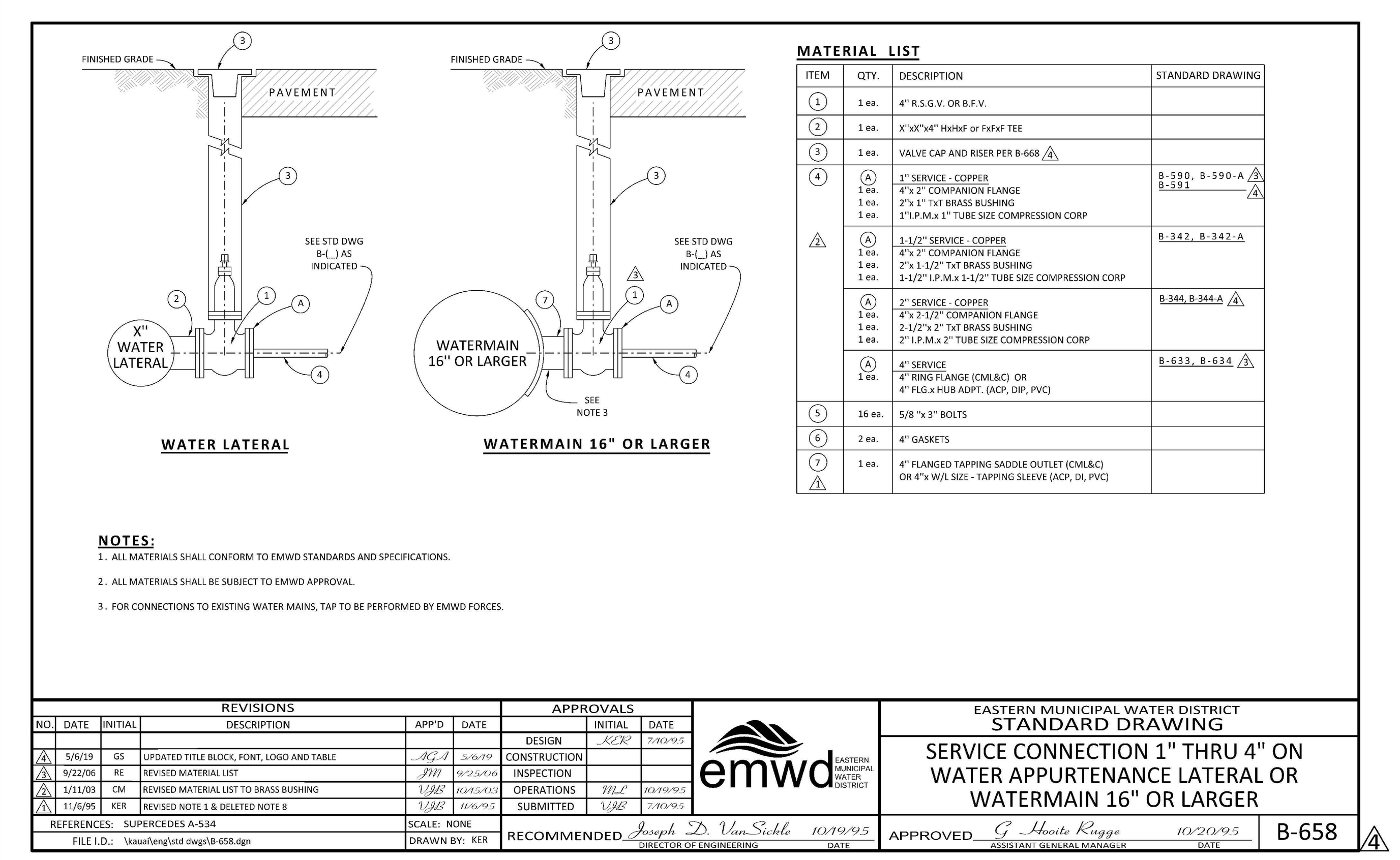
CIVIL ENGINEER OF SUBDIVISIONS DATE

APPROVALS		INITIAL	DATE
	PROJECT ENGINEER		
	INSPECTION		
	WTR OPERATIONS		
	SWR OPERATIONS		

SHEET INDEX







County of Riverside
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REGISTERED PROFESSIONAL ENGINEER WILLIAM D. BROOKS No.C53114 Exp. 6/30/21 CIVIL STATE OF CALIFORNIA

CERT. NO. 53114

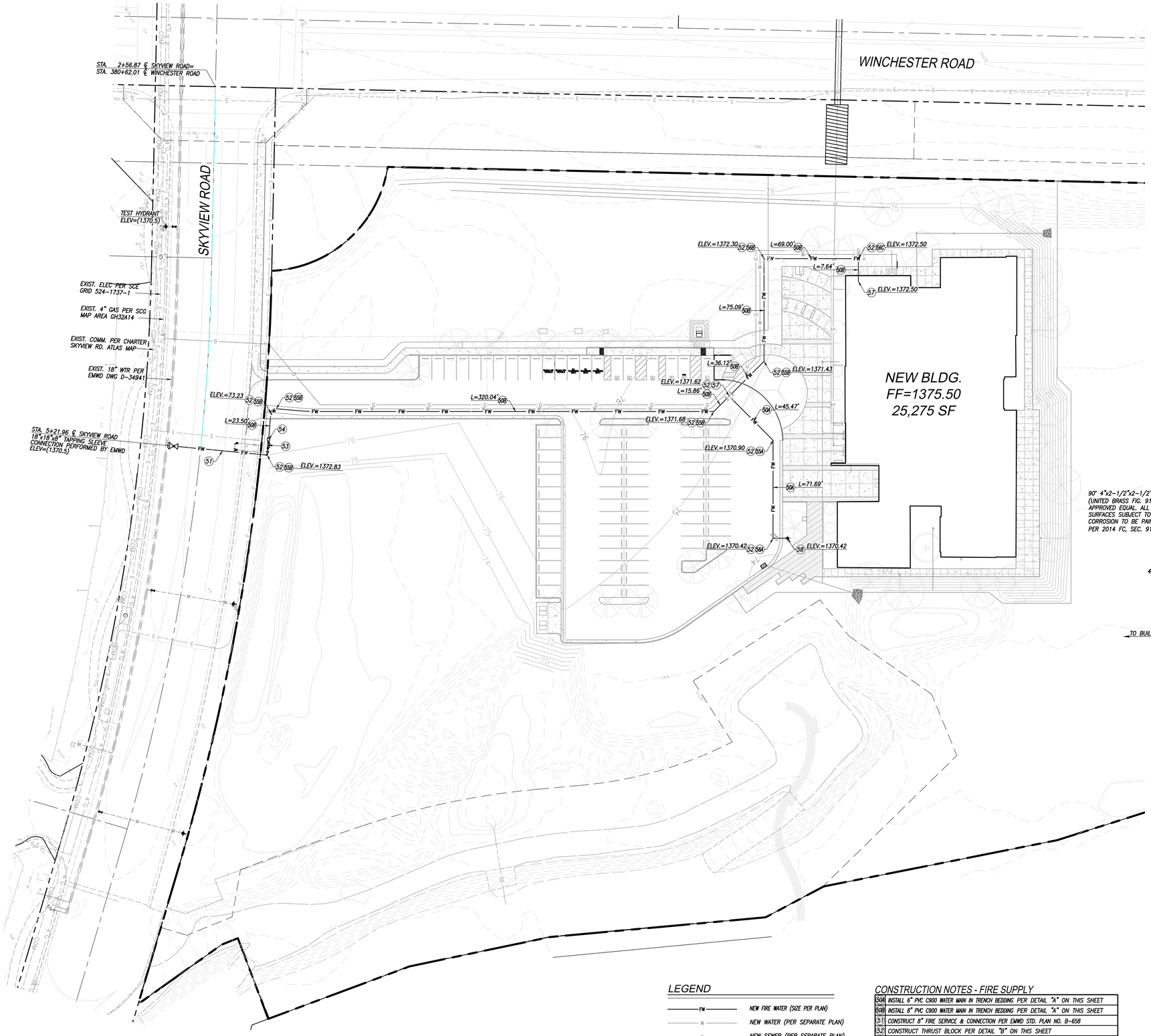
Rev.	Description	
	95% CD SUBMITTAL	17 DEC
	DESIGN DEVELOPMENT	19 NOV
	SCHEMATIC DESIGN	30 OCT

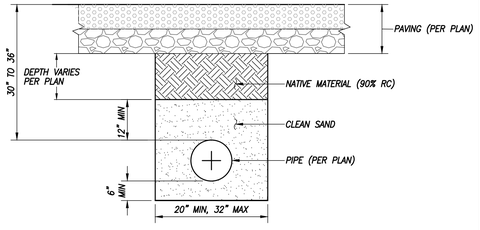
Drawing Title:

FIRE SUPPLY PLAN

Project No.: 005810.00 Checked by:

C

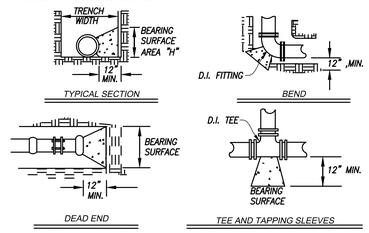




DETAIL "A"
50 FIRE WATER TRENCH BEDDING
NTS

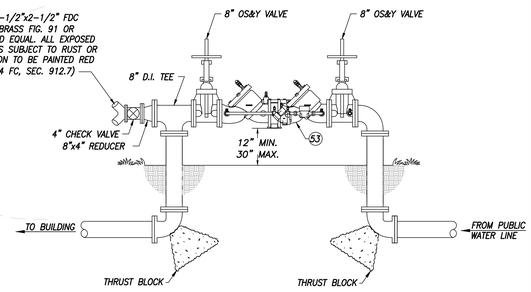
SIZE	FITTING	HEIGHT	WIDTH
4"	TEE	1'	3'
4"	90°	1'	3'

THRUST BLOCKS ARE TO BE SIZED AND LOCATED ON ALL PIPELINES PER TABLE THIS SHEET AND BASED ON 1,500 PSF SOIL BEARING CAPACITY

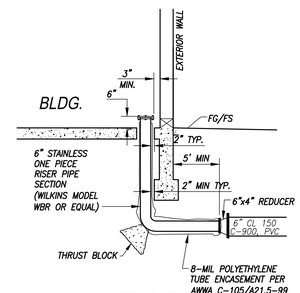


DETAIL "B"
52 THRUST BLOCKS
NTS

90° 4"x2-1/2"x2-1/2" FDC (UNITED BRASS FIG. 91 OR APPROVED EQUAL. ALL EXPOSED SURFACES SUBJECT TO RUST OR CORROSION TO BE PAINTED RED PER 2014 FC, SEC. 912.7)



DETAIL "C"
54 FIRE DEPARTMENT CONNECTION
NTS



DETAIL "D"
56 FIRE RISER
NTS

LEGEND

FW	NEW FIRE WATER (SIZE PER PLAN)
W	NEW WATER (PER SEPARATE PLAN)
S	NEW SEWER (PER SEPARATE PLAN)
SD	NEW STORM DRAIN (PER SEPARATE PLAN)
W	EXISTING WATER
S	EXISTING SEWER
SD	EXISTING STORM DRAIN (<12")
G	EXISTING GAS
E	EXISTING ELECTRIC

CONSTRUCTION NOTES - FIRE SUPPLY

50A	INSTALL 6" PVC C900 WATER MAIN IN TRENCH BEDDING PER DETAIL "A" ON THIS SHEET
50B	INSTALL 8" PVC C900 WATER MAIN IN TRENCH BEDDING PER DETAIL "A" ON THIS SHEET
51	CONSTRUCT 8" FIRE SERVICE & CONNECTION PER EMWD STD. PLAN NO. B-658
52	CONSTRUCT THRUST BLOCK PER DETAIL "B" ON THIS SHEET
53	INSTALL 8" DOUBLE DETECTOR CHECK ASSEMBLY PER EMWD STD. PLAN NO. B-657
54	INSTALL FLANGED TEE W/ FIRE DEPARTMENT CONNECTION (ON DDC) PER DETAIL "C" ON THIS SHEET
55A	INSTALL 6" D.I. 45° ELBOW
55B	INSTALL 8" D.I. 45° ELBOW
56A	INSTALL 6" D.I. 90° ELBOW
56B	INSTALL 8" D.I. 90° ELBOW W/ 4" REDUCER
57	INSTALL 4" FIRE RISER PER DETAIL "D" ON THIS SHEET
58	INSTALL FIRE HYDRANT PER EMWD STD. PLAN NO. B-362

30 0 30 60 90

SCALE 1" = 30'

County of Riverside
French Valley Librar

APN: 480-160-021
31526 Skyview Rd.
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REGISTERED PROFESSIONAL ENGINEER
William D. Brooks
No. C053114
Exp. 6/30/21
CIVIL
STATE OF CALIFORNIA

CERT. NO. 53114

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	SCHEMATIC DESIGN	30 OCT 2
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FIRE SUPPL PLAN

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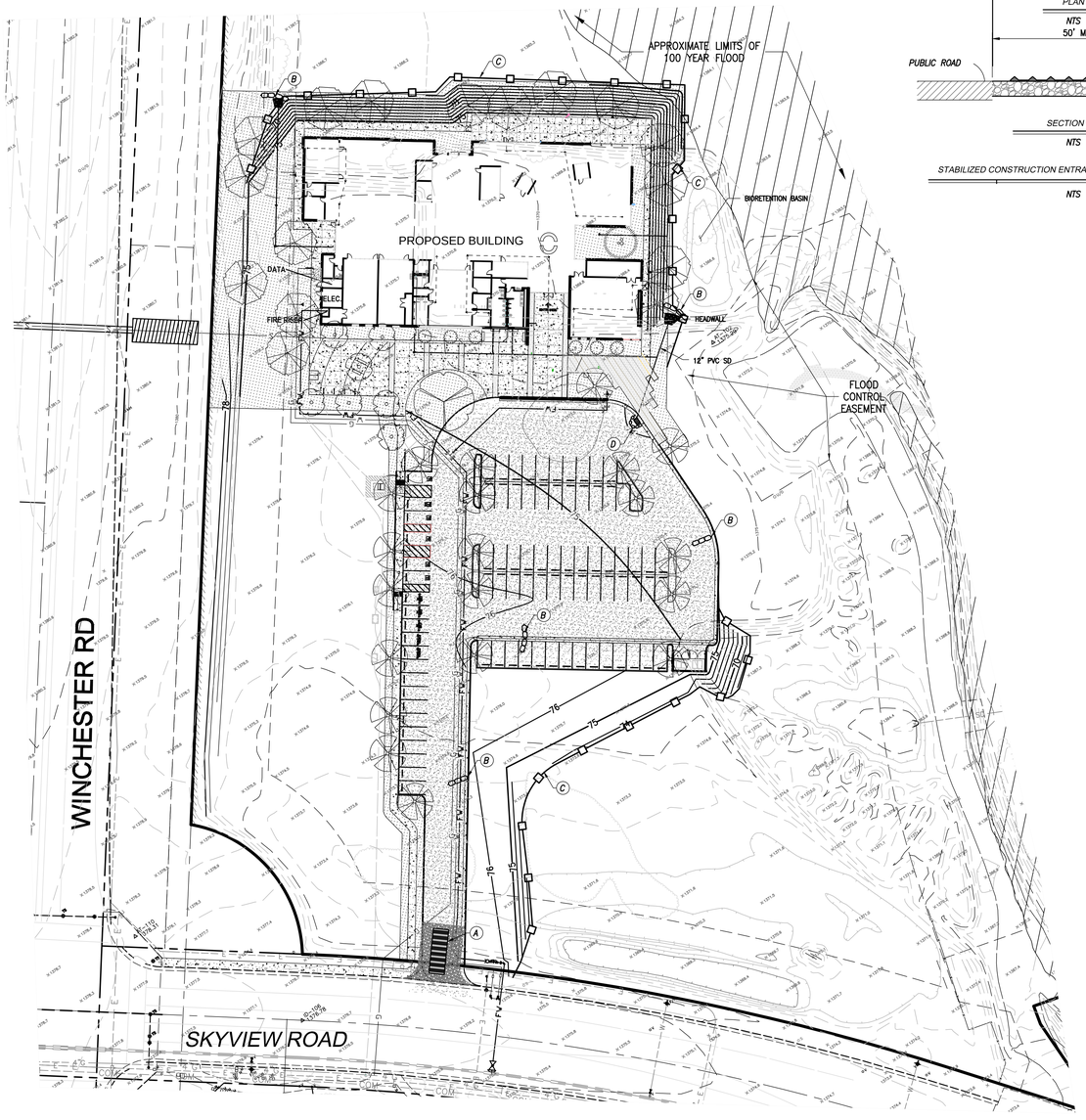
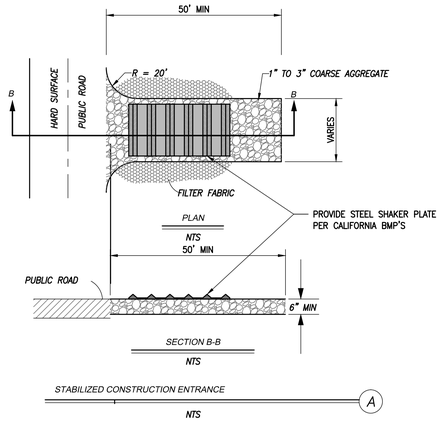
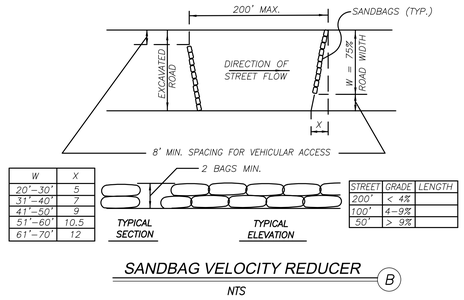
C

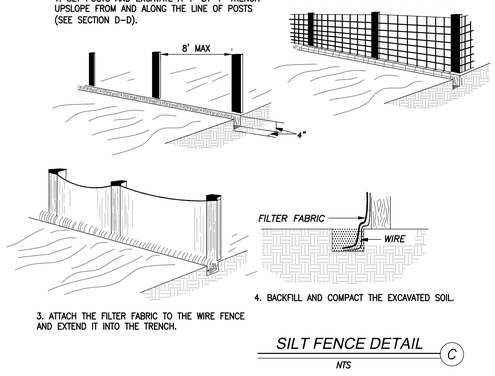


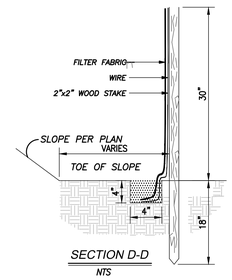


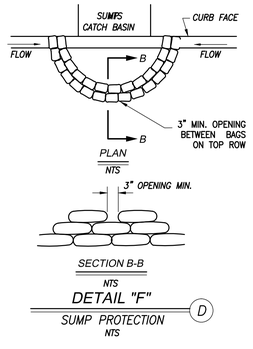


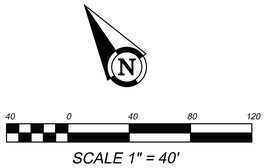
W	X
20'–30'	5
31'–40'	7
41'–50'	9
51'–60'	10.5
61'–70'	12

STREET	GRADE	LENGTH
200'	< 4%	
100'	4–9%	
50'	> 9%	









EROSION CONTROL NOTES

*ALL EROSION CONTROL MEASURES PER CA. STORMWATER BMP'S

A	INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAIL A
B	INSTALL SANDBAG VELOCITY REDUCER PER DETAIL B
C	INSTALL SILT FENCE PER DETAIL C AND SECTION D–D
D	INSTALL SANDBAG SUMP PROTECTION PER DETAIL D

NOTE: FINAL LOCATION OF EROSION CONTROL MEASURES WILL BE DETERMINED AT THE CONSTRUCTION MANAGER'S DISCRETION

LEGEND

FH	FIRE HYDRANT
SMH	SEWER MANHOLE
SDMH	STORM DRAIN MANHOLE
WV	WATER VALVE
	CATCH BASIN
	TREE (DIA. PER L/A PLAN)
E	ELECTRICAL DUCT BANK
C	COMMUNICATIONS
G	GAS
S	SEWER
T	TELEPHONE
W	WATER
590	EXISTING GROUND CONTOUR
	CENTERLINE
	R/W LINE
	BOUNDARY
	DAYLIGHT JOIN
	EXISTING PCC PAVING
	EXISTING AC PAVING
	EXISTING LANDSCAPED AREA
	RIP-RAP / GRAVEL
	PROPOSED AC PAVING
	PROPOSED BMP
	PROPOSED PCC PAVING (GREY)
	PROPOSED PCC PAVING (COLORED)
	PROPOSED LANDSCAPING
	FUTURE BUILDING FOOTPRINT

County of Riverside
French Valley Library
APN: 480-160-021
31526 Skyview Rd.
Winchester, 92596

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REGISTERED PROFESSIONAL ENGINEER WILLIAM C. BROOKS No. C53114 Exp. 6/30/21 CIVIL STATE OF CALIFORNIA

CERT. NO. 53114

Rev.	Description	Date
	95% CD SUBMITTAL	17 DEC 2019
	DESIGN DEVELOPMENT	19 NOV 2019
	SCHEMATIC DESIGN	30 OCT 2019

TRUE NORTH

Drawing Title:

EROSION CONTROL PLAN

Project No.: 005810.00 Checked by:

C

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

TWINING
Engineering a Better Tomorrow

Geotechnical Evaluation Report

Proposed French Valley Public Library
31526 Skyview Road (APN 480-160-021)
Winchester, California

Prepared for:

CFP Riverside, LLC
18336 Minnetonka Boulevard, Suite C
Deephaven, Minnesota 55391

October 18, 2019
Project No.: 190759.3

TWINING

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Tel 562.426.3355
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October 18, 2019
Project No.: 190759.3

Mr. Steve Collins
President
CFP Riverside, LLC
18336 Minnetonka Boulevard, Suite C
Deephaven, Minnesota 55391

Subject: **Geotechnical Evaluation Report**
Proposed French Valley Public Library
31526 Skyview Road (APN 480-160-021)
Winchester, California

Dear Mr. Collins,

In accordance with your request and authorization, we are presenting the results of our geotechnical investigation for the Proposed French Valley Public Library project located at 31526 Skyview Road in Winchester, California (APN 480-160-021). The purpose of our investigation has been to evaluate the subsurface conditions at the site and to provide geotechnical engineering recommendations for the construction of the proposed project. This report was prepared in accordance with the requirements of the 2016 California Building Code.

Based on our findings, the proposed project is geotechnically feasible, provided that the recommendations in this report are incorporated into the design and are implemented during construction of the project.

We appreciate the opportunity to be of service on this project. Should you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned.

Respectfully submitted,
TWINING, INC.

REGISTERED PROFESSIONAL ENGINEER
LIANGCAI HE
GE 3033
EXP. 12/31/20
GEOTECHNICAL
STATE OF CALIFORNIA

Liangcai He, PhD, RCE 73280, GE 3033
Chief Geotechnical Engineer

REGISTERED PROFESSIONAL ENGINEER
PAUL C. SOLTIS
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GEOTECHNICAL
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Paul Soltis, RCE 56140, GE 2606
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Appendices

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1. INTRODUCTION

This report presents the results of the geotechnical investigation performed by Twining, Inc. (Twining) for the Proposed French Valley Public Library project located at 31526 Skyview Road in Winchester, California. A description of the site and the proposed development is provided in the following section. The objectives of this study have been to evaluate subsurface conditions at the site and to provide geotechnical recommendations for design and construction of the proposed development, including recommendations for foundations and earthwork.

2. PROJECT DESCRIPTION

The proposed project is to construct a single-story public library branch approximately 25,000 square feet on a portion of Assessor's Parcel Number (APN) 480-160-021 located at 31526 Skyview Road in Winchester, California. The location of the site is depicted on Figure 1 – Site Location Map. The approximate site coordinates are latitude 33.608773°N and longitude 117.108073°W, and the site is located on the Bachelor Mountain, California 7½-Minute Quadrangle, based on the United States Geological Survey (USGS) topographic map (USGS 2018).

The site is currently unpaved and unoccupied. It is bounded on the east by a creek and related rip rap embankment, a flood control easement, and a 100-year floodplain; on the south by Skyview Road, on the west and north by Winchester Road (Highway 79).

Proposed structures will consist of reinforced masonry block walls and structural steel and/or wood-framed truss roof systems and will be supported on reinforced concrete shallow foundations. It is also proposed to include other appurtenant improvements such as parking spaces, a stormwater infiltration basin, hardscape, light poles, and utility pipelines. The size and depth of the infiltration basin are to be determined.

The site plan and borings performed during this evaluation are shown in Figure 2 – Site Plan and Boring Location Map.

The site plan shows that a portion of the proposed building footprint will be built on an approximately 10-foot-high slope. A cut-and-fill transition is anticipated to occur below the building pad, due to the existing surface conditions discussed in Section 4.2 of this report. Approximately 10 feet of engineered fill will be placed to create a uniform building pad, which will create 2H:1V (horizontal : vertical) fill slopes up to 10 feet high along the north and east sides of the pad.

3. SCOPE OF WORK

Our scope of work included review of background information, pre-field activities and field exploration, laboratory testing, engineering analyses and report preparation. These tasks are described in the following subsections.

3.1. Literature Review

We reviewed readily available background data including published geologic maps, topographic maps, seismic hazard maps and literature, and flood hazard maps relevant to the subject site. Relevant information has been incorporated into this report.

3.2. Pre-Field Activities and Field Exploration

Before starting our exploration program, we performed a geotechnical site reconnaissance to observe the general surficial conditions at the site and to select field exploration locations. After exploration locations were delineated, Underground Service Alert was notified of the planned locations a minimum of 72 hours prior to excavation. The approximate locations of the borings are shown on Figure 2, Site Plan and Exploration Location Map.

The field exploration was conducted on September 30, 2019 and consisted of drilling, testing, sampling, and logging 4 exploratory hollow-stem-auger (HSA) borings (B-1 through B-4) and percolation testing in four hand-auger borings (P-1 through P-4). The HSA borings (B-1 through B-4) were advanced to approximate depths of 16.5 to 51.5 feet below ground surface (bgs) using a CME-85 truck-mounted drill rig equipped with 8-inch-diameter HSAs. The hand-auger borings (P-1 through P-4) were drilled to approximately 5 feet bgs for percolation testing. The approximate locations of the borings are shown on Figure 2, Site Plan and Boring Location Map.

Drive samples of the soils were obtained from the HSA borings using a Standard Penetration Test (SPT) sampler without room for liner and a modified California split spoon sampler. The samplers were driven using a 140-pound automatic hammer falling approximately 30 inches. The blow-counts to drive the samplers were recorded, and subsurface conditions encountered in the borings were logged by a Twining field engineer. Soil samples obtained from the borings were transported to Twining Laboratories for examination and testing.

Percolation tests were performed in the 5-foot hand-auger borings (P-1 through P-4) according to the boring percolation test guidance provided in the Riverside County Design Handbook for Low Impact Development Best Management Practices. Testing was performed to provide estimates of infiltration rate of the site soils for use in preliminary design of the stormwater infiltration facility.

Upon completion of drilling or percolation testing, the borings were backfilled by the drilling subcontractor using drilled soil cuttings.

Detailed descriptions of the field exploration, soils encountered during drilling, and the percolation tests are presented in Appendix A – Field Exploration.

3.3. Geotechnical Laboratory Testing

Laboratory tests were performed on selected samples obtained from the borings to aid in the soil classification and to evaluate the engineering properties of site soils. The following tests were performed in general accordance with ASTM standards:

- In-situ moisture and density;
- #200 Wash
- Atterberg Limits;
- Expansion Index;
- Maximum density and optimum moisture;
- Direct shear;
- Consolidation;
- R-Value; and

- Corrosivity.

Detailed laboratory test procedures and results are presented in Appendix B – Laboratory Testing.

3.4. Engineering Analyses and Report Preparation

We compiled and analyzed the data collected from our field exploration and laboratory testing. We performed engineering analyses based on our literature review and data from field exploration and laboratory testing programs. Our analyses included the following:

- Site geology, and subsurface conditions;
- Groundwater conditions;
- Geologic hazards and seismic design parameters;
- Liquefaction potential and seismic settlement;
- Soil corrosion potential;
- Soil collapse and expansion potential;
- Site preparation and earthwork;
- Foundation design parameters including bearing capacity, settlement, and lateral resistance;
- Modulus of subgrade reaction for slab design;
- Pole foundations for light poles, street lights and similar structures;
- Pavement section recommendations; and
- Stormwater infiltration rates.

We prepared this report to present our conclusions and recommendations from this investigation.

4. SITE GEOLOGY AND SUBSURFACE CONDITIONS

4.1. Regional Geology

According to the Morton Geologic Map of the Bachelor Mountain quadrangle (Morton, 2003), the site is underlain by very old alluvial valley deposits that are early to middle Pleistocene in age (geologic map symbol: $Qvov_a$) consisting of moderately to well-indurated, reddish-brown, mostly very dissected gravel, sand, silt, and clay-veering alluvium. A portion of the geologic map is reproduced as Figure 3 – Regional Geologic Map.

4.2. Surface and Subsurface Conditions

The site was vacant and unpaved at the time of our field exploration. Based on our review of aerial photos (Figure 4), it appears that the north portion of the site was cut between 2009 and 2011 to approximately 1,364 feet to 1,371 feet above mean sea level (msl), about 10 feet below adjacent ground surface with an average elevation of approximately 1375 feet msl. There are large trees along the slopes formed by the cut.

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During our field investigation, we noticed a depressed area occupied by large trees in the proposed parking lot area in the southern portion of the site between boring P-1 and the proposed building, and another depressed area in the proposed infiltration facility area in the north portion of the site. In 2011, the depressed areas appeared as ponds on the 2011 aerial photo (Figure 4).

Subsurface conditions encountered during the field exploration consisted of interbedded layers of silt, clay, silty sand and clayey sand in the upper 20 feet and predominantly clay below 20 feet. The silt and clay layers were very stiff to hard, and the silty and clayey sand layers were dense to very dense.

4.3. Groundwater Conditions

During drilling, groundwater was encountered at approximately 30 to 45 feet bgs in our borings. In about two hours after the end of drilling, the water level rose to about 16 feet bgs, or approximate elevation 1,358 feet msl.

Historically high groundwater level at the project site is 10 to 20 feet bgs based on the Seismic Hazard Zone Report 120 of California Geological Survey (CGS) for the Bachelor Mountain quadrangle (CGS, 2018). Based on groundwater level data measured in 1968 in wells adjacent to the site in the California Water Data Library (CWDL), the groundwater level at the site in 1968 appeared at approximate elevation 1,355 feet msl. It may be assumed that the historic high groundwater at the site is 10 feet bgs or at elevation 1,365 feet msl.

Groundwater conditions may vary across the site due to stratigraphic and hydrologic conditions and may change over time as a consequence of seasonal and meteorological fluctuations, or of activities by humans at this and nearby sites.

5. GEOLOGIC HAZARD AND SEISMIC DESIGN CONSIDERATIONS

The site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered high during the design life of the proposed development. The hazards associated with seismic activity in the vicinity of the site area discussed in the following sections.

5.1. Surface Fault Rupture

As shown on Figure 5, the project site is not located within a State of California Earthquake Fault Zone (formerly known as a Special Studies Zone) or an area with the potential for earthquake-induced landslides (CGS, 2018). The nearest known active faults belong to the Elsinore fault zone located about 6.4 miles southwest of the site. Based on our review of geologic and seismologic literature and our site evaluation, it is our opinion that the likelihood of surface fault rupture and earthquake-induced landslides at the site during the life of the proposed improvements is low.

5.2. Landslides

The area of the project site is not within an area with the potential for earthquake-induced landslides. Considering the site is relatively flat and not close to significant slopes, the potential for earthquake-induced landslides to occur at the site is considered very low.

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5.3. Liquefaction and Seismic Settlement Potential

The project site is not within a zone of required investigation for liquefaction according to CGS (2018). The Riverside Liquefaction Map shows liquefaction susceptibility of the site is low. Considering these results, the site subsurface conditions discussed above, and the site seismic shaking intensity discussed below, liquefaction potential at the site is considered low, and seismically induced settlement is negligible.

5.4. CBC Seismic Design Parameters

Based on the 2006 CGS Site Classification Map, the average shear wave velocity in the top 30 meters (or approximately 100 feet) of the soil profile ($V_{s,30}$) at the site is about 349 meters per second (or approximately 1,145 feet per second). Based on global $V_{s,30}$ from topographic slope (Wald & Allen 2008), the site $V_{s,30}$ is about 303 meters per second (or approximately 994 feet per second). The site $V_{s,30}$ values and the subsurface conditions discussed above suggest the site seismic class is D consisting of a stiff soil profile.

Our recommendations for seismic design parameters have been developed in accordance with the 2016 California Building Code (2016 CBC) and ASCE 7-10 (ASCE, 2010) standards. Table 1 presents the seismic design parameters for the site.

Table 1 – 2016 California Building Code Design Parameters

Design Parameters	Value
Site Class	D
Mapped Spectral Acceleration Parameter at Period of 0.2-Second, S_s (g)	1.5
Mapped Spectral Acceleration Parameter at Period 1-Second, S_1 (g)	0.6
Site Coefficient, F_a	1.0
Site Coefficient, F_v	1.5
Adjusted MCE_R[1] Spectral Response Acceleration Parameter, S_{MS} (g)	1.5
Adjusted MCE_R[1] Spectral Response Acceleration Parameter, S_{M1} (g)	0.9
Design Spectral Response Acceleration Parameter, S_{DS} (g)	1.0
Design Spectral Response Acceleration Parameter, S_{D1} (g)	0.6
Peak Ground Acceleration, PGA_M[2] (g)	0.544
Seismic Design Category	D

Notes: [1] Risk-Targeted Maximum Considered Earthquake
[2] Peak Ground Acceleration adjusted for site effects

Using the USGS Seismic Hazard Interactive Reaggregation Tool, a modal moment earthquake magnitude of 7.7 and a modal seismic source distance of 6.4 miles (10.3 kilometers) were obtained for a peak acceleration of 0.68 g at the site, which corresponds to a probability of exceedance of 2% in 50 years.

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6. GEOTECHNICAL ENGINEERING RECOMMENDATIONS

Based on the results of our literature review and the field exploration, laboratory testing, and engineering analyses, it is our opinion that the proposed construction is feasible from a geotechnical standpoint, provided that the recommendations in this report are incorporated into the design plans and are implemented during construction.

6.1. General Considerations

Geotechnical engineering recommendations presented in this report for the proposed project are based on our understanding of the proposed development, subsurface conditions encountered during our field exploration, the results of laboratory testing on soil samples taken from the site, and our engineering analyses.

Key geotechnical considerations for the project are as follows:

- A cut/fill transition will occur under the building pad;
- Construction of the building pad will create a 10-foot-high 2H:1V fill slope;
- Subsurface materials consist predominantly of fine-grained soils;
- Relatively high groundwater at approximately 1,358 to 1,365 feet msl.

The following sections present our conclusions and recommendations pertaining to the engineering design for this project. If the design substantially changes, then our geotechnical engineering recommendations would be subject to revision based on our evaluation of the changes.

6.2. Soil Expansion and Collapse Potential

Based on our field exploration and laboratory test results, the risk of soil expansion and collapse is low at the site and will not adversely affect the design and construction of the project.

6.3. Corrosive Soil Evaluation

The potential for the near-surface on-site materials to corrode buried steel and concrete improvements was evaluated. Laboratory testing was performed on one selected near-surface soil to evaluate pH and electrical resistivity, as well as chloride and sulfate contents. The pH and electrical resistivity tests were performed in accordance with California Test 643, and the sulfate and chloride tests were performed in accordance with California Tests 417 and 422, respectively. These laboratory test results are presented in Appendix B.

In accordance with the County of Los Angeles (2014) criteria, corrosive soil is defined as the soil has minimum electrical resistivity less than 1,000 ohm-centimeters, or chloride concentration greater than 500 ppm, or sulfate concentration in soils greater than 2,000 ppm, or a pH less than 5.5.

6.3.1. Reinforced Concrete

Laboratory tests indicate that the soil has 205 ppm or 0.0205% of water soluble sulfate (SO_4) in soil by weight. Based on ACI 318, concrete in contact with the site soils will have a sulfate exposure class S0.

Test results indicate that the potential for chloride attack of reinforcing steel in concrete structures and pipes in contact with soil is negligible.

6.3.2. Buried Metal

A factor for evaluating corrosivity to buried metal is electrical resistivity. The electrical resistivity of a soil is a measure of resistance to electrical current. Corrosion of buried metal is directly proportional to the flow of electrical current from the metal into the soil. As resistivity of the soil decreases, the corrosivity generally increases. Test results indicate the site soils have minimum electrical resistivity value of 1,000 ohm-centimeters.

Correlations between resistivity and corrosion potential published by the National Association of Corrosion Engineers (NACE, 1984) indicate that the soils have severely corrosive potential to buried metals. As such, corrosion protection for metal in contact with site soils should be considered. Corrosion protection may include the use of epoxy or asphalt coatings. A corrosion specialist should be consulted regarding appropriate protection for buried metals and suitable types of piping.

6.4. Site Preparation and Earth Work

In general, earthwork should be performed in accordance with the recommendations presented in this report. Twining should be contacted for questions regarding the recommendations or guidelines presented herein.

6.4.1. Site Preparation

Site preparation should begin with the removal of utility lines, asphalt, concrete, vegetation, and other deleterious debris from areas to be graded. Tree stumps and roots should be removed to such a depth that organic material is not present. Clearing and grubbing should extend to the outside edges of the proposed excavation and fill areas. We recommend that unsuitable materials such as organic matter or oversized material be removed and disposed offsite. The debris and unsuitable material generated during clearing and grubbing should be removed from areas to be graded and disposed at a legal dump site away from the project area.

Tree stumps, roots, and potentially loose or soft materials are anticipated in the two depressed areas discussed in Section 4.2. The depth of removal of soil materials may be deeper in these areas in order to expose competent native soil.

6.4.2. Excavation and Subgrade Preparation

Temporary excavations for the project are expected. We anticipate that unsurcharged excavations with vertical side slopes less than 4 feet high will generally be stable; however, some sloughing of cohesionless sandy materials encountered at the site should be expected.

Where space is available, temporary, un-surcharged excavation sides over 4 feet in height should be sloped no steeper than an inclination of 1H:1V (horizontal:vertical). Where sloped excavations are created, the tops of the slopes should be barricaded so that vehicles and storage loads are away from the top edge of the excavated slopes with a distance at least equal to the height of the slopes. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes. Twining should be advised of such heavy vehicle loadings so that specific setback requirements can be established. If the temporary construction slopes are to be maintained during the rainy season, berms are recommended to be graded along the tops of the slopes in order to prevent runoff water from entering the excavation and eroding the slope faces.

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Excavations shall not undermine existing adjacent footings. We recommend that excavations for the proposed improvements do not encroach within a 1:1 plane projected from the top outside edge of any existing at-grade or below-grade existing facilities including foundations of existing structures, trenches, underground pipelines. Otherwise, shoring should be implemented to maintain foundation support of the adjacent facilities.

Undocumented fill was not encountered in our borings. However, if undocumented fill materials are encountered during excavations, those materials should be removed to the full depth of fill.

Slopes are anticipated during site grading. Fill placed on slopes should be properly benched and keyed into undisturbed native material. New fill placed against any existing approved fill slopes should be properly benched into the existing fill.

A cut/fill transition and a significant variation in the thickness of fill are anticipated across the building pad. Therefore, the pad should be over-excavated and recompacted a minimum of three feet below the bottom of footings to create a blanket of similar fill under the pad.

For minor structures and slabs-on-grade that are structurally separated from the building, the excavation should extend at least 2 feet below the finished grade or at least 1 feet below the bottom of the footing of the minor structures and slabs-on-grade, whichever is greater. Excavation for pavements and hardscape should be over-excavated at least 1 feet as measured from the bottom of the pavement or hardscape section.

Laterally, excavation should extend beyond the foundation limits a minimum distance equal to two feet or the depth of excavation, whichever is greater. Excavation for other improvements (e.g., concrete walkways, flatwork, pavement) should extend laterally at least two feet beyond the limits of the improvements.

The extent and depths of all removal should be evaluated by Twining's representative in the field based on the materials exposed. Should excavations expose soft or soils considered as unsuitable for use as fill by a Twining representative, additional removals may be recommended.

The exposed excavation bottom should be evaluated and approved by Twining. It should then be scarified to a minimum depth of 6 inches and moisture conditioned to achieve generally consistent moisture contents approximately 2 percent above the optimum moisture content. The scarified bottom should be compacted to at least 90 percent relative compaction in accordance with the latest version of ASTM Test Method D1557 and then evaluated and approved by Twining.

Fill and backfill materials should be compacted fill in accordance with Sections 6.4.3 and 6.4.4 of this report. Prior to placement of any fill, the geotechnical engineer or their representative should review the bottom of the excavation for conformance with the recommendations of this report.

Personnel from Twining should observe the excavations so that any necessary modifications based on variations in the encountered soil conditions can be made. All applicable safety requirements and regulations, including CalOSHA requirements, should be met. Stability of temporary excavations is the responsibility of the contractor.

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6.4.3. Materials for Fill

In general, most on-site soils are considered as suitable for use as engineered fill. All fill soils should be free of organics, debris, rocks or lumps over three inches in largest dimension, other deleterious material, and not more than 40 percent larger than ¾ inch. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or may be disposed offsite.

Any imported fill material should consist of granular soil having a “very low” expansion potential (i.e., expansion index of 20 or less). Import material should also have low corrosion potential (that is, chloride content less than 500 parts per million [ppm], soluble sulfate content of less than 0.1 percent, and pH of 5.5 or higher).

All fill soils should be evaluated and approved by a Twining representative prior to importing or filling.

6.4.4. Compacted Fill

Unless otherwise recommended, the exposed excavation bottom to receive fill should be prepared in accordance with Section 6.4.2 of this report. Prior to placement of compacted fill, the contractor should request Twining to evaluate the exposed excavation bottoms.

Compacted fill should be placed in horizontal lifts of approximately 8 to 10 inches in loose thickness, depending on the equipment used. Prior to compaction, each lift should be moisture conditioned, mixed, and then compacted by mechanical methods. The moisture content should be approximately 2 percent above the optimum moisture content. Fill materials should be compacted to a minimum relative compaction of 95 percent within the upper one foot below new vehicle trafficked pavement sections, and 90 percent in all other areas. The relative compaction should be determined by ASTM D1557. Successive lifts should be treated in the same manner until the desired finished grades are achieved.

6.4.5. Excavation Bottom Stability

In general, we anticipate that bottoms of the excavations will be stable and should provide suitable support for the proposed improvements. Conditions of the excavation bottom should be evaluated by Twining during the scarification and re-compaction efforts. If unstable bottom conditions are encountered, remedial measures would be required to stabilize the bottom. Soft bottom conditions can be identified by surface yielding under rubber-tired equipment loading and the inability to achieve proper compaction.

Unstable bottom conditions may be mitigated by over-excavation of the bottom to suitable depths, and/or replacement with a minimum 1-foot-thick aggregate base underlain by geogrid (Tensar TX7 or equivalent).

As an alternative, excavation bottom stabilization may be achieved by cement treatment for the upper 15 inches below the bottom according to Section 6.4.6 of this report.

Recommendations for stabilizing excavation bottoms should be based on evaluation in the field by the geotechnical consultant at the time of construction.

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6.4.6. Cement Treatment

Cement treatment, if needed, should be performed according the following processes under the guidance of a Twining Geotechnical engineer:

- Upon achieving rough grade, cement powder is spread on the surface at a rate that is dependent upon the thickness of the treated section. We recommend cement-treatment by 5 to 7 percent cement (by dry weight). The cement powder is then dry mixed with the pulverizer into the subgrade to a depth of at least 12 inches below the rough grade surface. From the time the material is wet mixed, the material should be fully compacted within no more than 2 hours.

- Compaction is performed using a large sheepsfoot compactor. Depending on the type of equipment, a section as thick as 18 inches can be compacted in one lift. The type of equipment proposed for use should be approved by the engineer based on the lift thickness prior to bringing the equipment on site. The cement-treated section should be compacted to 92 percent of the maximum density as determined by ASTM D 1557.

- Upon completion of compaction with the sheepsfoot compactor, the surface is bladed and finish-rolled with a smooth drum roller.

- The surface of the treated material is wetted at least twice daily (possibly more depending on weather) to promote hydration of the cement.

- For at least 24 hours, traffic on the surface after completion of compaction should be minimized to the maximum extent possible and heavy construction equipment traffic should be completely avoided to prevent breakdown of the treated material prior to the curing process being completed. After 24 hours, the surface can be proof-rolled and checked for yielding under heavy rubber-tire vehicle loads (such as a fully-loaded water truck). If the surface indicates signs of yielding or instability, an additional 24 hours of cure time should be implemented while again minimizing traffic loading

6.4.7. Backfill for Utility Trench

Utility trench excavations to receive backfill shall be free of trash, debris or other unsatisfactory materials at the time of backfill placement.

At locations where the trench bottom is yielding or otherwise unstable, pipe support may be improved by placing 12 inches of ¾-inch crushed rock as defined in Section 200-1.2 of the "Greenbook" Standard Specifications for Public Works Construction. Remedial earthwork at the trench bottom should be performed where oversize materials (rocks or clods greater than 3 inches) are present. Removal of oversize materials to a depth of 6 inches below the bottom of the pipeline and replacement with fill compacted to at least 90% relative compaction is recommended. Alternatively, ¾-inch crushed rock may be used.

The trench should be bedded with clean sand extending to at least one foot over the top of pipe. Pipe bedding as specified in SSPWC can be used. Bedding material should consist of clean sand having a sand equivalent (SE) of 30 or greater. Alternative materials meeting the intent of the bedding specifications are also acceptable. Samples of materials proposed for use as bedding should be provided to the engineer for inspection and testing before the material is imported for use on the project. The onsite materials can only be used following the requirement of "Greenbook" bedding specification when the SE is not less than 30. The pipe bedding

material should be placed over the full width of the trench. After placement of the pipe, the bedding should be brought up uniformly on both sides of the pipe to reduce the potential for unbalanced loads. No void or uncompacted areas should be left beneath the pipe haunches.

Above pipe bedding, trench backfill may be onsite soils and should not contain rocks or lumps over 3 inches in largest dimension. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or may be disposed offsite. The moisture content should be approximately 2 percent above the optimum moisture content.

Backfill may be placed and compacted by mechanical means and should be compacted to 90 percent of the laboratory maximum dry density as per ASTM Standard D1557. Where pavement is planned, the top 12 inches of subgrade soils and the overlying aggregate base should be compacted to 95 percent.

Jetting or flooding of pipe bedding and backfill material is not recommended.

6.4.8. Rippability

The earth materials underlying the site should be generally excavatable with heavy-duty earthwork equipment in good working condition. Some gravels, cobbles and man-made debris should be anticipated.

6.4.9.Construction Dewatering

As discussed earlier, groundwater was at approximately 1,358 feet msl. Construction of the project is anticipated to occur above the groundwater. The possibility to encounter groundwater is low during earthwork and foundation preparation for the proposed structures, and the need for dewatering is not anticipated for construction of structures and utility trenches.

If needed, considerations for construction dewatering should include anticipated drawdown, volume of pumping, potential for settlement of nearby structures, and groundwater discharge. Disposal of groundwater should be performed in accordance with guidelines of the Regional Water Quality Control Board.

6.5. Foundation Recommendations

Based upon the excavation/over-excavation and backfill recommendations, the proposed structures may be supported on continuous strip footings or isolated footings designed in accordance with the geotechnical recommendations presented below. Structural design of foundations should be performed by the structural engineer and should conform to the 2016 California Building Code.

6.5.1. Building Foundation Bearing Capacity and Settlement

Footings for the building should be placed on the subgrade prepared in accordance the requirements for the building pad as described in Section 6.4. Geotechnical design parameters for these footings presented in Table 2 may be used, assuming less than 25 kips on shallow spread footings and less than 5 kips per lineal foot on perimeter foundations. Twining should be contacted for footing dimensions, allowable bearing pressures, and settlements that are outside the indicated applicable ranges.

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The total lateral resistance can be taken as the sum of the friction at the base of the footing and passive resistance. The upper one foot of soil should be neglected when calculating the passive resistance. The passive resistance value may be increased by one-third when transient loads from wind or earthquake.

Table 2 - Geotechnical Design Parameters for Shallow Foundations

Minimum Footing Dimensions	• Continuous footings: 12 inches in width. • Square footings: 24 inches in width. • Minimum embedment: 12 inches measured from the lowest adjacent grade to the bottom of the footing.
Allowable Bearing Pressure	• Footings should be supported on at least 3 feet of compacted fill. • Continuous footings: an allowable bearing pressure of 2,500 pounds per square foot (psf) may be used. The allowable may be increased by 75 psf for each additional foot of width and 220 psf for each additional foot of embedment, up to a maximum allowable capacity of 3,000 psf. • Square footings: an allowable bearing pressure of 3,000 psf may be used. The allowable may be increased by 60 psf for each additional foot of width and 220 psf for each additional foot of embedment, up to a maximum allowable capacity of 4,000 psf. • The allowable bearing values may be increased by one-third for transient loads from wind or earthquake.
Estimated Static Settlement	• Approximately one inch of total settlement with differential settlement estimated to be on the order of ½ inches over 50 feet. • Most static settlement of foundation system is expected to occur immediately upon application of loading. Long term total and differential settlement is expected to be less than one inch and ½ inches, respectively.
Allowable Coefficient of Friction Below Footings	0.30
Allowable Lateral Passive Resistance	Increases with depth at a rate of 200 psf per foot (200 pcf equivalent fluid pressure)

6.6. Retaining Walls

Recommendations for wall lateral loads, backfill, and drainage are provided below. Lateral resistance may be based on 6.5 of this report. Retaining walls should be designed to have a factor of safety of 1.5 for static stability and 1.1 for stability due to transient loads from wind or seismic.

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6.6.1. Backfill and Drainage of Walls

The backfill material behind walls should consist of granular non-expansive material and be approved by the project geotechnical engineer. Based on the soil materials encountered during our exploration, some on-site soils will meet this requirement.

Wall backfill should be adequately drained. Adequate backfill drainage is essential to provide a free-drained backfill condition and to limit hydrostatic buildup behind walls. Drainage behind walls may be provided by a geosynthetic drainage composite such as TerraDrain, MiraDrain, or equivalent, attached to the outside perimeter of the wall and installed in accordance with the manufacturer's recommendations. The drainage system should meet the minimum requirements of Sections 1805.4.2 and 1805.4.3 of 2016 CBC.

6.6.2. Lateral Earth Pressure

The values presented below assume that the supported grade is level and that surcharge loads are not applied. The recommended design lateral earth pressure is calculated assuming that a drainage system will be installed behind retaining walls in accordance with Sections 1805.4.2 and 1805.4.3 of 2016 CBC and that external hydrostatic pressure will not develop behind the walls. Where wall backfill does not have adequate drainage, the full hydrostatic pressure should be added to the lateral earth pressures provided below in design.

Walls that are free to move and rotate at the top (such as cantilevered walls) and have adequate drainage may be designed for the active earth pressure equivalent to a fluid weighting 50 pcf.

Walls that are restricted to move horizontally at the top (such as by a floor deck) and have adequate drainage may be designed for the "at-rest" earth pressure equivalent to a fluid weighing 72 pcf.

Vertical surcharge loads within a 1:1 plane projected from the bottom of the wall distributed over retained soils should be considered as additional uniform horizontal pressures acting on the wall. These additional pressures can be estimated as approximately 40% and 60% of the magnitude of the vertical surcharge pressures for the "active" and "at-rest" conditions, respectively.

6.6.3. Seismic Lateral Earth Pressure

Walls retaining more than 6 feet high earth should be designed for seismic lateral earth pressure. The seismic pressure distribution may be considered a triangle with the maximum pressure at the bottom. The combination of static and incremental seismic pressures shown in the following diagram may be used for seismic design for both cantilever and restrained walls.

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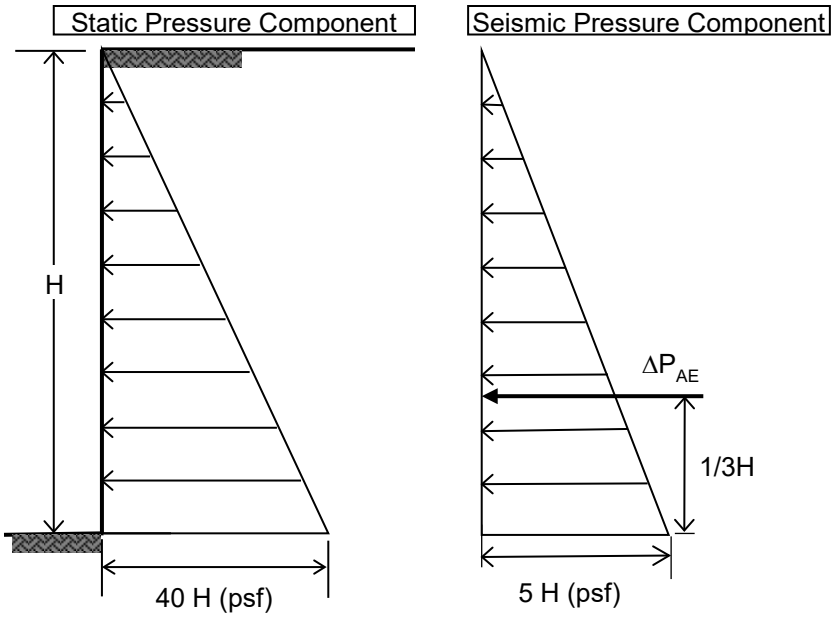

where H is in feet

Seismic Earth Pressure Distribution on Walls

6.7. Concrete Slabs

Slabs should be supported on non-expansive engineered fill in accordance with Section 6.4 of this report. For design of concrete slabs, a base modulus of subgrade reaction (*k*) of 150 pounds per cubic inch (pci) may be used provided it is modified by the formulas below based on slab dimensions.

$$k_1 = 150\ pci$$

$$k(BxB) = k_1 \left(\frac{B+1}{2B}\right)^2$$

$$k(BxL) = k_{BxB}\left(\frac{1 + 0.5\ {}^{B}/_{L}}{1.5}\right)$$

Where:

$$k_1 = Modulus\ for\ 1x1\ plate$$

$$B = Width\ of\ Square\ Foundation$$

$$L = Length\ of\ Rectangular\ Foundation$$

Floor slabs should be designed and reinforced in accordance with the structural engineer's recommendations. In moisture sensitive areas, the floor slabs should be dampproofed in accordance

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with Section 1805.2 of 2016 CBC. Specific recommendations can be provided by a waterproofing consultant.

6.8. Fence Poles and Sign Posts

The Project may involve fence poles and sign posts. Geotechnical recommendations for conditions with and without lateral constraint provided at the ground surface conditions are provided below based on 2016 CBC.

6.8.1. Non-Constrained Ground

The embedment of sign posts where no lateral constraint is provided at or above the ground surface should be calculated using Equation 18-1 of 2016 CBC (shown below) or a minimum 3 feet below the ground surface, whichever is deeper.

$$d = \frac{A}{2}\left(1 + \sqrt{1 + \frac{4.36h}{A}}\right)$$ (Equation 18-1 of 2016 CBC)

where:

A = 2.34P/(S_1 * b)

b = Diameter of round post or footing or diagonal dimension of square post or footing, feet

d = Depth of embedment in earth in feet but not over 12 feet for purpose of computing lateral pressure.

h = Distance in feet from ground surface to point of application of "P".

P = Applied lateral force in pounds.

S_1 = Allowable lateral soil-bearing pressure based on a depth of one-third the depth of embedment in pounds per square foot.

An allowable passive earth pressure of 200 pcf up to a maximum of 2,000 psf may be used for design provided the upper one foot of passive resistance is neglected in the structural design.

6.8.1. Constrained Ground

The embedment of sign posts where lateral constraint is provided at the ground surface, such as by a rigid floor or pavement, should be calculated using Equation 18-2 of 2016 CBC (shown below) or a minimum 3 feet below the ground surface, whichever is deeper.

$$d = \sqrt{\frac{4.24Ph}{S_3 b}}$$ (Equation 18-2 of 2016 CBC)

where:

b = Diameter of round post or footing or diagonal dimension of square post or footing, feet

d = Depth of embedment in earth in feet but not over 12 feet for purpose of computing lateral pressure.

h = Distance in feet from ground surface to point of application of "P".

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P = Applied lateral force in pounds.

S_3 = Allowable lateral soil-bearing pressure based on a depth of one-third the depth of embedment in pounds per square foot.

An allowable passive earth pressure of 200 pcf up to a maximum of 2,000 psf may be used for design provided the upper one foot of passive resistance is neglected in the structural design.

6.9. Flexible Pavement Design

Our pavement structural design is in accordance with Chapter 630 of the Caltrans Highway Design Manual, which is based on a relationship between the gravel equivalent (GE) of the pavement structural materials, the traffic index (TI), and the R-value of the underlying subgrade soil. Our laboratory test results indicate an R value of 12, which was used in our asphalt pavement structural calculations. On this basis, Table 3 provides recommended minimum thicknesses for hot mix asphalt (HMA) and aggregate base sections for different traffic indices. These minimum thicknesses may be adjusted based on additional R-value tests during construction.

The asphalt pavement section should be constructed on top of properly prepared subgrade in accordance with Section 6.4 of this report and aggregate base section compacted to 95 percent of the maximum dry density in accordance with ASTM D1557.

Table 3 – Recommended Minimum HMA and Base Section Thicknesses

Traffic Index	5.0	6.0	7.0
HMA Thickness (in)	4.0	4.0	5.0
Aggregate Base Thickness (in)	7.0	11.0	12.0

6.10. Rigid Pavement Design

For preliminary design of rigid pavement section, Table 4 provides minimum thicknesses for Jointed Plain Concrete Pavement (JPCP) section and Class 2 Aggregate Base (AB) section for different traffic indices. Final design of rigid pavement should be performed by the project Civil Engineer based on field observations and additional R-value tests during construction. The subgrade should be prepared in accordance with Section 6.4.2 of this report. The AB section should be compacted to 95 percent of the maximum dry density in accordance with ASTM D1557.

Table 4 – Recommended Rigid Pavement Minimum Thicknesses

Traffic Index	5.0	6.0	7.0
JPCP Thickness (in)	4	5.5	7.0
Aggregate Base Thickness (in)	4	4	4
Maximum Joint Spacing (feet)	15.0	15.0	15.0

The above pavement section is based on a minimum 28-day concrete compressive strength of 3,500 psi. Positive drainage should be provided away from all pavement areas to prevent seepage of surface and/or subsurface water into the pavement base and/or subgrade.

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6.11. Stormwater Infiltration Facility

The design of stormwater infiltration facility should be based on percolation test results with an appropriate factor of safety.

Our percolation test results may be used in preliminary design. Details of the percolation tests are presented in Appendix A. Infiltration rates with a factor of safety of 3 from our percolation tests are summarized in Table 5. The proposed infiltration facility should have a minimum setback from property lines and foundations recommended in Table 6.

However, the Riverside County requires a minimum of 10 feet between the bottom of the infiltration facility and the historical high groundwater. The historic high groundwater is about 10 feet bgs at the site, and thus site does not appear suitable for the proposed infiltration facility.

Table 5 – Infiltration Rate with a Factor of Safety of 3

Test Location	Depth of Test Borehole (feet)	Design Infiltration Rate (inch/hour)
P-1	5	Testing was abandoned due to negligible water level drop during pre-soaking
P-2	5	
P-3	5	
P-4	5	1.2

Table 6 – Recommended Minimum Infiltration Facility Setback

Setback from	Distance
Property lines	10 feet
Foundations	15 feet or outside of 1:1 plane drawn up from the bottom of foundation, whichever is greater.

6.12. Drainage Control

The control of surface water is essential to the satisfactory performance of the building and site improvements. Surface water should be controlled so that conditions of uniform moisture are maintained beneath the improvements, even during periods of heavy rainfall. The following recommendations are considered minimal:

- Ponding and areas of low flow gradients should be avoided.
- If bare soil within 5 feet of the structure is not avoidable, then a gradient of 5 percent or more should be provided sloping away from the improvement. Corresponding paved surfaces should be provided with a gradient of at least 1 percent.

- The remainder of the unpaved areas should be provided with a drainage gradient of at least 2 percent.
- Positive drainage devices, such as graded swales, paved ditches, and/or catch basins should be employed to accumulate and to convey water to appropriate discharge points.
- Concrete walks and flatwork should not obstruct the free flow of surface water.
- Brick flatwork should be sealed by mortar or be placed over an impermeable membrane.
- Area drains should be recessed below grade to allow free flow of water into the basin.
- Enclosed raised planters should be sealed at the bottom and provided with an ample flow gradient to a drainage device. Recessed planters and landscaped areas should be provided with area inlet and subsurface drain pipes.
- Planters should not be located adjacent to the structures wherever possible. If planters are to be located adjacent to the structures, the planters should be positively sealed, should incorporate a subdrain, and should be provided with free discharge capacity to a drainage device.
- Planting areas at grade should be provided with positive drainage. Wherever possible, the grade of exposed soil areas should be established above adjacent paved grades. Drainage devices and curbing should be provided to prevent runoff from adjacent pavement or walks into planted areas.
- Gutter and downspout systems should be provided to capture discharge from roof areas. The accumulated roof water should be conveyed to off-site disposal areas by a pipe or concrete swale system.

Landscape watering should be performed judiciously to preclude either soaking or desiccation of soils. The watering should be such that it just sustains plant growth without excessive watering. Sprinkler systems should be checked periodically to detect leakage and they should be turned off during the rainy season.

6.13. Slope Stability

Slope stability analyses were performed to evaluate the static and seismic stability of the fill slopes. Seismic stability was evaluated using the pseudo-static method with a horizontal seismic coefficient of 0.15. Results of the analysis shown in Appendix C indicate that the slopes have adequate factors of safety.

It should be noted that a small portion of the toe of the slope at the east corner extends to the 100-year floodplain. It is recommended that riprap be placed against the toe as a protection against the 100-year flood event.

7. DESIGN REVIEW AND CONSTRUCTION MONITORING

Geotechnical review of plans and specifications is of paramount importance in engineering practice. The poor performance of many structures has been attributed to inadequate geotechnical review of construction documents. Additionally, observation and testing of the subgrade will be important to the

performance of the proposed development. The following sections present our recommendations relative to the review of construction documents and the monitoring of construction activities.

7.1. Plans and Specifications

The design plans and specifications should be reviewed by Twining, Inc. prior to bidding and construction, as the geotechnical recommendations may need to be reevaluated in the light of the actual design configuration and loads. This review is necessary to evaluate whether the recommendations contained in this report and future reports have been properly incorporated into the project plans and specifications. Based on the work already performed, this office is best qualified to provide such review.

7.2. Construction Monitoring

Site preparation, removal of unsuitable soils, assessment of imported fill materials, fill placement, foundation installation, and other site grading operations should be observed and tested, as appropriate. The substrata exposed during the construction may differ from that encountered in the test excavations. Continuous observation by a representative of Twining, Inc. during construction allows for evaluation of the soil conditions as they are encountered and allows the opportunity to recommend appropriate revisions where necessary.

8. LIMITATIONS

The recommendations and opinions expressed in this report are based on Twining, Inc.'s review of available background documents, on information obtained from field explorations, and on laboratory testing. It should be noted that this study did not evaluate the possible presence of hazardous materials on any portion of the site. In the event that any of our recommendations conflict with recommendations provided by other design professionals, we should be contacted to aid in resolving the discrepancy.

Due to the limited nature of our field explorations, conditions not observed and described in this report may be present on the site. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation and laboratory testing can be performed upon request. It should be understood that conditions different from those anticipated in this report may be encountered during grading operations, for example, the extent of removal of unsuitable soil, and that additional effort may be required to mitigate them.

Site conditions, including groundwater elevation, can change with time as a result of natural processes or the activities of man at the subject site or at nearby sites. Changes to the applicable laws, regulations, codes, and standards of practice may occur as a result of government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Twining, Inc. has no control.

Twining's recommendations for this site are, to a high degree, dependent upon appropriate quality control of subgrade preparation, fill placement, and foundation construction. Accordingly, the recommendations are made contingent upon the opportunity for Twining to observe grading operations and foundation excavations for the proposed construction. If parties other than Twining are engaged to provide such services, such parties must be notified that they will be required to assume complete responsibility as the geotechnical engineer of record for the geotechnical phase of the project by concurring with the recommendations in this report and/or by providing alternative recommendations.

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This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Twining should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report has been prepared for the exclusive use by the client and its agents for specific application to the proposed project. Land use, site conditions, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of this report and the nature of the new project, Twining may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the Client or anyone else will release Twining from any liability resulting from the use of this report by any unauthorized party.

Twining performed its evaluation using the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical professionals with experience in this area in similar soil conditions. No other warranty, either express or implied, is made as to the conclusions and recommendations contained in this report.

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9. SELECTED REFERENCES

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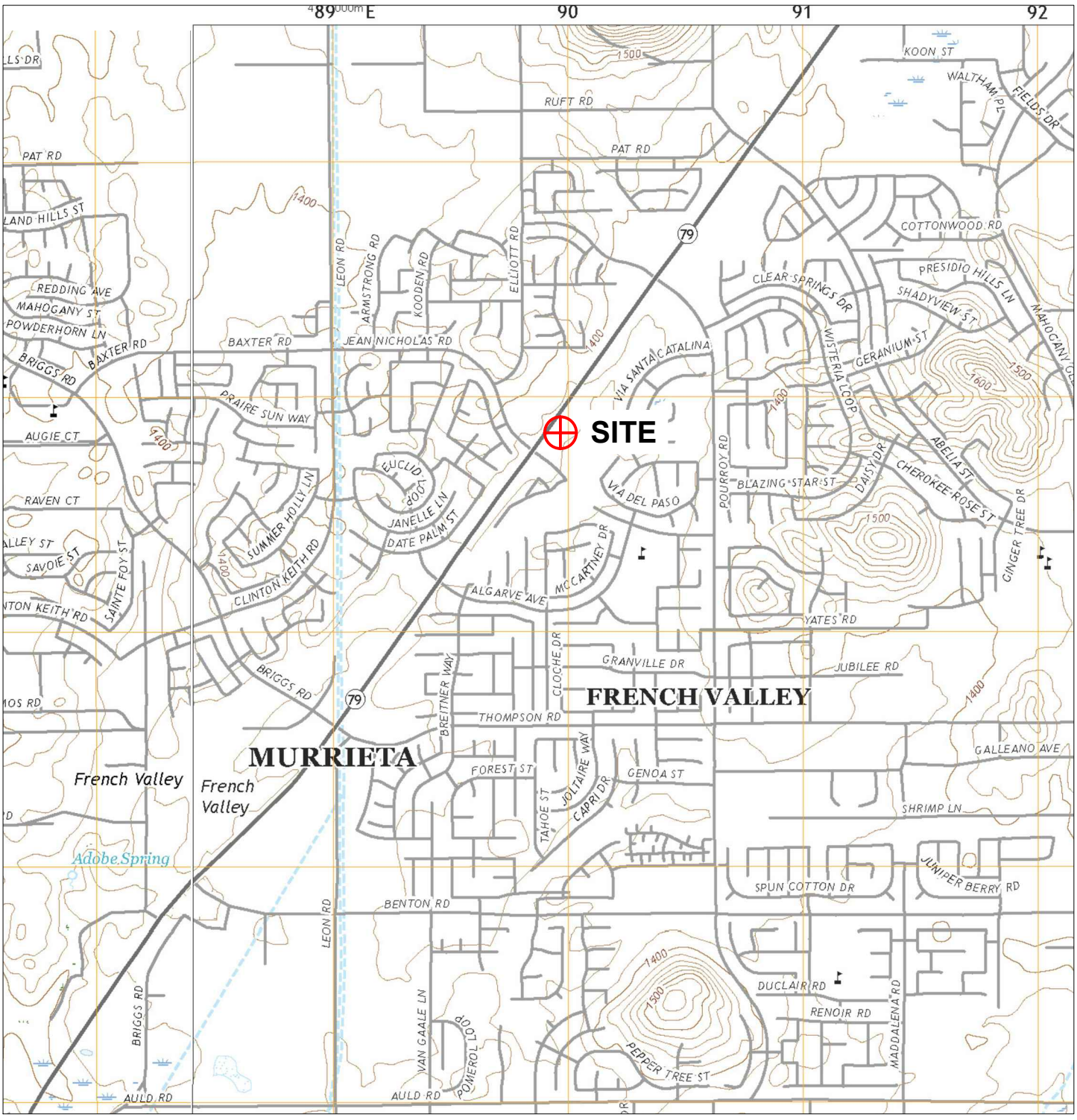
FIGURES



N

SCALE IN FEET

0 2000 4000

REFERENCE: USGS (2018)

TWINING

SITE LOCATION MAP

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31526 SKYVIEW ROAD
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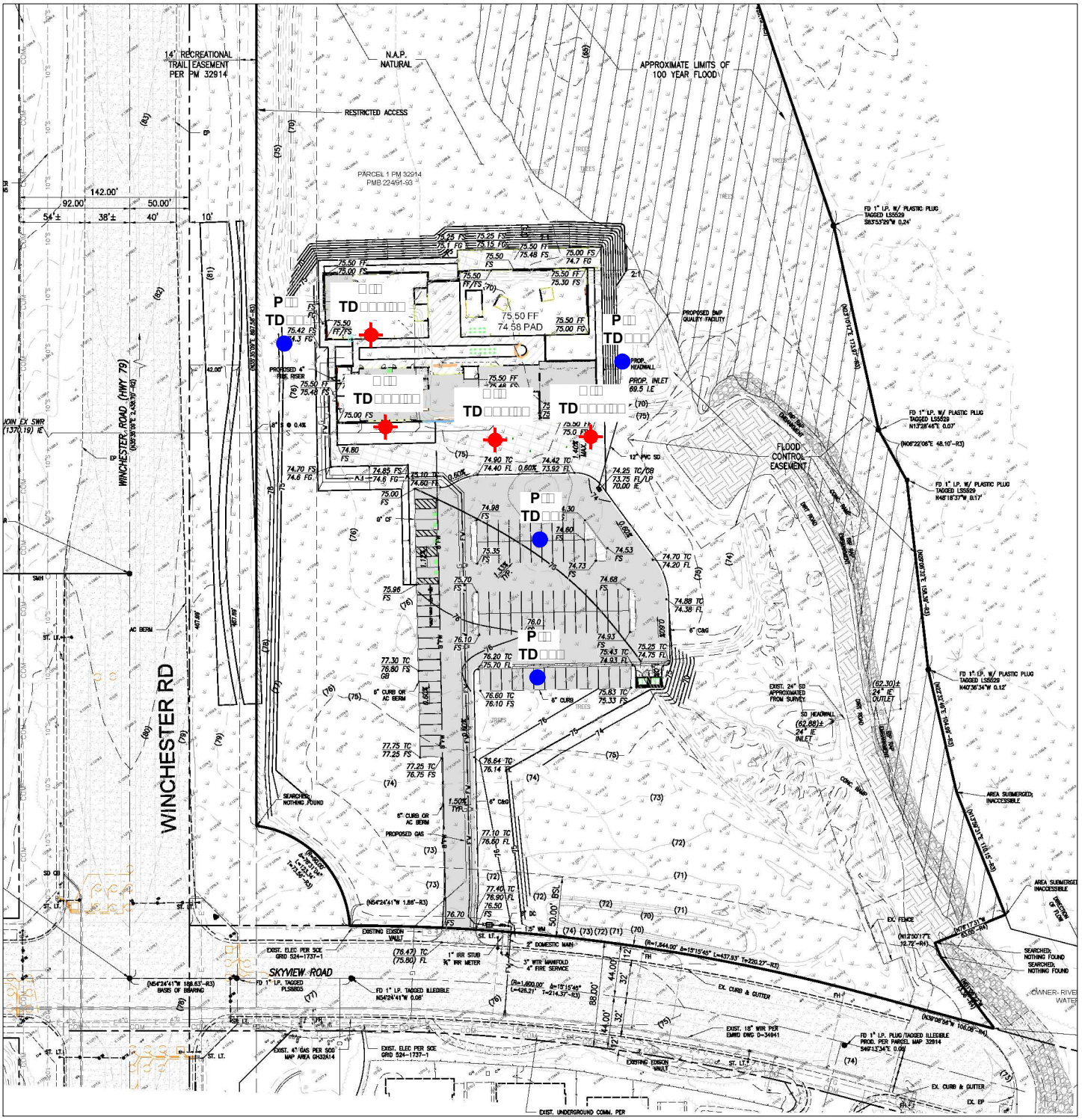
PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	FIGURE 1



LEGEND

TD□□□□□□ APPROXIMATE LOCATION OF BORING AND TOTAL DEPTH

P□□ TD□□□ APPROXIMATE LOCATION OF PERCOLATION TEST AND TOTAL DEPTH

SCALE IN FEET

0 120 240

REFERENCE: ARMSTRONG AND BROOKS (2019)

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SITE PLAN AND □ORING LOCATION MAP

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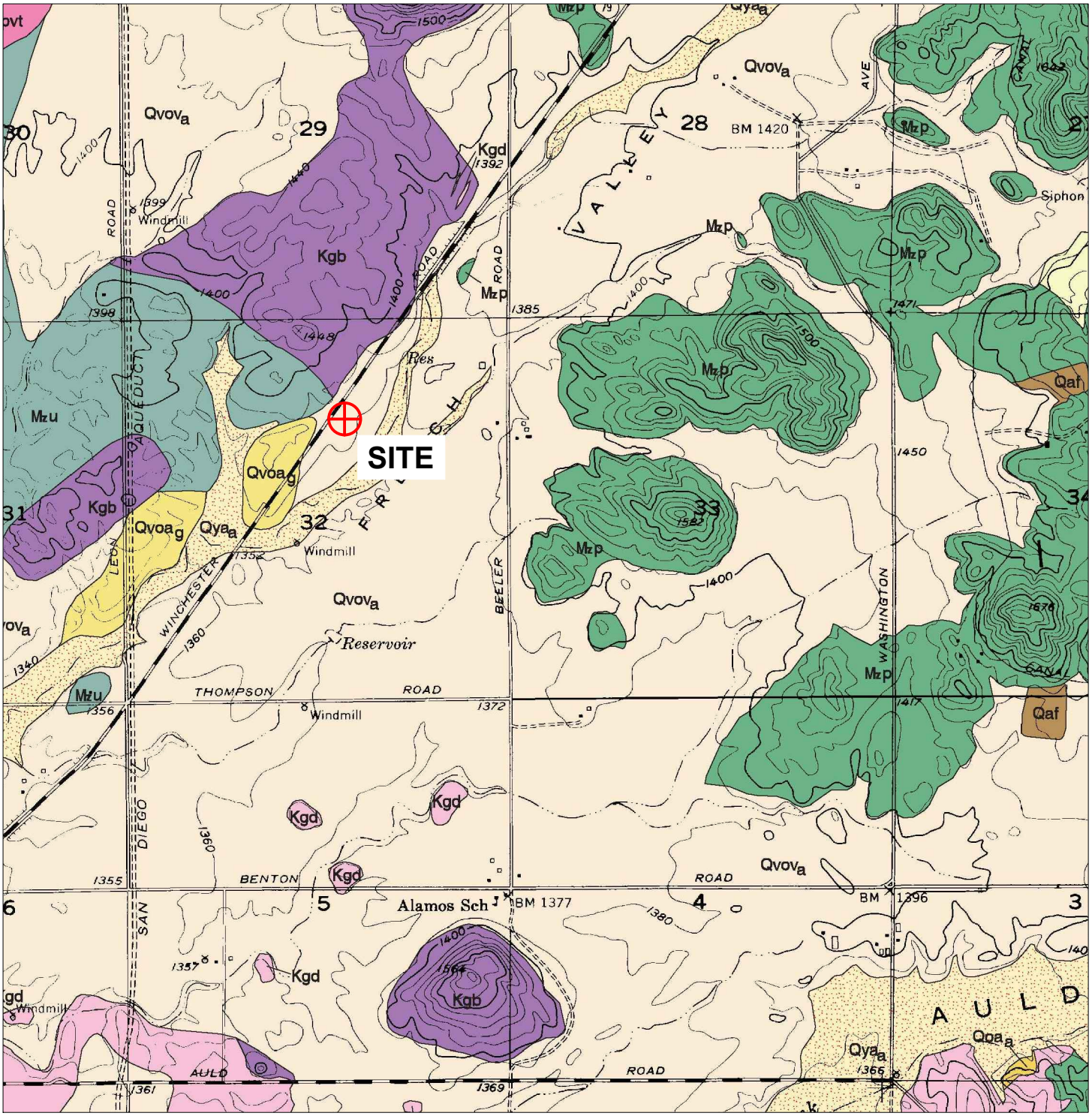
WINCHESTER, CALIFORNIA

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	2



LEGEND

Qvov	Very old alluvial valley deposits
Qvoa	Very old alluvial channel deposits
Qya	Young alluvial channel deposits
Kgb	Gabbro (Cretaceous)
Mzu	Mesozoic metasedimentary rocks
Mzp	Phyllite (Mesozoic)

SCALE IN FEET
0 2000 4000

REFERENCE: MORTON, KENNEDY, BOVARD, BURNS (2003)

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REGIONAL GEOLOGIC MAP

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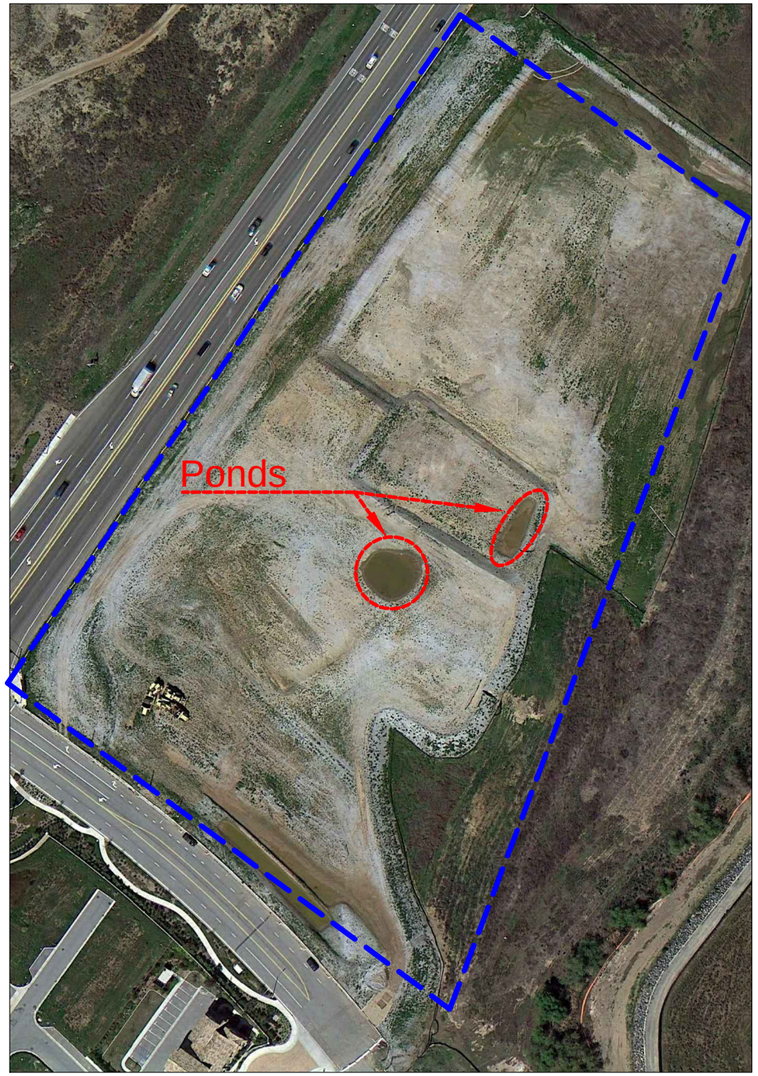
PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	3

2009



2011

2018

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APPROXIMATE PROPERTY BOUNDARIES

APPROXIMATE SCALE IN FEET

0 175 350

□ISTORICAL SITE GRADING

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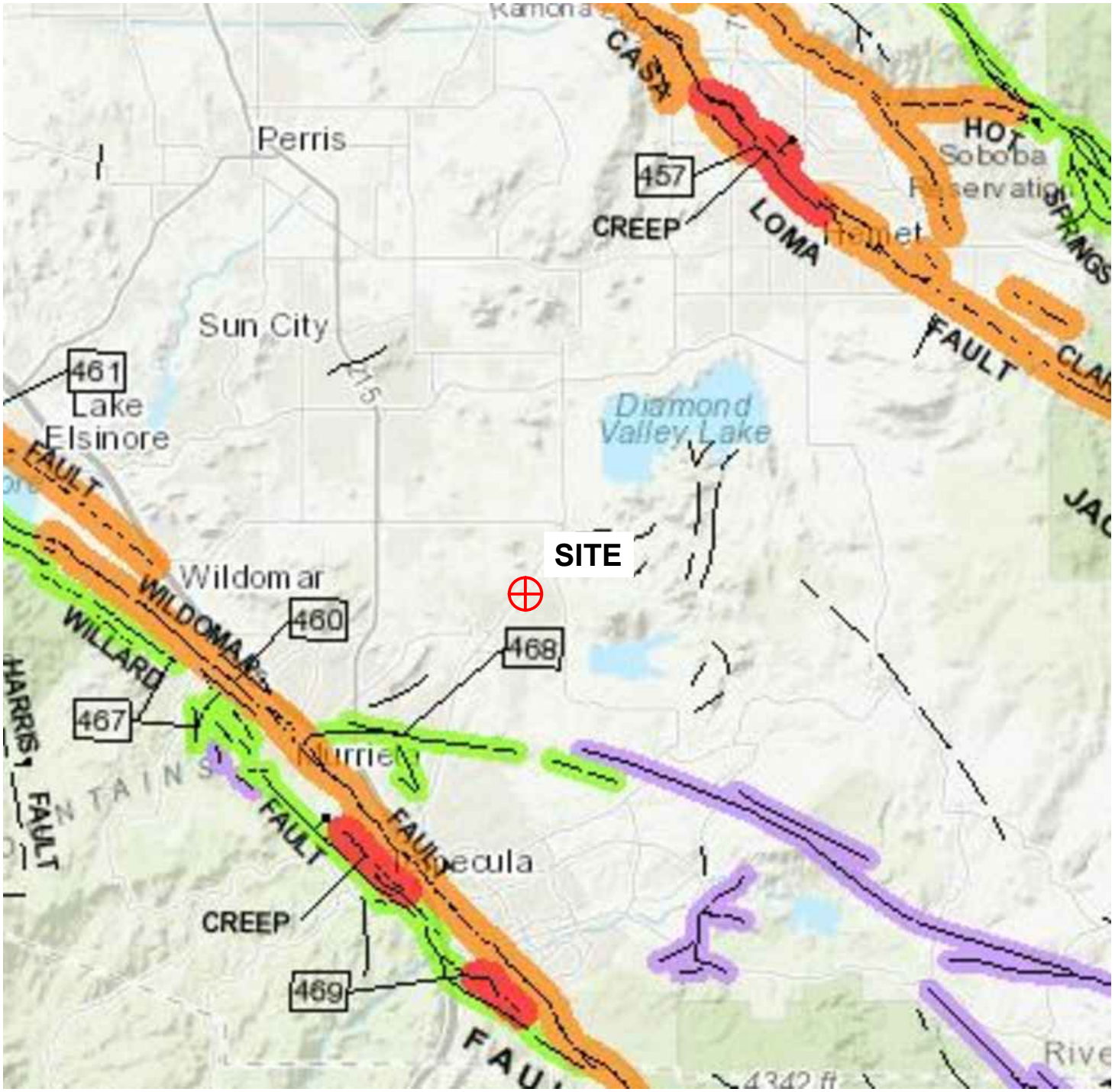
PROJECT NO.	REPORT DATE	FIGURE 4
180759.3	October 2019	



REFERENCE: JENNINGS AND BRYANT (2010)

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REGIONAL FAULT LOCATION MAP

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PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	FIGURE 5

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APPENDIX A
FIELD EXPLORATION

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Appendix A
Field Exploration

General

The subsurface exploration program for the proposed project consisted of drilling, testing, sampling and logging four hollow-stem-auger (HSA) exploratory borings (B-1 through B-4) and percolation testing in four hand-auger borings (P-1 through P-4) at the site on September 30, 2019.

The HSA Borings (B-1 through B-4) were advanced to depths of approximately 16½ to 51½ feet below ground surface (bgs). Drilling operation for the HSA borings was performed using a truck-mounted CME-85 hollow-stem-auger drill rig by Baja Exploration of Escondido, California. Borings P-1 through P-4 were advanced to a depth of approximately 5 feet bgs using a 5-inch diameter hand auger.

The approximate locations of the borings are shown on Figure 2, Site Plan and Boring Location Map.

Drilling and Sampling

An explanation of the boring logs is presented as Figure A-1. The boring logs are presented as Figures A-2 through A-7. The boring logs describe the earth materials encountered, samples obtained, and show the field and laboratory tests performed. The logs also show the boring number, drilling date, and the name of the logger and drilling subcontractor. The borings were logged by an engineer using the Unified Soil Classification System. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Drive and bulk samples of representative earth materials were obtained from the borings.

Disturbed samples were obtained from selected depths using a Standard Penetration Test (SPT) sampler. This sampler consists of a 2-inch O.D., 1.4-inch I.D. split barrel shaft without room for liner. Soil samples obtained by the SPT sampler were retained in plastic bags. A California modified sampler was also used to obtain drive samples of the soils from selected depths. This sampler consists of a 3-inch outside diameter (O.D.), 2.4-inch inside diameter (I.D.) split barrel shaft. The samples were retained in brass rings for laboratory testing.

When the boring was drilled to the selected depth, the sampler was lowered to the bottom of the boring and then driven a total of 18-inches into the soil using an automatic hammer weighing 140 pounds dropped from a height of approximately 30 inches. The number of blows required to drive the samplers the final 12 inches is presented on the boring logs.

Upon completion of the borings, the boreholes were backfilled with drilled soil cuttings.

Percolation Testing

Percolation testing was performed on September 30, 2019 in the 5-foot-deep borings (P-1 through P-4) in accordance with the procedures of the Riverside County Design Handbook for Low Impact Development Best Management Practices. After installing pipe and filter rock, the boreholes were filled with water to approximately one foot bgs and presoaked for two consecutive 25-minute sessions prior to testing. At the end of each presoak session, water level change in borings P-1 through P-3 was negligible, and the testing was terminated. In P-4, water level change in boring was less than 6 inches.

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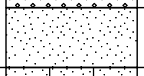
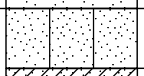
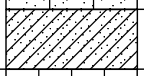
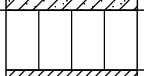
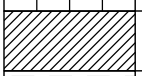
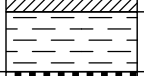
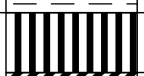
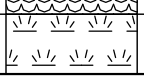
After presoaking, the boreholes were filled with water to depths approximately 0.9 to 1.9 feet bgs. Measurements were recorded at 10-minute intervals for a total of 7 readings. The last reading was used to determine the percolation rate at each test location.

Our calculated design infiltration rates are presented in Table A-1 below with a factor safety of 3. Detailed test data is attached at the end of this appendix.

Table A-1 – Design Infiltration Rates with a Factor of Safety of 3

Test Location	Depth of Test Borehole (feet)	Design Infiltration Rate (inch/hour)
P-1	5	Testing was abandoned due to negligible water level drop during pre-soaking
P-2	5	
P-3	5	
P-4	5	1.2

UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

COARSE-GRAINED SOILS

Relative Density	SPT (blows/ft)	Relative Density (%)
Very Loose	<4	0 - 15
Loose	4 - 10	15 - 35
Medium Dense	10 - 30	35 - 65
Dense	30 - 50	65 - 85
Very Dense	>50	85 - 100

FINE-GRAINED SOILS

Consistency	SPT (blows/ft)
Very Soft	<2
Soft	2 - 4
Medium Stiff	4 - 8
Stiff	8 - 15
Very Stiff	15 - 30
Hard	>30

NOTE: SPT blow counts based on 140 lb. hammer falling 30 inches

Sample Symbol	Sample Type	Description
	SPT	1.4 in I.D., 2.0 in. O.D. driven sampler
	California Modified	2.4 in. I.D., 3.0 in. O.D. driven sampler
	Bulk	Retrieved from soil cuttings
	Thin-Walled Tube	Pitcher or Shelby Tube

LABORATORY TESTING ABBREVIATIONS

ATT	Atterberg Limits
C	Consolidation
CORR	Corrosivity Series
DS	Direct Shear
EI	Expansion Index
GS	Grain Size Distribution
K	Permeability
MAX	Moisture/Density (Modified Proctor)
O	Organic Content
RV	Resistance Value
SE	Sand Equivalent
SG	Specific Gravity
TX	Triaxial Compression
UC	Unconfined Compression

TWINING

EXPLANATION FOR LOG OF BORINGS

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A-1

STANDARD LOG EXPLANATION 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-1**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	16		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
						CORR, R		ML	SANDY SILT, brown, moist
1370	5		26	9.8	125.0				same, very stiff
1365	10		54					SM	SILTY SAND, very dense, light brown, moist
1360	15		50/5"	16.0	115.9				▼ same
1355	20		36			ATT		CL	SANDY lean CLAY, hard, dark brown
1350	25		50	25.1	104.2				same
1345	30		28/50/3"			ATT		SC	CLAYEY SAND, very dense, dark brown
1340	35								

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 2

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-1**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	16		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
			50/4"	14.5	112.3	C		CL	SANDY lean CLAY, hard, dark brown, same with some gravel
1335	40		50					CL	same
1330	45		50/6"	17.2	112.4			CL	same
1325	50		36/50/4"					CL	same
									Total Depth = 51.5 feet Backfilled on 9/30/2019 Groundwater encounterd at 16' bgs. Borehole filled with cuttings at completion.
1320	55								
1315	60								
1310	65								
1305	70								

TWINING

LOG OF BORING

French Valley Library
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Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 2

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-2**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)			
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
								CL	SANDY lean CLAY with gravel, dark brown, moist
1370	5		14			ATT		CL	same, very stiff
1365	10		70	20.9	101.1	C		CL	same, hard
1360	15		22					CL	same, very stiff
									Total Depth = 16.5 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1355	20								
1350	25								
1345	30								
1340	35								

TWINING

LOG OF BORING

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PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 3

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-3**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)			
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
				13.4		DS, EI, MAX		ML	SANDY SILT,dark brown, moist
1370	5		47	5.5	126.9	DS		SC	CLAYEY SAND, dense, reddish brown, moist
1365	10		24					CL	SANDY lean CLAY with some white sand, very stiff, brown, moist
1360	15		60	26.3	99.0			ML	SANDY SILT, hard, brown, moist
									Total Depth = 16.5 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1355	20								
1350	25								
1345	30								
1340	35								

TWINING

LOG OF BORING

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PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 4

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-4**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	16		
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
								SM	SILTY SAND, light brown, moist
1370	5		16					ML	SANDY SILT, very stiff, brown, moist
1365	10		52	7.5	121.2	DS		SM	SILTY SAND,dense, light brown, moist
1360	15		15			ATT		CL	SANDY lean CLAY, very stiff, light brown, moist
1355	20		50	16.5	114.8			CL	same, hard
1350	25		31/50/4"					CL	same
1345	30		50/4"	22.3	105.0			CL	same
1340	35								

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

TWINING

LOG OF BORING

French Valley Library
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PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 5

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**B-4**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	16
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	ADDITIONAL TESTS	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
			44					CL	SANDY lean CLAY, very stiff, light brown, moist *(continued)*
								CL	same, hard
1335	40		30/50/3"	15.2	116.9			CL	same
1330	45		25/50/3"					CL	same
1325	50		50/2"	13.0	118.7			CL	same
									Total Depth = 51.5 feet Backfilled on 9/30/2019 Groundwater encounterd at 16' bgs. Borehole filled with cuttings at completion.
1320	55								
1315	60								
1310	65								
1305	70								

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

TWINING

LOG OF BORING

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Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 5

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**P-1**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)			
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES: Bulk	SAMPLES: Driven	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
								SM	SILTY SAND, dark brown, moist
								SC	CLAYEY SAND, dark brown, moist
1370	5								Total Depth = 5.0 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1365	10								
1360	15								
1355	20								
1350	25								
1345	30								
1340	35								

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LOG OF BORING

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PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 6

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**P-2**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SM	SILTY SAND, dark brown, moist
							SC	CLAYEY SAND, dark brown, moist
1370	5							Total Depth = 5.0 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1365	10							
1360	15							
1355	20							
1350	25							
1345	30							
1340	35							

TWINING

LOG OF BORING

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PROJECT NO.	REPORT DATE	
190759.3	October 2019	FIGURE A - 7

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**P-3**
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)	
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1375 ±(MSL)

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SM	SILTY SAND, dark brown, moist
							SC	CLAYEY SAND, dark brown, moist
1370	5							Total Depth = 5.0 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1365	10							
1360	15							
1355	20							
1350	25							
1345	30							
1340	35							

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LOG OF BORING

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PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 7

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

DATE DRILLED	9/30/19	LOGGED BY	SZ	**BORING NO.**	**P-4**		
DRIVE WEIGHT	140 lbs.	DROP	30 inches	DEPTH TO GROUNDWATER (ft.)			
DRILLING METHOD	8" HSA	DRILLER	Baja Exploration	SURFACE ELEVATION (ft.)	1369 ±(MSL)		

ELEVATION (feet)	DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS / FOOT	MOISTURE (%)	DRY DENSITY (pcf)	GRAPHIC LOG	U.S.C.S. CLASSIFICATION	DESCRIPTION
							SM	Silty SAND; brown; slightly moist; some gravel
							SC	Clayey SAND; light brown; slightly moist
1364	5							Total Depth = 5.0 feet Backfilled on 9/30/2019 Groundwater was not encounterd. Borehole filled with cuttings at completion.
1359	10							
1354	15							
1349	20							
1344	25							
1339	30							
1334	35							

BORING LOG 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/17/19

TWINING

LOG OF BORING

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	A - 7

Infiltration Rate Calculation Sheet

Project :	French Valley Library	Project No. :	190759.3	Date :	9/30/2019
Test Hole No.:	P-4	Tested by :	DHC		
Depth of Test Hole, D_T (in):	60	USCS Soil Classification :	SC		
Test Hole Dimension (inches)			Length	Width	
Diameter (if round) (inches) =	8	Sides (if rectangular) =			

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6" ? (Y/N)
1	12:30 PM	12:55 PM	25	12.0	36.0	24.0	Y
2	12:58 PM	1:23 PM	25	13.2	38.4	25.2	Y

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

			Δt	H_o	H_f	ΔH	
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Water Height (inches)	Final Water Height (inches)	Change in Water Level (inches)	Tested Infiltration Rate
1	1:42 PM	1:52 PM	10	38.40	25.20	13.20	4.69
2	1:53 PM	2:03 PM	10	49.20	30.60	18.60	5.33
3	2:03 PM	2:13 PM	10	42.00	29.40	12.60	4.01
4	2:13 PM	2:23 PM	10	40.80	29.40	11.40	3.69
5	2:23 PM	2:33 PM	10	42.00	30.00	12.00	3.79
6	2:34 PM	2:44 PM	10	40.20	28.80	11.40	3.75
7	2:44 PM	2:54 PM	10	37.20	27.00	10.20	3.59
8							
9							
10							
11							
12							
13							
14							
15							

Infiltration Rate with a factor of safety of 3 = 1.2 inch /hr

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APPENDIX B
LABORATORY TESTING

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Appendix B
Laboratory Testing

Laboratory Moisture Content and Density Tests

The moisture content and dry densities of selected driven samples obtained from the exploratory borings were evaluated in general accordance with the latest version of ASTM D 2937. The results are shown on the boring logs in Appendix A, and also summarized in Table B-1.

No. 200 Wash Sieve

The amount of fines passing the No. 200 sieve was evaluated in accordance with ASTM D 1140. The results are presented in Table B-2.

Atterberg Limits

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the Unified Soil Classification System. The test results are summarized in on Figure B-1 and Table B-3.

Resistance Value (R-value)

R-value testing was performed on a select bulk sample of the near-surface soils encountered at the site. The test was performed in general accordance with ASTM D 2844. The results are summarized in Table B-4.

Expansion Index

The expansion index of a select soil sample was evaluated in general accordance with ASTM D 4829. The specimen was molded under a specified compactive energy at approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimen was loaded with a surcharge of 144 pounds per square foot and was inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The result of Expansion Index test is presented in Table B-5.

Direct Shear

Direct shear tests were performed on a remolded sample and select modified-California soil samples in general accordance with the latest version of ASTM D 3080 to evaluate the shear strength characteristics of the selected materials. The remolded sample was prepared to a relative compaction of 90% according to the maximum density as determined by ASTM D1557. The samples were inundated during shearing to represent adverse field conditions. Test results are presented on Figures B-2 through B-4.

Maximum Density and Optimum Moisture

A Modified Proctor test was performed on near-surface soils to determine the maximum dry density and optimum water content for compaction. The test was performed in accordance with ASTM D 1557 Method A. The curve is attached to this appendix as Figure B-5.

Consolidation

Consolidation tests were performed on select modified-California soil samples in general accordance with the latest version of ASTM D2435. The samples were inundated during testing

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to represent adverse field conditions. The percent consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests are attached to this appendix. The tests were performed by Twining and Hushmand Associates, Inc. (HAI) of Irvine, California. The test results are presented in Figure B-6 and the HAI report included in this appendix.

Corrosivity

Soil pH and resistivity tests were performed by Anaheim Test Lab, Inc. (ATLI) of Anaheim, California on a representative soil sample. The resistivity of the soil assumes saturated soil conditions. The chloride and sulfate contents of the selected samples were evaluated in general accordance with the latest versions of Caltrans test methods CT417, CT422, and CT 643. The test results are presented on Table B-6 and the ATLI report included in this appendix.

Table B-1
Moisture Content and Dry Density

Boring No.	Depth (feet)	Moisture Content (%)	Dry Density (pcf)
B-1	5	9.8	125.0
B-1	15	16.0	115.9
B-1	25	25.1	104.2
B-1	35	14.5	112.3
B-1	45	17.2	112.4
B-2	10	20.9	101.1
B-3	5	5.5	126.9
B-3	15	26.3	99.0
B-4	10	7.5	121.2
B-4	20	16.5	114.8
B-4	30	22.3	105.0
B-4	40	15.2	116.9
B-4	50	13.0	118.7

Table B-2
Number 200 Wash Results

Boring No.	Depth (feet)	Percent Passing #200
B-1	0-5	67.5
B-1	20	73.2
B-1	30	43.4
B-2	5	50.9
B-4	15	69.0

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Table B-3
Atterberg Limits Results

Boring No.	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	U.S.C.S. Classification
B-1	20	33	17	16	CL
B-1	30	32	14	18	CL
B-2	5	25	13	12	CL
B-4	15	42	14	28	CL

Table B-4
Resistance Value (R-value)

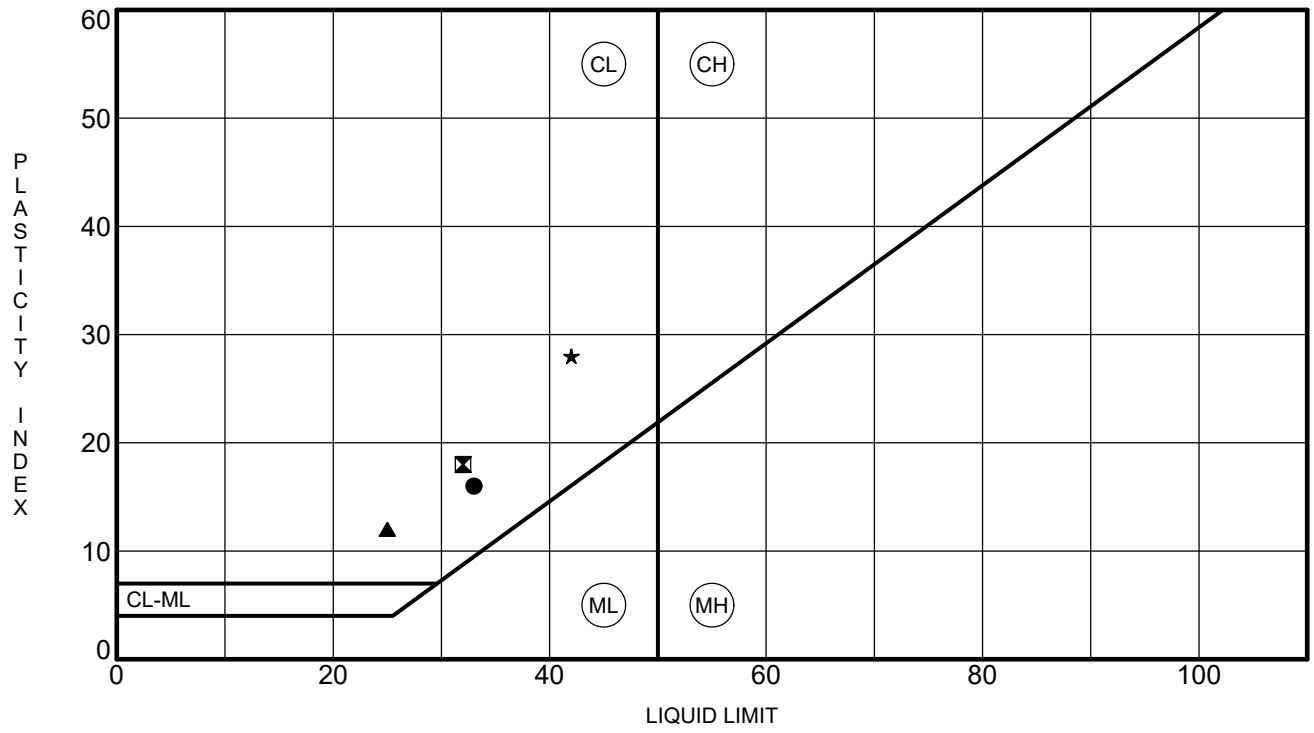
Boring No.	Depth (feet)	R Value
B-1	0 – 5	12

Table B-5
Expansion Index

Boring No.	Depth (feet)	Expansion Index	Expansion Potential
B-3	0 – 5	42	low

Table B-6
Corrosivity Test Results

Boring No.	Depth (feet)	pH	Water Soluble Sulfate (ppm)	Water Soluble Chloride (ppm)	Minimum Resistivity (ohm-cm)
B-1	0-5	7.4	205	106	1,000



	Sample Location	LL	PL	PI	U.S.C.S. Classification
●	**B-1 at 20 ft**	**33**	**17**	**16**	**SANDY lean CLAY**
⊠	**B-1 at 30 ft**	**32**	**14**	**18**	**CLAYEY SAND**
▲	**B-2 at 5 ft**	**25**	**13**	**12**	**SANDY lean CLAY**
★	**B-4 at 15 ft**	**42**	**14**	**28**	**SANDY lean CLAY**

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ATTERBERG LIMITS

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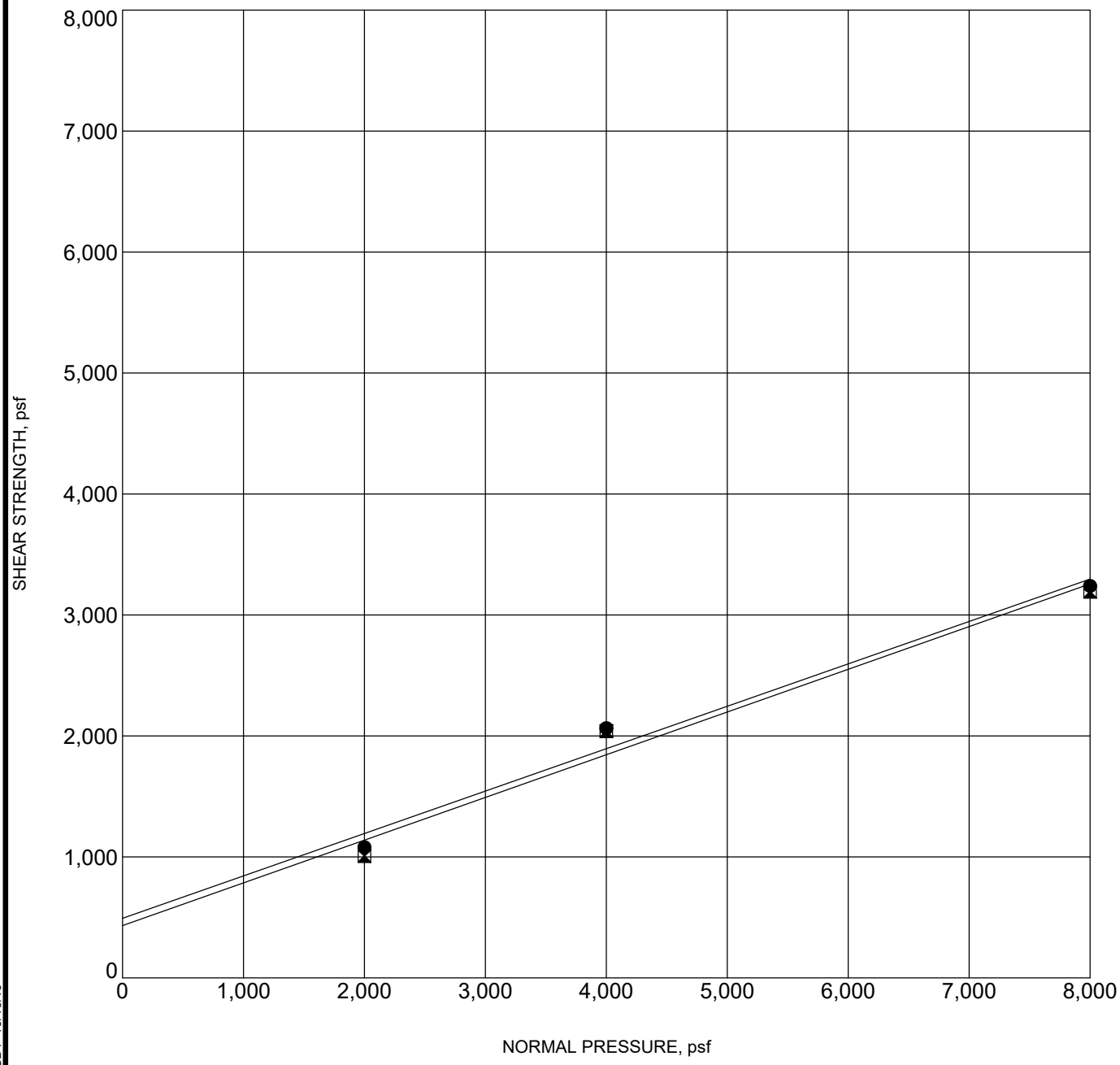
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-1

ATTERBERG LIMITS 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	492	432
Friction Angle, Ø (deg):	19	19

Boring No.: B-3
Sample Depth (ft): 0-5' BULK
Sample Description: SANDY SILT
Strain Rate (in./min): 0.005
Dry Density (pcf): 111.0

Initial Moisture (%): 8.0
Final Moisture (%): 13.4

Remolded Shear: Compacted to 90% Relative Compaction

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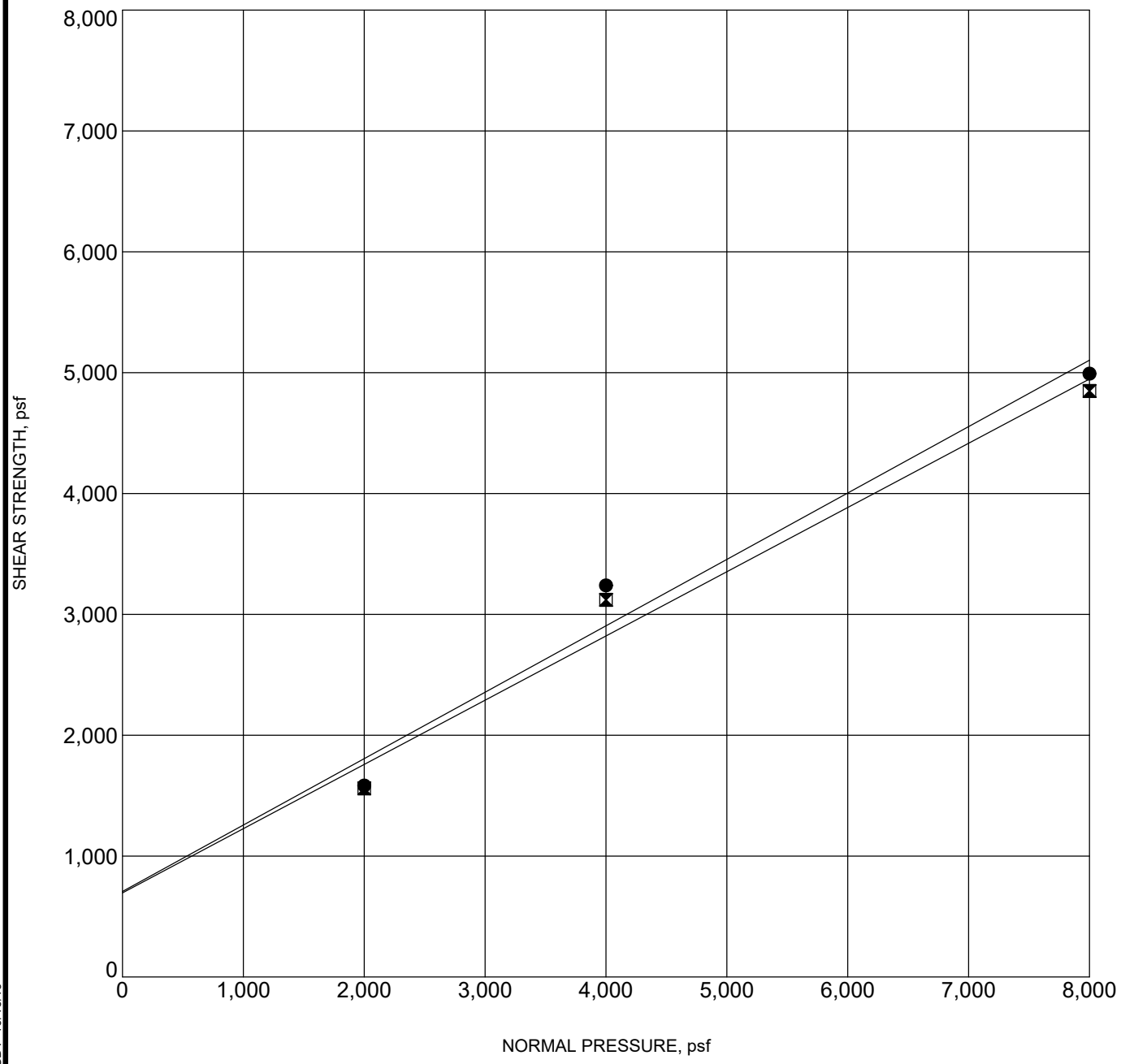
DIRECT SHEAR TEST

French Valley Library
31526 Skyview Road
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-1

DIRECT SHEAR 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	708	696
Friction Angle, Ø (deg):	29	28

Boring No.: B-3
Sample Depth (ft): 5
Sample Description: CLAYEY SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 126.9

Initial Moisture (%): 5.5
Final Moisture (%): 10.0

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DIRECT SHEAR TEST

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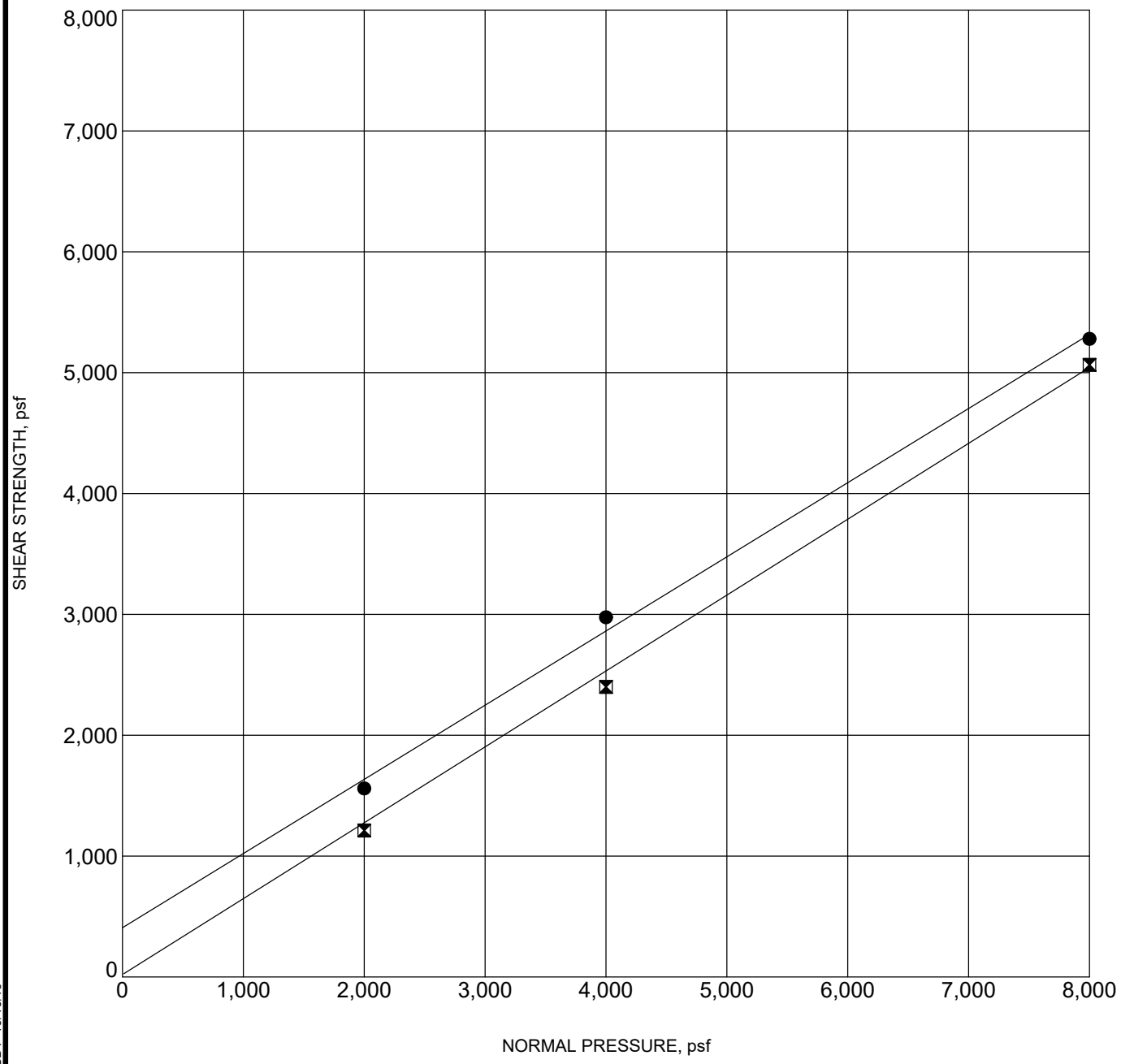
PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	FIGURE B-2

DIRECT SHEAR 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Shear Strength Parameters

	Peak	Ultimate
Cohesion, C (psf):	408	0
Friction Angle, Ø (deg):	32	33

Boring No.: B-4
Sample Depth (ft): 10
Sample Description: SILTY SAND
Strain Rate (in./min): 0.005
Dry Density (pcf): 121.2

Initial Moisture (%): 7.5
Final Moisture (%): 12.1

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DIRECT SHEAR TEST

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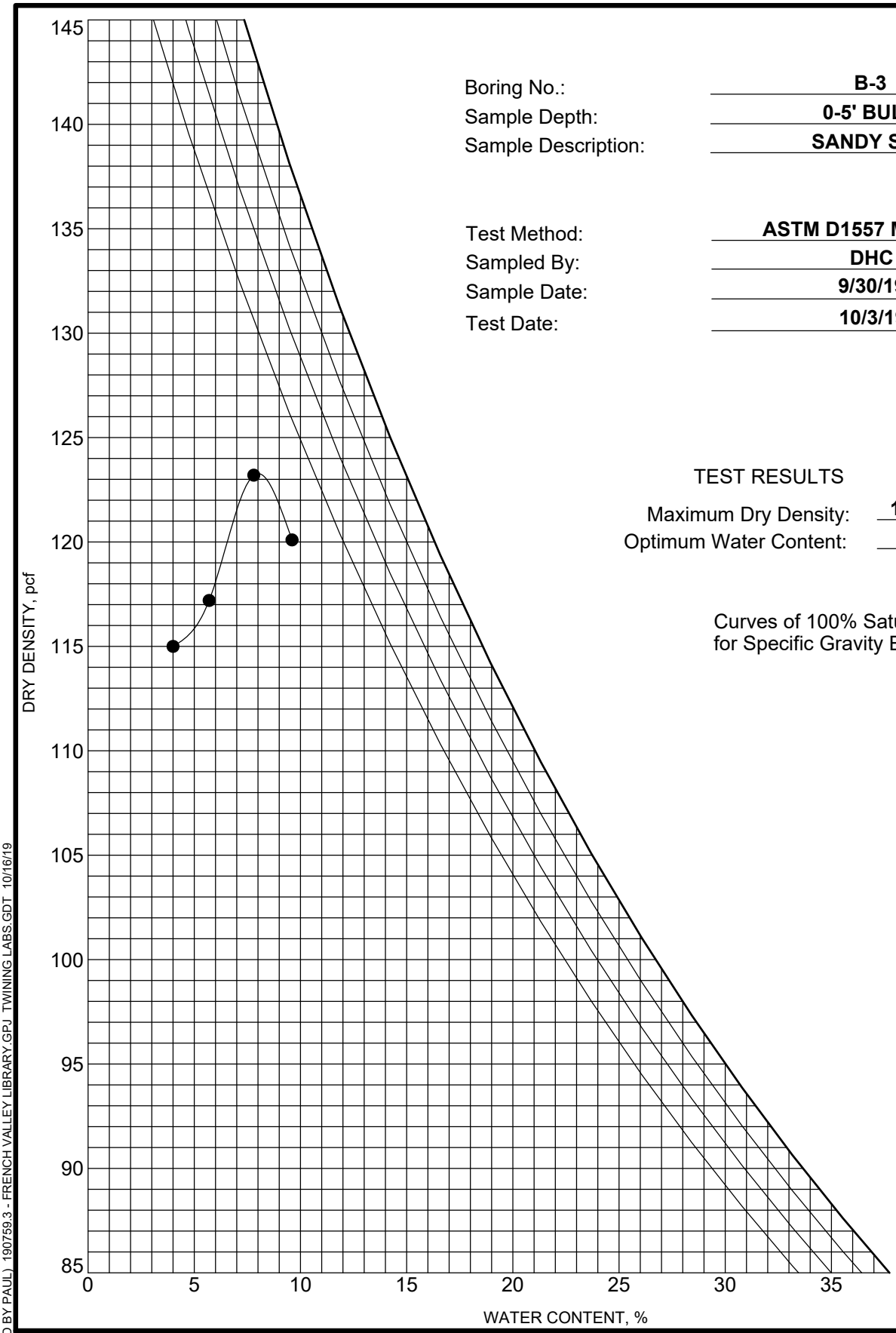
Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-3

DIRECT SHEAR 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Boring No.:	**B-3**
Sample Depth:	**0-5' BULK**
Sample Description:	**SANDY SILT**
Test Method:	**ASTM D1557 Method A**
Sampled By:	**DHC**
Sample Date:	**9/30/19**
Test Date:	**10/3/19**

TEST RESULTS

Maximum Dry Density:	**123.5 pcf**
Optimum Water Content:	**8.0 %**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

2.50

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MOISTURE-DENSITY RELATIONSHIP

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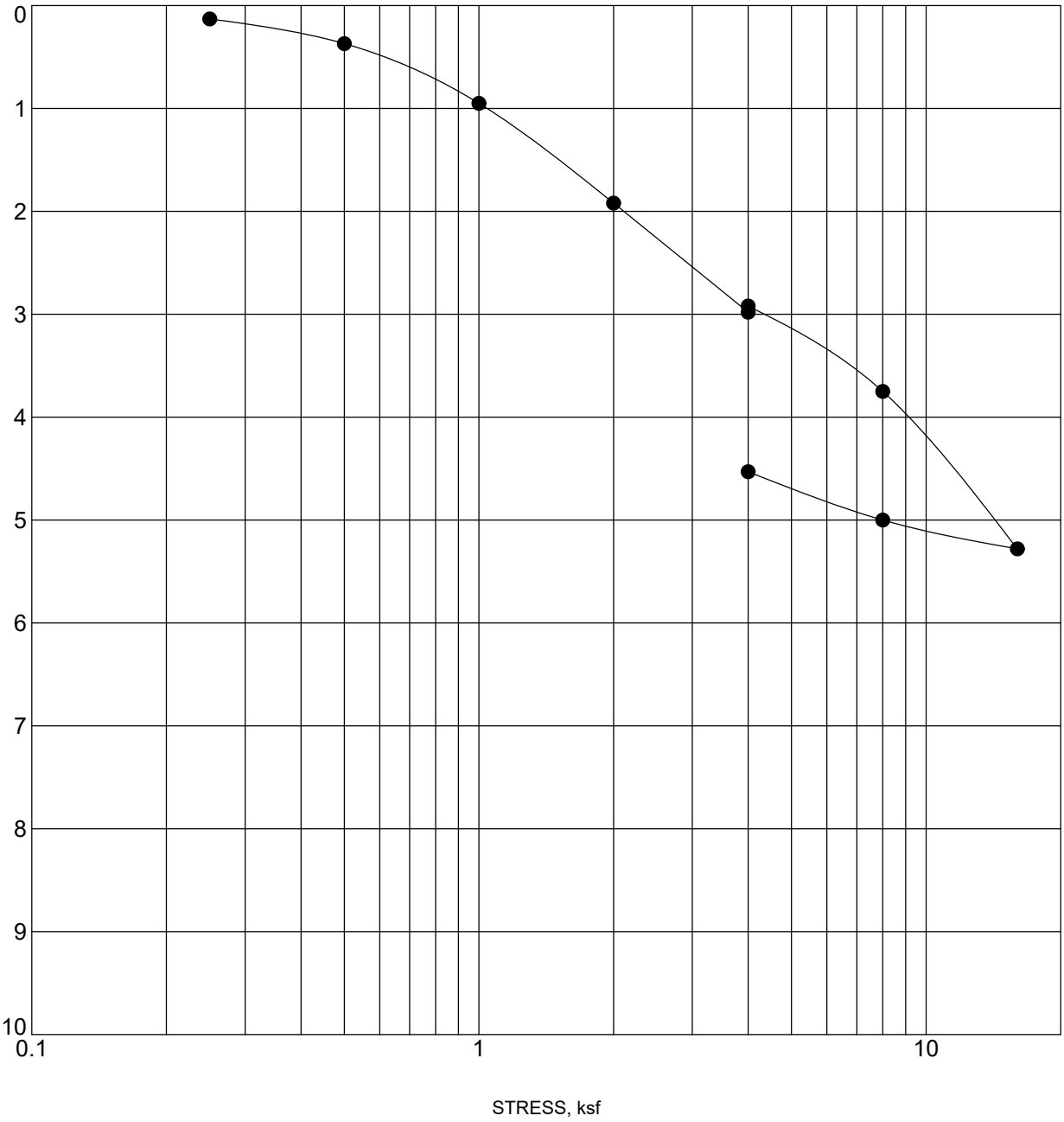
PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	FIGURE B-5

COMPACTION (MODIFIED BY PAUL) 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19



Sample Location	Soil Description	Dry Density (pcf)	Moisture Content (%)
● **B-2 at 10 ft**	**SANDY lean CLAY**	**101.1**	**20.9**

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CONSOLIDATION TEST

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Winchester, California

PROJECT NO.	REPORT DATE	FIGURE
190759.3	October 2019	B-6

CONSOL STRAIN 190759.3 - FRENCH VALLEY LIBRARY.GPJ TWINING LABS.GDT 10/16/19

HUSHMAND ASSOCIATES, INC.
Geotechnical and Earthquake Engineers

Hushmand Associates, Inc.
250 Goddard, Irvine,
CA 92618

p. (949) 777-1274
w. haieng.com
e. hai@haieng.com

October 14, 2019

Twining, Inc.
3310 Airport Way,
Long Beach, CA 90806

Attention: Mr. Steven Chang

SUBJECT: **Laboratory Test Result**
Project Name: **French Valley**
Project No.: **190759.3**
HAI Project No.: **TWI-19-009**

Dear Mr. Chang:

Enclosed is the result of the laboratory testing program conducted on samples from the above referenced project. The testing performed for this program was conducted in general accordance with the following test procedure:

Type of Test	Test Procedure
Moisture Content & Dry Density	ASTM D2216 & D2937
Consolidation	ASTM D2435

Attached are: one (1) Moisture Content & Dry Density test result; and one (1) Consolidation test result.

We appreciate the opportunity to provide our testing services to Twining Inc. If you have any questions regarding the test results, please contact us.

Sincerely,

HUSHMAND ASSOCIATES, INC.

Kang C. Lin, BS, EIT
Laboratory Manager

Woongju (MJ) Mun, PhD, PE
Senior Staff Engineer

MOISTURE CONTENT AND DR□ DENSIT□ OF RING SAMPLES

ASTM D□□□□ □ ASTM D□□□□

Client: Twining, Inc.
Project Name: French Valley
Project No.: 190759.3

□Al Pr□□N□□□ TWI-19-009
P□r□□r□ □d □□□ KL
C□□□□□d □□□ MJ
D□□□□ 10/2/2019

N□□	**□□r□□□ N□□**	**S□□ □□□ N□□**	**D□□□□**	Wt of Ring + Soil	Height of Sample	Dia. of Sample	Volume of Sample	Wt of Rings	Wt of Soil	Wet Density	Wt of Cont. + Wet Soil	Wt of Cont. + Dry Soil	Wt of Container	**M□□□□r□ C□□□□□**	**Dr□ D□□□□□**
			□□	gr	in	in	cu.ft	gr	gr	pcf	gr	gr	gr	□	□□□
□	□□□	□	□□	1002.47	5.00	2.416	0.0133	228.50	773.97	128.6	220.65	194.16	11.72	□□□□	□□□□

CONSOLIDATION TEST

ASTM D□□□□

Client : Twining, Inc.
Project Name: French Valley
Project Number: 190759.3
Boring No.: B-1
Sample No.: 1
Type of Sample: Undisturbed Ring
Depth (ft): 35
Soil Description: Olive Brown, Sandy Fat Clay (CH)

HAI Project No.: TWI-19-009
Tested by: KL
Checked by: MJ
Date: 10/02/19

Initial Total Weight	Final Total Weight	Final Dry Weight
(g)	(g)	(g)
158.97	162.18	139.03

			I□□□□□C□□d□□□□□	F□□□C□□d□□□□
Height	H	(in)	1.026	0.994
Height of Solids	H_s	(in)	0.685	0.685
Height of Water	H_w	(in)	0.265	0.308
Height of Air	H_a	(in)	0.075	0.000
Dr□D□□□□□		□□□□	□□□□	□□□□
□ □□r C□□□□□		□□ □	□□□	□□□
S□□□r□□□□		□□ □	□□□	□□□

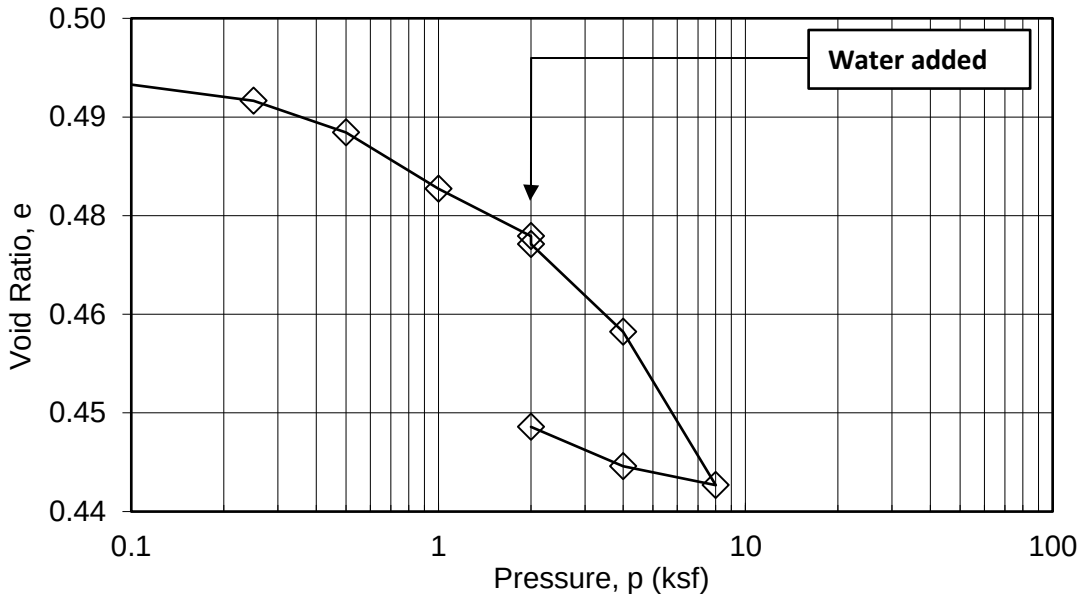
* Saturation is calcualted based on Gs= 2.70

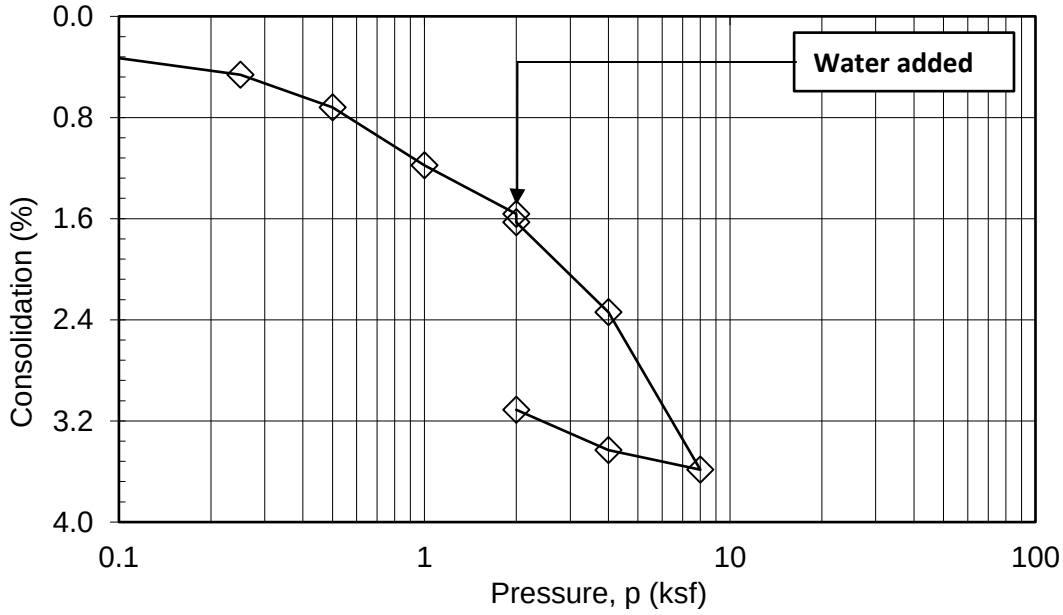
L□□d □□□□	**δH** □□□	□ □□□	□□d□ □□□	□	**C□□□□** □□ □	□□ □□□² □	**M**□ □□□² □	**C□□ □ □□□**
0.01	-------	1.0260	0.341	0.497	0			
0.25	0.0047	1.0213	0.336	0.490	0.5	2.9E-02	1.9E-02	
0.5	0.0074	1.0186	0.333	0.486	0.7	1.5E-02	1.0E-02	
1	0.0121	1.0139	0.328	0.479	1.2	1.4E-02	9.3E-03	
2	0.0160	1.0100	0.325	0.473	1.6	5.8E-03	3.9E-03	
2	0.0167	1.0093	0.324	0.473	1.6	Water Added		
4	0.0240	1.0020	0.317	0.462	2.3	5.3E-03	3.6E-03	
8	0.0368	0.9892	0.304	0.443	3.6	4.7E-03	3.2E-03	
4	0.0352	0.9908	0.305	0.446	3.4	Unloaded		
2	0.0319	0.9941	0.309	0.450	3.1			

CONSOLIDATION TEST

ASTM D□□□□

Client :	Twining, Inc.	*HAI Project No.:*	TWI-19-009
Project Name:	French Valley	*Tested by:*	KL
Project Number:	190759.3	*Checked by:*	MJ
Boring No.:	B-1	*Date:*	10/02/19
Sample No.:	1		
Type of Sample:	Undisturbed Ring		
Depth (ft):	35		
Soil Description:	Olive Brown, Sandy Fat Clay (CH)		





ANAHEIM TEST LAB, INC

196 Technology Drive, Unit D
Irvine, CA 92618
Phone (949)336-6544

TWINING LABS
3310 AIRPORT WAY
LONG BEACH, CA 90806

DATE: 10/03/2019

P.O. NO: Soils 10119

LAB NO: C-3261

SPECIFICATION: CTM-417/422/643

MATERIAL: Soil

Project No.: 190759.3
Project: French Valley
Date sampled: 09/30/2019
Boring ID: B-1 Bulk

ANALYTICAL REPORT

CORROSION SERIES
SUMMARY OF DATA

pH	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm	MIN. RESISTIVITY per CT. 643 ohm-cm
7.4	205	106	1,000

RESPECTFULLY SUBMITTED

WES BRIDGER LAB MANAGER

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Appendix C
Slope Stability Analysis

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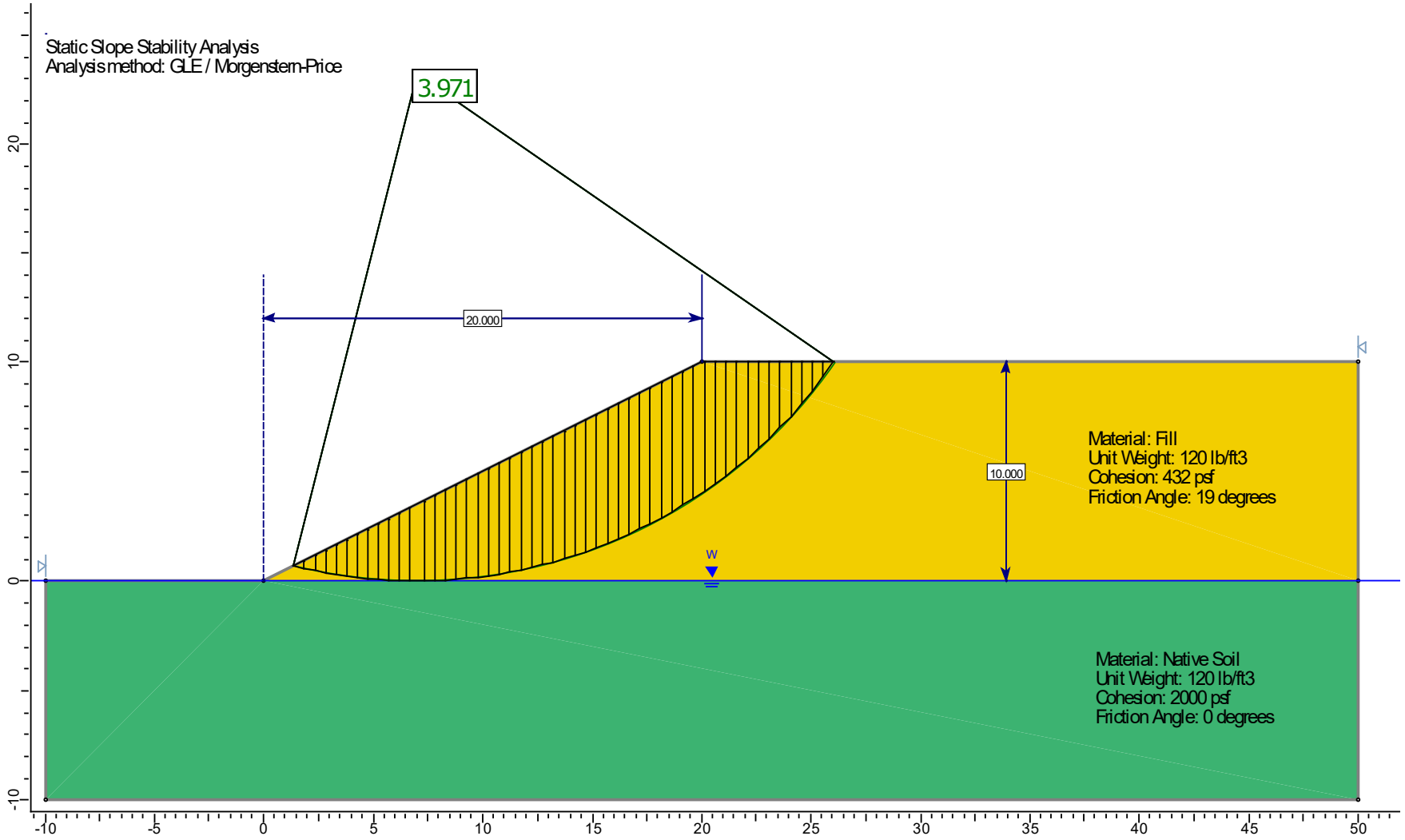

Figure C-1 Static Slope Stability Analysis

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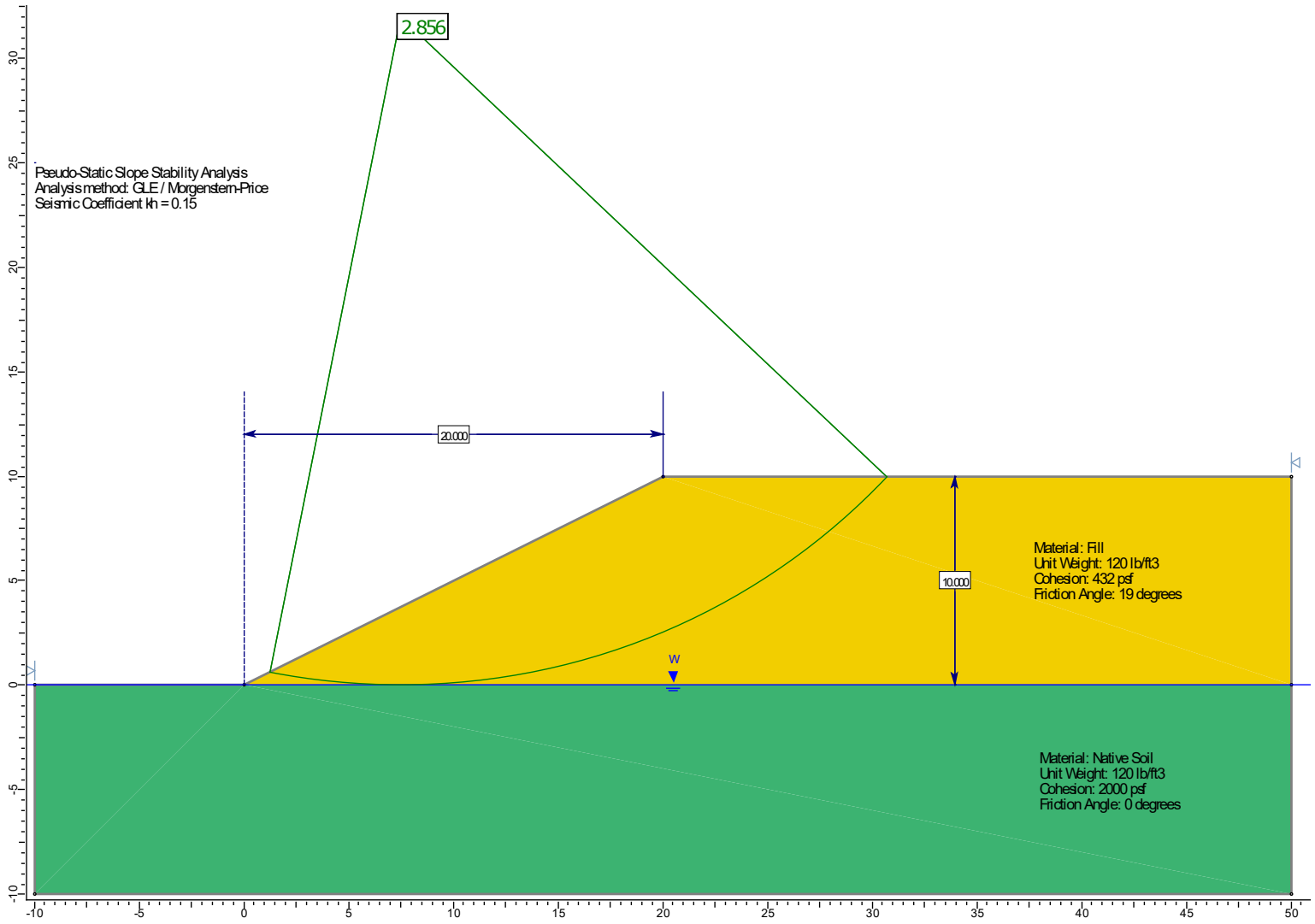


Figure C-1 Pseudo-Static Slope Stability Analysis

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Not Applicable

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Bioretention Facility - Design Procedure	BMP ID	Legend:	Required Entries
			Calculated Cells

Company Name: | Date: 10/4/2019

Designed by: | County/City Case No.:

Design Volume

Enter the area tributary to this feature	A_T=	1.9	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	3,300	ft^3
Enter the measured infiltration rate	I=	3.60	in/hr
Enter the Factor of Safety (See Table 1, Appendix A: "Infiltration Testing" of this BMP Design Handbook)	FS =	3.00	
Enter factored infiltration rate (design)	$I_{factored}$=	1.20	in/hr

Bioretention Facility Surface Area

Depth of Surface Ponding Layer (6" minimum, 12" maximum)	d_P =	6.0	inches
Depth of Engineered Soil Media (24" to 36"; 18" allowed if vertically const	d_s =	24.0	inches
Depth of Gravel Storage Layer (Optional Layer; up to 30")	d_g =		inches

Note: Check that storage in gravel does not exceed the amount that can enter these systems during a typical storm event. The depth of effective stored water should be less than 12 inches (30 inch bulk depth) unless higher permeability media is used to allow faster filling of this layer.

Total Effective Depth, d_E

$d_E(ft) = d_p(ft) + [(0.3) \times d_S(ft) + (0.4) \times d_g(ft)]$ d_E = 1.10 feet

Required Effective Footprint Area, A_{BMP}

$$A_{BMP}\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$$

A_{BMP} = 3,000 ft^2

Proposed Surface Area (shall not be less than A_{BMP}) A= 3,000 ft^2

Note: This area shall be measured at the mid-ponding depth of the BMP. For systems with side-slopes, this should be the contour that is midway between the floor of the basin and the maximum water qualty ponding depth of the basin. The underlying gravel layer should extend to this contour. For systems with vertical walls, the effective area is the full footprint.

FALSE

Drawdown Time (must be less than 72 hours) T_{Dd} = 11.0 hr

Message: Facility meets drawdown time limitations

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =		:1
Longitudinal Slope of Site (3% maximum)			%
Check Dam Spacing			feet

Describe Vegetation:

Notes: If underdrain is capped, provide a Capped Underdrain checklist and supporting calculations.

Appendix 7: Hydromodification

Supporting Detail Relating to compliance with the HMP Performance Standards

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☒ **A. On-site storm drain inlets**	☒ **Locations of inlets.**	☒ **Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.**	☐ **Maintain and periodically repaint or replace inlet markings.** ☐ **Provide stormwater pollution prevention information to new site owners, lessees, or operators.** ☒ **See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** ☐ **Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."**
☐ **B. Interior floor drains and elevator shaft sump pumps**		☐ **State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.**	☐ **Inspect and maintain drains to prevent blockages and overflow.**
☐ **C. Interior parking garages**		☐ **State that parking garage floor drains will be plumbed to the sanitary sewer.**	☐ **Inspect and maintain drains to prevent blockages and overflow.**

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ **D1. Need for future indoor & structural pest control**		☐ **Note building design features that discourage entry of pests.**	☐ **Provide Integrated Pest Management information to owners, lessees, and operators.**
☒ **D2. Landscape/ Outdoor Pesticide Use**	☐ **Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.** ☐ **Show self-retaining landscape areas, if any.** ☒ **Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)**	☐**State that final landscape plans will accomplish all of the following.** ☐ **Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.** ☒ **Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.** ☐ **Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.** ☐ **Consider using pest-resistant plants, especially adjacent to hardscape.** ☒ **To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.**	☒ **Maintain landscaping using minimum or no pesticides.** ☒ **See applicable operational BMPs in "What you should know for…..Landscape and Gardening" at http://rcflood.org/stormwater/Downloads/LandscapeGardenBrochure.pdf** ☐ **Provide IPM information to new owners, lessees and operators.**

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ **E. Pools, spas, ponds, decorative fountains, and other water features.**	☐ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	☐ See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
☐ **F. Food service**	☐ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. ☐ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	☐ Describe the location and features of the designated cleaning area. ☐ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	☐ See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ Provide this brochure to new site owners, lessees, and operators.
☒ **G. Refuse areas**	☒ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ☒ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. ☐ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	☐ State how site refuse will be handled and provide supporting detail to what is shown on plans. ☒ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	State how the following will be implemented: ☒ Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ H. Industrial processes.	☐ Show process area.	☐ If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."	☐ See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	☐ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. ☐ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ☐ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: • Hazardous Waste Generation • Hazardous Materials Release Response and Inventory • California Accidental Release (CalARP) • Aboveground Storage Tank • Uniform Fire Code Article 80 Section 103(b) & (c) 1991 • Underground Storage Tank www.cchealth.org/groups/hazmat /	☐ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ **J. Vehicle and Equipment Cleaning**	☐ **Show on drawings as appropriate:** **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shutoff to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	☐ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.**	**Describe operational measures to implement the following (if applicable):** ☐ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/** ☐**Car dealerships and similar may rinse cars with water only.**

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ **K. Vehicle/Equipment Repair and Maintenance**	☐ **Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.** ☐ **Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.** ☐ **Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.**	☐ **State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.** ☐ **State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.** ☐ **State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.**	**In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:** ☐ **No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.** ☐ **No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.** ☐ **No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/**

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ **L. Fuel Dispensing Areas**	☐ **Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.** ☐ **Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.**		☐ **The property owner shall dry sweep the fueling area routinely.** ☐ **See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

[6] **The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.**

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ **M. Loading Docks**	☐ **Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer.** ☐ **Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.** ☐ **Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.**		☐ **Move loaded and unloaded items indoors as soon as possible.** ☐ **See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☐ **N. Fire Sprinkler Test Water**		☐ **Provide a means to drain fire sprinkler test water to the sanitary sewer.**	☐ **See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**
☐ **O. Miscellaneous Drain or Wash Water or Other Sources** ☐ **Boiler drain lines** ☐ **Condensate drain lines** ☐ **Rooftop equipment** ☐ **Drainage sumps** ☒ **Roofing, gutters, and trim.** ☐ **Other sources**		☐ **Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.** ☐ **Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.** ☐ **Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment.** ☐ **Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.** ☒ **Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.** ☐ **Include controls for other sources as specified by local reviewer.**	

STORMWATER POLLUTANT SOURCES / SOURCE CONTROL CHECKLIST

1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Shown on WQMP Drawings	3 Permanent Controls—Listed in WQMP Table and Narrative	4 Operational BMPs—Included in WQMP Table and Narrative
☒ **P. Plazas, sidewalks, and parking lots.**			☒ **Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.**

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

3.5 Bioretention Facility

Type of BMP	LID – Bioretention
Treatment Mechanisms	Infiltration, Evapotranspiration, Evaporation, Biofiltration
Maximum Drainage Area	This BMP is intended to be integrated into a project's landscaped area in a distributed manner. Typically, contributing drainage areas to Bioretention Facilities range from less than 1 acre to a maximum of around 10 acres.
Other Names	Rain Garden, Bioretention Cell, Bioretention Basin, Biofiltration Basin, Landscaped Filter Basin, Porous Landscape Detention

Description

Bioretention Facilities are shallow, vegetated basins underlain by an engineered soil media. Healthy plant and biological activity in the root zone maintain and renew the macro-pore space in the soil and maximize plant uptake of pollutants and runoff. This keeps the Best Management Practice (BMP) from becoming clogged and allows more of the soil column to function as both a sponge (retaining water) and a highly effective and self-maintaining biofilter. In most cases, the bottom of a Bioretention Facility is unlined, which also provides an opportunity for infiltration to the extent the underlying onsite soil can accommodate. When the infiltration rate of the underlying soil is exceeded, fully biotreated flows are discharged via underdrains. Bioretention Facilities therefore will inherently achieve the maximum feasible level of infiltration and evapotranspiration and achieve the minimum feasible (but highly biotreated) discharge to the storm drain system.

Siting Considerations

These facilities work best when they are designed in a relatively level area. Unlike other BMPs, Bioretention Facilities can be used in smaller landscaped spaces on the site, such as:

- ✓ Parking islands
- ✓ Medians
- ✓ Site entrances

Landscaped areas on the site (such as may otherwise be required through minimum landscaping ordinances), can often be designed as Bioretention Facilities. This can be accomplished by:

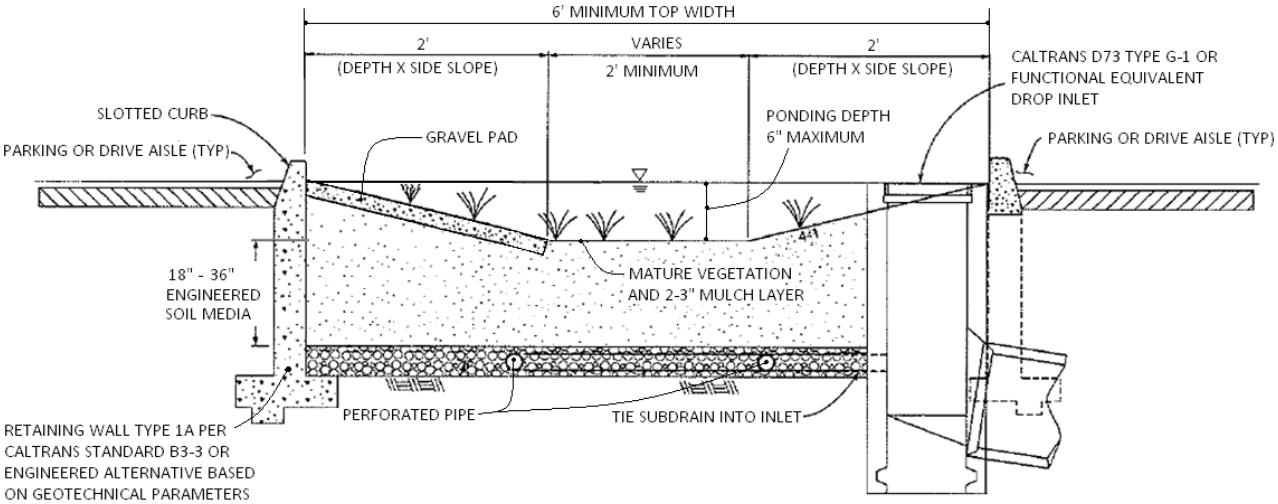
- *Depressing* landscaped areas below adjacent impervious surfaces, rather than elevating those areas
- Grading the site to direct runoff from those impervious surfaces *into* the Bioretention Facility, rather than away from the landscaping
- Sizing and designing the depressed landscaped area as a Bioretention Facility as described in this Fact Sheet

Bioretention Facilities should however not be used downstream of areas where large amounts of sediment can clog the system. Placing a Bioretention Facility at the toe of a steep slope should also be avoided due to the potential for clogging the engineered soil media with erosion from the slope, as well as the potential for damaging the vegetation.

Design and Sizing Criteria

The recommended cross section necessary for a Bioretention Facility includes:

- Vegetated area
- 18' minimum depth of engineered soil media
- 12' minimum gravel layer depth with 6' perforated pipes (added flow control features such as orifice plates may be required to mitigate for HCOC conditions)



While the 18-inch minimum engineered soil media depth can be used in some cases, it is recommended to use 24 inches or a preferred 36 inches to provide an adequate root zone for the chosen plant palate. Such a design also provides for improved removal effectiveness for nutrients. The recommended ponding depth inside of a Bioretention Facility is 6 inches; measured from the flat bottom surface to the top of the water surface as shown in Figure 1.

Because this BMP is filled with an engineered soil media, pore space in the soil and gravel layer is assumed to provide storage volume. However, several considerations must be noted:

- Surcharge storage above the soil surface (6 inches) is important to assure that design flows do not bypass the BMP when runoff exceeds the soil's absorption rate.
- In cases where the Bioretention Facility contains engineered soil media deeper than 36 inches, the pore space within the engineered soil media can only be counted to the 36-inch depth.
- A maximum of 30 percent pore space can be used for the soil media whereas a maximum of 40 percent pore space can be use for the gravel layer.

Figure 1: Standard Layout for a Bioretention Facility

Engineered Soil Media Requirements

The engineered soil media shall be comprised of 85 percent mineral component and 15 percent organic component, by volume, drum mixed prior to placement. The mineral component shall be a Class A sandy loam topsoil that meets the range specified in Table 1 below. The organic component shall be nitrogen stabilized compost[1], such that nitrogen does not leach from the media.

Table 1: Mineral Component Range Requirements

Percent Range	Component
70-80	Sand
15-20	Silt
5-10	Clay

The trip ticket, or certificate of compliance, shall be made available to the inspector to prove the engineered mix meets this specification.

Vegetation Requirements

Vegetative cover is important to minimize erosion and ensure that treatment occurs in the Bioretention Facility. The area should be designed for at least 70 percent mature coverage throughout the Bioretention Facility. To prevent the BMP from being used as walkways, Bioretention Facilities shall be planted with a combination of small trees, densely planted shrubs, and natural grasses. Grasses shall be native or ornamental; preferably ones that do not need to be mowed. The application of fertilizers and pesticides should be minimal. To maintain oxygen levels for the vegetation and promote biodegradation, it is important that vegetation not be completely submerged for any extended period of time. Therefore, a maximum of 6 inches of ponded water shall be used in the design to ensure that plants within the Bioretention Facility remain healthy.

A 2 to 3-inch layer of standard shredded aged hardwood mulch shall be placed as the top layer inside the Bioretention Facility. The 6-inch ponding depth shown in Figure 1 above shall be measured from the top surface of the 2 to 3-inch mulch layer.

Curb Cuts

To allow water to flow into the Bioretention Facility, 1-foot-wide (minimum) curb cuts should be placed approximately every 10 feet around the perimeter of the Bioretention Facility. Figure 2 shows a curb cut in a Bioretention Facility. Curb cut flow lines must be at or above the V_{BMP} water surface level.

[1] For more information on compost, visit the US Composting Council website at: http://compostingcouncil.org/

Figure 2: Curb Cut located in a Bioretention Facility

To reduce erosion, a gravel pad shall be placed at each inlet point to the Bioretention Facility. The gravel should be 1- to 1.5-inch diameter in size. The gravel should overlap the curb cut opening a minimum of 6 inches. The gravel pad inside the Bioretention Facility should be flush with the finished surface at the curb cut and extend to the bottom of the slope.

In addition, place an apron of stone or concrete, a foot square or larger, inside each inlet to prevent vegetation from growing up and blocking the inlet. See Figure 3.

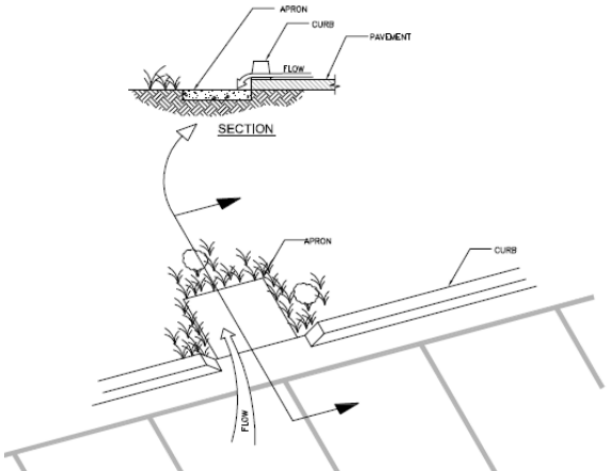


Figure 3: Apron located in a Bioretention Facility

Terracing the Landscaped Filter Basin

It is recommended that Bioretention Facilities be level. In the event the facility site slopes and lacks proper design, water would fill the lowest point of the BMP and then discharge from the basin without being treated. To ensure that the water will be held within the Bioretention Facility on sloped sites, the BMP must be terraced with nonporous check dams to provide the required storage and treatment capacity.

The terraced version of this BMP shall be used on non-flat sites with no more than a 3 percent slope. The surcharge depth cannot exceed 0.5 feet, and side slopes shall not exceed 4:1. Table 2 below shows the spacing of the check dams, and slopes shall be rounded up (i.e., 2.5 percent slope shall use 10' spacing for check dams).

Table 2: Check Dam Spacing

6" Check Dam Spacing	
Slope	**Spacing**
1%	*25'*
2%	*15'*
3%	*10'*

Roof Runoff

Roof downspouts may be directed towards Bioretention Facilities. However, the downspouts must discharge onto a concrete splash block to protect the Bioretention Facility from erosion.

Retaining Walls

It is recommended that Retaining Wall Type 1A, per Caltrans Standard B3-3 or equivalent, be constructed around the entire perimeter of the Bioretention Facility. This practice will protect the sides of the Bioretention Facility from collapsing during construction and maintenance or from high service loads adjacent to the BMP. Where such service loads would not exist adjacent to the BMP, an engineered alternative may be used if signed by a licensed civil engineer.

Side Slope Requirements

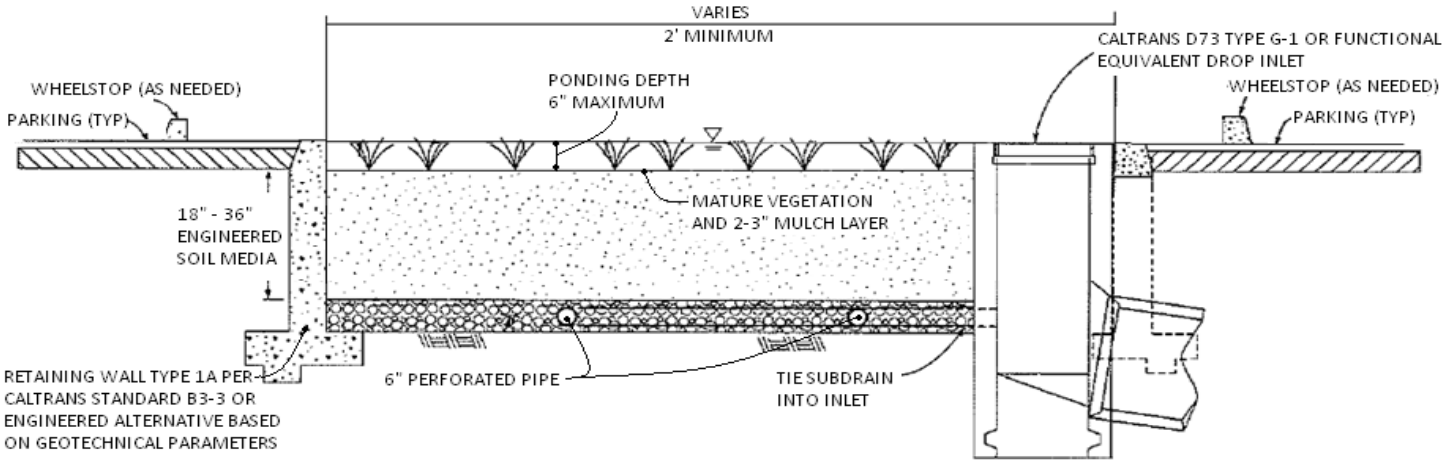
Bioretention Facilities Requiring Side Slopes

The design should assure that the Bioretention Facility does not present a tripping hazard. Bioretention Facilities proposed near pedestrian areas, such as areas parallel to parking spaces or along a walkway, must have a gentle slope to the bottom of the facility. Side slopes inside of a Bioretention Facility shall be 4:1. A typical cross section for the Bioretention Facility is shown in Figure 1.

Bioretention Facilities Not Requiring Side Slopes

Where cars park perpendicular to the Bioretention Facility, side slopes are not required. A 6-inch maximum drop may be used, and the Bioretention Facility must be planted with trees and shrubs to prevent pedestrian access. In this case, a curb is not placed around the Bioretention Facility,

but wheel stops shall be used to prevent vehicles from entering the Bioretention Facility, as shown in Figure 4.



Planter Boxes

Bioretention Facilities can also be placed above ground as planter boxes. Planter boxes must have a minimum width of 2 feet, a maximum surcharge depth of 6 inches, and no side slopes are necessary. Planter boxes must be constructed so as to ensure that the top surface of the engineered soil media will remain level. This option may be constructed of concrete, brick, stone or other stable materials that will not warp or bend. Chemically treated wood or galvanized steel, which has the ability to contaminate stormwater, should not be used. Planter boxes must be lined with an impermeable liner on all sides, including the bottom. Due to the impermeable liner, the inside bottom of the planter box shall be designed and constructed with a cross fall, directing treated flows within the subdrain layer toward the point where subdrain exits the planter box, and subdrains shall be oriented with drain holes oriented down. These provisions will help avoid excessive stagnant water within the gravel underdrain layer. Similar to the in-ground Bioretention Facility versions, this BMP benefits from healthy plants and biological activity in the root zone. Planter boxes should be planted with appropriately selected vegetation.

Figure 5: Planter Box
Source: LA Team Effort

Overflow

An overflow route is needed in the Bioretention Facility design to bypass stored runoff from storm events larger than V_{BMP} or in the event of facility or subdrain clogging. Overflow systems must connect to an acceptable discharge point, such as a downstream conveyance system as shown in Figure 1 and Figure 4. The inlet to the overflow structure shall be elevated inside the Bioretention Facility to be flush with the ponding surface for the design capture volume (V_{BMP}) as shown in Figure 4. This will allow the design capture volume to be fully treated by the Bioretention Facility, and for larger events to safely be conveyed to downstream systems. The overflow inlet shall **not** be located in the entrance of a Bioretention Facility, as shown in Figure 6.

Underdrain Gravel and Pipes

An underdrain gravel layer and pipes shall be provided in accordance with Appendix B – Underdrains.

Figure 6: Incorrect Placement of an Overflow Inlet.

Inspection and Maintenance Schedule

The Bioretention Facility area shall be inspected for erosion, dead vegetation, soggy soils, or standing water. The use of fertilizers and pesticides on the plants inside the Bioretention Facility should be minimized.

Schedule	Activity
Ongoing	• Keep adjacent landscape areas maintained. Remove clippings from landscape maintenance activities. • Remove trash and debris • Replace damaged grass and/or plants • Replace surface mulch layer as needed to maintain a 2-3 inch soil cover.
After storm events	• Inspect areas for ponding
Annually	• Inspect/clean inlets and outlets

Bioretention Facility Design Procedure

1) Enter the area tributary, A_T, to the Bioretention Facility.

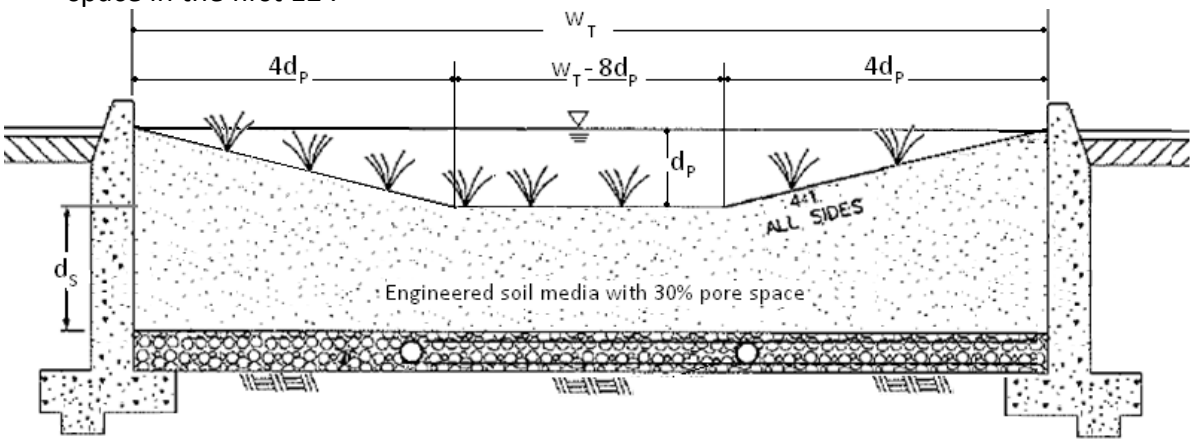
2) Enter the Design Volume, $V_{BMP,}$ determined from Section 2.1 of this Handbook.

3) Select the type of design used. There are two types of Bioretention Facility designs: the standard design used for most project sites that include side slopes, and the modified design used when the BMP is located perpendicular to the parking spaces or with planter boxes that do not use side slopes.

4) Enter the depth of the engineered soil media, d_S. The minimum depth for the engineered soil media can be 18' in limited cases, but it is recommended to use 24' or a preferred 36' to provide an adequate root zone for the chosen plant palette. Engineered soil media deeper than 36' will only get credit for the pore space in the first 36'.

5) Enter the top width of the Bioretention Facility.

6) Calculate the total effective depth, d_E, within the Bioretention Facility. The maximum allowable pore space of the soil media is 30% while the maximum allowable pore space for the gravel layer is 40%. Gravel layer deeper than 12' will only get credit for the pore space in the first 12'.



a. For the design with side slopes the following equation shall be used to determine the total effective depth. Where, d_P is the depth of ponding within the basin.

$$d_E(\text{ft}) = \frac{0.3 \times \left[\left(w_T(\text{ft}) \times d_S(\text{ft})\right) + 4\left(d_P(\text{ft})\right)^2\right] + 0.4 \times 1(\text{ft}) + d_P(\text{ft})\left[4d_P(\text{ft}) + \left(w_T(\text{ft}) - 8d_P(\text{ft})\right)\right]}{w_T(\text{ft})}$$

This above equation can be simplified if the maximum ponding depth of 0.5' is used. The equation below is used on the worksheet to find the minimum area required for the Bioretention Facility:

$$d_E(\text{ft}) = (0.3 \times d_S(\text{ft}) + 0.4 \text{ x } 1(\text{ft})) - \left(\frac{0.7\ (\text{ft}^2)}{w_T(\text{ft})}\right) + 0.5(\text{ft})$$

b. For the design without side slopes the following equation shall be used to determine the total effective depth:

$$d_E(\text{ft}) = d_P(\text{ft}) + [(0.3) \times d_S(\text{ft}) + (0.4) \times 1(\text{ft})]$$

The equation below, using the maximum ponding depth of 0.5', is used on the worksheet to find the minimum area required for the Bioretention Facility:

$$d_E(\text{ft}) = 0.5\ (\text{ft}) + [(0.3) \times d_S(\text{ft}) + (0.4) \times 1(\text{ft})]$$

7) Calculate the minimum surface area, A_M, required for the Bioretention Facility. This does not include the curb surrounding the Bioretention Facility or side slopes.

$$A_M(\text{ft}^2) = \frac{V_{BMP}(\text{ft}^3)}{d_E\ (\text{ft})}$$

8) Enter the proposed surface area. This area shall not be less than the minimum required surface area.

9) Verify that side slopes are no steeper than 4:1 in the standard design, and are not required in the modified design.

10) Provide the diameter, minimum 6 inches, of the perforated underdrain used in the Bioretention Facility. See Appendix B for specific information regarding perforated pipes.

11) Provide the slope of the site around the Bioretention Facility, if used. The maximum slope is 3 percent for a standard design.

12) Provide the check dam spacing, if the site around the Bioretention Facility is sloped.

13) Describe the vegetation used within the Bioretention Facility.

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Landscape Maintenance SC-73

Objectives

- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	
Oxygen Demanding	☑

Description

Landscape maintenance activities include vegetation removal; herbicide and insecticide application; fertilizer application; watering; and other gardening and lawn care practices. Vegetation control typically involves a combination of chemical (herbicide) application and mechanical methods. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. The major objectives of this BMP are to minimize the discharge of pesticides, herbicides and fertilizers to the storm drain system and receiving waters; prevent the disposal of landscape waste into the storm drain system by collecting and properly disposing of clippings and cuttings, and educating employees and the public.

Approach

Pollution Prevention

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools.
- Choose low water using flowers, trees, shrubs, and groundcover.
- Consider alternative landscaping techniques such as naturescaping and xeriscaping.
- Conduct appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) to help preserve the landscapes water efficiency.

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- Consider grass cycling (grass cycling is the natural recycling of grass by leaving the clippings on the lawn when mowing. Grass clippings decompose quickly and release valuable nutrients back into the lawn).

Suggested Protocols

Mowing, Trimming, and Weeding

- Whenever possible use mechanical methods of vegetation removal (e.g mowing with tractor-type or push mowers, hand cutting with gas or electric powered weed trimmers) rather than applying herbicides. Use hand weeding where practical.
- Avoid loosening the soil when conducting mechanical or manual weed control, this could lead to erosion. Use mulch or other erosion control measures when soils are exposed.
- Performing mowing at optimal times. Mowing should not be performed if significant rain events are predicted.
- Mulching mowers may be recommended for certain flat areas. Other techniques may be employed to minimize mowing such as selective vegetative planting using low maintenance grasses and shrubs.
- Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this fact sheet).
- Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to storm drains.

Planting

- Determine existing native vegetation features (location, species, size, function, importance) and consider the feasibility of protecting them. Consider elements such as their effect on drainage and erosion, hardiness, maintenance requirements, and possible conflicts between preserving vegetation and the resulting maintenance needs.
- Retain and/or plant selected native vegetation whose features are determined to be beneficial, where feasible. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation.
- Consider using low water use groundcovers when planting or replanting.

Waste Management

- Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.

- Avoid landscape wastes in and around storm drain inlets by either using bagging equipment or by manually picking up the material.

Irrigation

- Where practical, use automatic timers to minimize runoff.
- Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
- Ensure that there is no runoff from the landscaped area(s) if re-claimed water is used for irrigation.
- If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
- Irrigate slowly or pulse irrigate to prevent runoff and then only irrigate as much as is needed.
- Apply water at rates that do not exceed the infiltration rate of the soil.

Fertilizer and Pesticide Management

- Utilize a comprehensive management system that incorporates integrated pest management (IPM) techniques. There are many methods and types of IPM, including the following:
  - Mulching can be used to prevent weeds where turf is absent, fencing installed to keep rodents out, and netting used to keep birds and insects away from leaves and fruit.
  - Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off the plant with water or in some cases vacuumed off of larger plants.
  - Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used.
  - Slugs can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
  - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
  - Small mammals and birds can be excluded using fences, netting, tree trunk guards.
  - Beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seed head weevils, and spiders that prey on detrimental pest species can be promoted.
- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.

- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).
- Do not use pesticides if rain is expected. Apply pesticides only when wind speeds are low (less than 5 mph).
- Do not mix or prepare pesticides for application near storm drains.
- Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- Periodically test soils for determining proper fertilizer use.
- Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Dispose of empty pesticide containers according to the instructions on the container label.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- Inspect pesticide/fertilizer equipment and transportation vehicles daily.

Training

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution. Pesticide application must be under the supervision of a California qualified pesticide applicator.
- Train/encourage municipal maintenance crews to use IPM techniques for managing public green areas.
- Annually train employees within departments responsible for pesticide application on the appropriate portions of the agency's IPM Policy, SOPs, and BMPs, and the latest IPM techniques.

- Employees who are not authorized and trained to apply pesticides should be periodically (at least annually) informed that they cannot use over-the-counter pesticides in or around the workplace.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a know in location
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations generally cover: a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. All public agency employees who apply pesticides and herbicides in "agricultural use" areas such as parks, golf courses, rights-of-way and recreation areas should be properly certified in accordance with state regulations. Contracts for landscape maintenance should include similar requirements.
- All employees who handle pesticides should be familiar with the most recent material safety data sheet (MSDS) files.
- Municipalities do not have the authority to regulate the use of pesticides by school districts, however the California Healthy Schools Act of 2000 (AB 2260) has imposed requirements on California school districts regarding pesticide use in schools. Posting of notification prior to the application of pesticides is now required, and IPM is stated as the preferred approach to pest management in schools.

Requirements

Costs

Additional training of municipal employees will be required to address IPM techniques and BMPs. IPM methods will likely increase labor cost for pest control which may be offset by lower chemical costs.

Maintenance

Not applicable

Supplemental Information

Further Detail of the BMP

Waste Management

Composting is one of the better disposal alternatives if locally available. Most municipalities either have or are planning yard waste composting facilities as a means of reducing the amount of waste going to the landfill. Lawn clippings from municipal maintenance programs as well as private sources would probably be compatible with most composting facilities

Contractors and Other Pesticide Users

Municipal agencies should develop and implement a process to ensure that any contractor employed to conduct pest control and pesticide application on municipal property engages in pest control methods consistent with the IPM Policy adopted by the agency. Specifically, municipalities should require contractors to follow the agency's IPM policy, SOPs, and BMPs; provide evidence to the agency of having received training on current IPM techniques when feasible; provide documentation of pesticide use on agency property to the agency in a timely manner.

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Bioretention TC-32

Design Considerations

- Soil for Infiltration
- Tributary Area
- Slope
- Aesthetics
- Environmental Side-effects

Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through buffer strip and subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

Targeted Constituents

✓	Sediment	■
✓	Nutrients	▲
✓	Trash	■
✓	Metals	■
✓	Bacteria	■
✓	Oil and Grease	■
✓	Organics	■

Legend *(Removal Effectiveness)*

● Low ■ High

▲ Medium

California Experience

None documented. Bioretention has been used as a stormwater BMP since 1992. In addition to Prince George's County, MD and Alexandria, VA, bioretention has been used successfully at urban and suburban areas in Montgomery County, MD; Baltimore County, MD; Chesterfield County, VA; Prince William County, VA; Smith Mountain Lake State Park, VA; and Cary, NC.

Advantages

- Bioretention provides stormwater treatment that enhances the quality of downstream water bodies by temporarily storing runoff in the BMP and releasing it over a period of four days to the receiving water (EPA, 1999).
- The vegetation provides shade and wind breaks, absorbs noise, and improves an area's landscape.

Limitations

- The bioretention BMP is not recommended for areas with slopes greater than 20% or where mature tree removal would

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be required since clogging may result, particularly if the BMP receives runoff with high sediment loads (EPA, 1999).

- Bioretention is not a suitable BMP at locations where the water table is within 6 feet of the ground surface and where the surrounding soil stratum is unstable.
- By design, bioretention BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water.
- In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

Design and Sizing Guidelines

- The bioretention area should be sized to capture the design storm runoff.
- In areas where the native soil permeability is less than 0.5 in/hr an underdrain should be provided.
- Recommended minimum dimensions are 15 feet by 40 feet, although the preferred width is 25 feet. Excavated depth should be 4 feet.
- Area should drain completely within 72 hours.
- Approximately 1 tree or shrub per 50 ft^2 of bioretention area should be included.
- Cover area with about 3 inches of mulch.

Construction/Inspection Considerations

Bioretention area should not be established until contributing watershed is stabilized.

Performance

Bioretention removes stormwater pollutants through physical and biological processes, including adsorption, filtration, plant uptake, microbial activity, decomposition, sedimentation and volatilization (EPA, 1999). Adsorption is the process whereby particulate pollutants attach to soil (e.g., clay) or vegetation surfaces. Adequate contact time between the surface and pollutant must be provided for in the design of the system for this removal process to occur. Thus, the infiltration rate of the soils must not exceed those specified in the design criteria or pollutant removal may decrease. Pollutants removed by adsorption include metals, phosphorus, and hydrocarbons. Filtration occurs as runoff passes through the bioretention area media, such as the sand bed, ground cover, and planting soil.

Common particulates removed from stormwater include particulate organic matter, phosphorus, and suspended solids. Biological processes that occur in wetlands result in pollutant uptake by plants and microorganisms in the soil. Plant growth is sustained by the uptake of nutrients from the soils, with woody plants locking up these nutrients through the seasons. Microbial activity within the soil also contributes to the removal of nitrogen and organic matter. Nitrogen is removed by nitrifying and denitrifying bacteria, while aerobic bacteria are responsible for the decomposition of the organic matter. Microbial processes require oxygen and can result in depleted oxygen levels if the bioretention area is not adequately

aerated. Sedimentation occurs in the swale or ponding area as the velocity slows and solids fall out of suspension.

The removal effectiveness of bioretention has been studied during field and laboratory studies conducted by the University of Maryland (Davis et al, 1998). During these experiments, synthetic stormwater runoff was pumped through several laboratory and field bioretention areas to simulate typical storm events in Prince George's County, MD. Removal rates for heavy metals and nutrients are shown in Table 1.

Table 1 Laboratory and Estimated Bioretention Davis et al. (1998); PGDER (1993)

Pollutant	Removal Rate
Total Phosphorus	70-83%
Metals (Cu, Zn, Pb)	93-98%
TKN	68-80%
Total Suspended Solids	90%
Organics	90%
Bacteria	90%

Results for both the laboratory and field experiments were similar for each of the pollutants analyzed. Doubling or halving the influent pollutant levels had little effect on the effluent pollutants concentrations (Davis et al, 1998).

The microbial activity and plant uptake occurring in the bioretention area will likely result in higher removal rates than those determined for infiltration BMPs.

Siting Criteria

Bioretention BMPs are generally used to treat stormwater from impervious surfaces at commercial, residential, and industrial areas (EPA, 1999). Implementation of bioretention for stormwater management is ideal for median strips, parking lot islands, and swales. Moreover, the runoff in these areas can be designed to either divert directly into the bioretention area or convey into the bioretention area by a curb and gutter collection system.

The best location for bioretention areas is upland from inlets that receive sheet flow from graded areas and at areas that will be excavated (EPA, 1999). In order to maximize treatment effectiveness, the site must be graded in such a way that minimizes erosive conditions as sheet flow is conveyed to the treatment area. Locations where a bioretention area can be readily incorporated into the site plan without further environmental damage are preferred. Furthermore, to effectively minimize sediment loading in the treatment area, bioretention only should be used in stabilized drainage areas.

Additional Design Guidelines

The layout of the bioretention area is determined after site constraints such as location of utilities, underlying soils, existing vegetation, and drainage are considered (EPA, 1999). Sites with loamy sand soils are especially appropriate for bioretention because the excavated soil can be backfilled and used as the planting soil, thus eliminating the cost of importing planting soil.

The use of bioretention may not be feasible given an unstable surrounding soil stratum, soils with clay content greater than 25 percent, a site with slopes greater than 20 percent, and/or a site with mature trees that would be removed during construction of the BMP.

Bioretention can be designed to be off-line or on-line of the existing drainage system (EPA, 1999). The drainage area for a bioretention area should be between 0.1 and 0.4 hectares (0.25 and 1.0 acres). Larger drainage areas may require multiple bioretention areas. Furthermore, the maximum drainage area for a bioretention area is determined by the expected rainfall intensity and runoff rate. Stabilized areas may erode when velocities are greater than 5 feet per second (1.5 meter per second). The designer should determine the potential for erosive conditions at the site.

The size of the bioretention area, which is a function of the drainage area and the runoff generated from the area is sized to capture the water quality volume.

The recommended minimum dimensions of the bioretention area are 15 feet (4.6 meters) wide by 40 feet (12.2 meters) long, where the minimum width allows enough space for a dense, randomly-distributed area of trees and shrubs to become established. Thus replicating a natural forest and creating a microclimate, thereby enabling the bioretention area to tolerate the effects of heat stress, acid rain, runoff pollutants, and insect and disease infestations which landscaped areas in urban settings typically are unable to tolerate. The preferred width is 25 feet (7.6 meters), with a length of twice the width. Essentially, any facilities wider than 20 feet (6.1 meters) should be twice as long as they are wide, which promotes the distribution of flow and decreases the chances of concentrated flow.

In order to provide adequate storage and prevent water from standing for excessive periods of time the ponding depth of the bioretention area should not exceed 6 inches (15 centimeters). Water should not be left to stand for more than 72 hours. A restriction on the type of plants that can be used may be necessary due to some plants' water intolerance. Furthermore, if water is left standing for longer than 72 hours mosquitoes and other insects may start to breed.

The appropriate planting soil should be backfilled into the excavated bioretention area. Planting soils should be sandy loam, loamy sand, or loam texture with a clay content ranging from 10 to 25 percent.

Generally the soil should have infiltration rates greater than 0.5 inches (1.25 centimeters) per hour, which is typical of sandy loams, loamy sands, or loams. The pH of the soil should range between 5.5 and 6.5, where pollutants such as organic nitrogen and phosphorus can be adsorbed by the soil and microbial activity can flourish. Additional requirements for the planting soil include a 1.5 to 3 percent organic content and a maximum 500 ppm concentration of soluble salts.

Soil tests should be performed for every 500 cubic yards (382 cubic meters) of planting soil, with the exception of pH and organic content tests, which are required only once per bioretention area (EPA, 1999). Planting soil should be 4 inches (10.1 centimeters) deeper than the bottom of the largest root ball and 4 feet (1.2 meters) altogether. This depth will provide adequate soil for the plants' root systems to become established, prevent plant damage due to severe wind, and provide adequate moisture capacity. Most sites will require excavation in order to obtain the recommended depth.

Planting soil depths of greater than 4 feet (1.2 meters) may require additional construction practices such as shoring measures (EPA, 1999). Planting soil should be placed in 18 inches or greater lifts and lightly compacted until the desired depth is reached. Since high canopy trees may be destroyed during maintenance the bioretention area should be vegetated to resemble a terrestrial forest community ecosystem that is dominated by understory trees. Three species each of both trees and shrubs are recommended to be planted at a rate of 2500 trees and shrubs per hectare (1000 per acre). For instance, a 15 foot (4.6 meter) by 40 foot (12.2 meter) bioretention area (600 square feet or 55.75 square meters) would require 14 trees and shrubs. The shrub-to-tree ratio should be 2:1 to 3:1.

Trees and shrubs should be planted when conditions are favorable. Vegetation should be watered at the end of each day for fourteen days following its planting. Plant species tolerant of pollutant loads and varying wet and dry conditions should be used in the bioretention area.

The designer should assess aesthetics, site layout, and maintenance requirements when selecting plant species. Adjacent non-native invasive species should be identified and the designer should take measures, such as providing a soil breach to eliminate the threat of these species invading the bioretention area. Regional landscaping manuals should be consulted to ensure that the planting of the bioretention area meets the landscaping requirements established by the local authorities. The designers should evaluate the best placement of vegetation within the bioretention area. Plants should be placed at irregular intervals to replicate a natural forest. Trees should be placed on the perimeter of the area to provide shade and shelter from the wind. Trees and shrubs can be sheltered from damaging flows if they are placed away from the path of the incoming runoff. In cold climates, species that are more tolerant to cold winds, such as evergreens, should be placed in windier areas of the site.

Following placement of the trees and shrubs, the ground cover and/or mulch should be established. Ground cover such as grasses or legumes can be planted at the beginning of the growing season. Mulch should be placed immediately after trees and shrubs are planted. Two to 3 inches (5 to 7.6 cm) of commercially-available fine shredded hardwood mulch or shredded hardwood chips should be applied to the bioretention area to protect from erosion.

Maintenance

The primary maintenance requirement for bioretention areas is that of inspection and repair or replacement of the treatment area's components. Generally, this involves nothing more than the routine periodic maintenance that is required of any landscaped area. Plants that are appropriate for the site, climatic, and watering conditions should be selected for use in the bioretention cell. Appropriately selected plants will aide in reducing fertilizer, pesticide, water, and overall maintenance requirements. Bioretention system components should blend over time through plant and root growth, organic decomposition, and the development of a natural

soil horizon. These biologic and physical processes over time will lengthen the facility's life span and reduce the need for extensive maintenance.

Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation (EPA, 1999). Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible. BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of water standing and subsequent vector production if not routinely maintained.

In order to maintain the treatment area's appearance it may be necessary to prune and weed. Furthermore, mulch replacement is suggested when erosion is evident or when the site begins to look unattractive. Specifically, the entire area may require mulch replacement every two to three years, although spot mulching may be sufficient when there are random void areas. Mulch replacement should be done prior to the start of the wet season.

New Jersey's Department of Environmental Protection states in their bioretention systems standards that accumulated sediment and debris removal (especially at the inflow point) will normally be the primary maintenance function. Other potential tasks include replacement of dead vegetation, soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the underdrain, and repairing overflow structures. There is also the possibility that the cation exchange capacity of the soils in the cell will be significantly reduced over time. Depending on pollutant loads, soils may need to be replaced within 5-10 years of construction (LID, 2000).

Cost

Construction Cost

Construction cost estimates for a bioretention area are slightly greater than those for the required landscaping for a new development (EPA, 1999). A general rule of thumb (Coffman, 1999) is that residential bioretention areas average about $3 to $4 per square foot, depending on soil conditions and the density and types of plants used. Commercial, industrial and institutional site costs can range between $10 to $40 per square foot, based on the need for control structures, curbing, storm drains and underdrains.

Retrofitting a site typically costs more, averaging $6,500 per bioretention area. The higher costs are attributed to the demolition of existing concrete, asphalt, and existing structures and the replacement of fill material with planting soil. The costs of retrofitting a commercial site in Maryland, Kettering Development, with 15 bioretention areas were estimated at $111,600.

In any bioretention area design, the cost of plants varies substantially and can account for a significant portion of the expenditures. While these cost estimates are slightly greater than those of typical landscaping treatment (due to the increased number of plantings, additional soil excavation, backfill material, use of underdrains etc.), those landscaping expenses that would be required regardless of the bioretention installation should be subtracted when determining the net cost.

Perhaps of most importance, however, the cost savings compared to the use of traditional structural stormwater conveyance systems makes bioretention areas quite attractive financially. For example, the use of bioretention can decrease the cost required for constructing stormwater conveyance systems at a site. A medical office building in Maryland was able to reduce the amount of storm drain pipe that was needed from 800 to 230 feet - a cost savings of $24,000 (PGDER, 1993). And a new residential development spent a total of approximately $100,000 using bioretention cells on each lot instead of nearly $400,000 for the traditional stormwater ponds that were originally planned (Rappahanock,). Also, in residential areas, stormwater management controls become a part of each property owner's landscape, reducing the public burden to maintain large centralized facilities.

Maintenance Cost

The operation and maintenance costs for a bioretention facility will be comparable to those of typical landscaping required for a site. Costs beyond the normal landscaping fees will include the cost for testing the soils and may include costs for a sand bed and planting soil.

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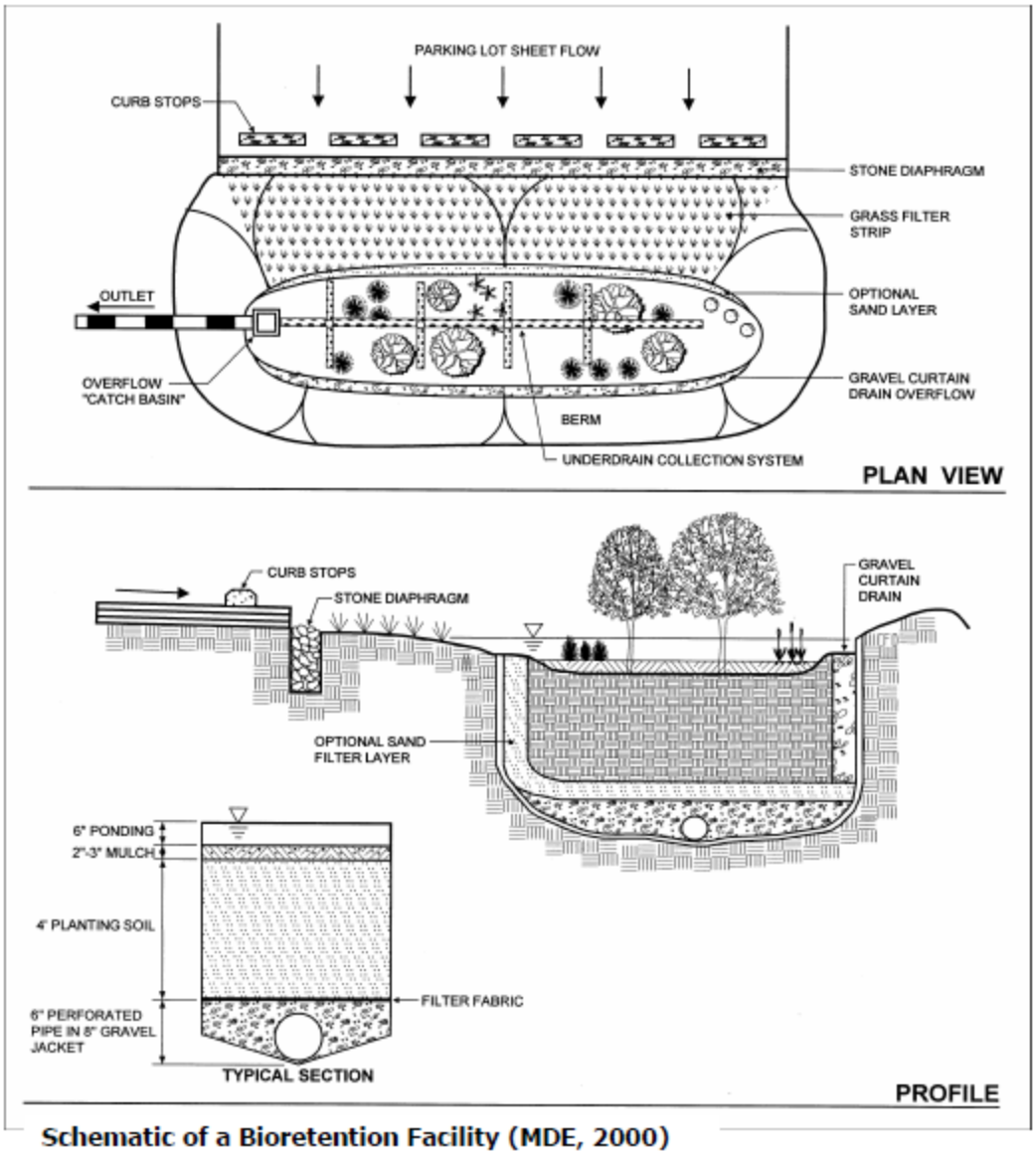

Schematic of a Bioretention Facility (MDE, 2000)

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APPENDIX G

NOISE MODELING OUTPUTS

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TABLE Existing (2019)-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road South of Benton Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37400 SPEED (MPH): 55 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
118.8	251.7	540.3	1162.8

TABLE Existing (2019)-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road Between Benton Road and Max Gilliss Boulevard
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 42900 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
129.7	275.6	591.9	1274.1

TABLE Existing (2019)-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road Between Max Gilliss Boulevard and Jean Nicholas Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32300 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
108.2	228.5	490.1	1054.6

TABLE Existing (2019)-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road Between Jean Nicholas Road and Whisper Heights
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30200 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
103.7	218.6	468.6	1008.4

TABLE Existing (2019)-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road Between Whisper Heights and Pourroy Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33800 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
111.4	235.4	505.1	1087.0

TABLE Existing (2019)-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road North of Pourroy Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30700 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
137.8	293.4	630.3	1356.8

TABLE Existing (2019)-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Benton Road East of Winchester Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20700 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
60.9	122.8	260.6	559.5

TABLE Existing (2019)-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Max Gilliss Boulevard West of Winchester Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 27900 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.84

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.3	149.0	317.6	682.5

TABLE Existing (2019)-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Thompson Road East of Winchester Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11600 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.53

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL 70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	82.3	176.9	380.8

TABLE Existing (2019)-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Jean Nicholas Road West of Winchester Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5700 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.94

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	56.4	112.5	237.9

TABLE Existing (2019)-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Whisper Heights West of Winchester Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1300 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 56.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	91.6

TABLE Existing (2019)-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Pourroy Road East of Winchester Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10400 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.55

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	79.8	165.8	354.2

TABLE Existing (2019)-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Pourroy Road West of Winchester Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	78.0

TABLE Existing (2019)-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Abelia Street East of Winchester Road
NOTES: French Valley Library - Existing (2019)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 4800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	100.9	212.4

TABLE Existing (2019) Plus Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road South of Benton Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37600 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
119.2	252.6	542.2	1167.0

TABLE Existing (2019) Plus Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road Between Benton Road and Max Gilliss Boulevard
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43300 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 73.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
130.5	277.3	595.6	1282.0

TABLE Existing (2019) Plus Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road Between Max Gilliss Boulevard and Jean Nicholas Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33000 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
109.7	231.8	497.1	1069.8

TABLE Existing (2019) Plus Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road Between Jean Nicholas Road and Whisper Heights
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33000 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
109.7	231.8	497.1	1069.8

TABLE Existing (2019) Plus Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road Between Whisper Heights and Pourroy Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 34200 SPEED (MPH): 55 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 72.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
112.2	237.3	509.0	1095.5

TABLE Existing (2019) Plus Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Winchester Road North of Pourroy Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 30800 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 74.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
138.1	294.0	631.6	1359.8

TABLE Existing (2019) Plus Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Benton Road East of Winchester Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20900 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
61.2	123.6	262.3	563.1

TABLE Existing (2019) Plus Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Max Gilliss Boulevard West of Winchester Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28100 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.7	149.6	319.1	685.7

TABLE Existing (2019) Plus Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Thompson Road East of Winchester Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11800 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 6 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.60

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL 70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	83.2	178.9	385.2

TABLE Existing (2019) Plus Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Jean Nicholas Road West of Winchester Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	58.0	116.2	246.1

TABLE Existing (2019) Plus Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Whisper Heights West of Winchester Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1500 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 57.14

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	100.1

TABLE Existing (2019) Plus Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Pourroy Road East of Winchester Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10700 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	81.2	168.9	360.9

TABLE Existing (2019) Plus Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Pourroy Road West of Winchester Road
NOTES: French Valley Library - Existing (2019) Plus Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 1000 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 55.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	0.0	78.0

TABLE Existing (2019) Plus Project-14
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/11/2019
ROADWAY SEGMENT: Abelia Street East of Winchester Road
NOTES: French Valley Library - Existing (2019) Plus Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5100 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	104.8	221.1

APPENDIX H

TRAFFIC IMPACT ANALYSIS

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FRENCH VALLEY LIBRARY FACILITY PROJECT TRAFFIC IMPACT ANALYSIS

County of Riverside

October 3, 2019

Traffic Engineering ● Transportation Planning ● Parking ● Noise & Vibration
Air Quality ● Global Climate Change ● Health Risk Assessment

FRENCH VALLEY LIBRARY FACILITY PROJECT TRAFFIC IMPACT ANALYSIS

County of Riverside

October 3, 2019

prepared by
Bryan Crawford
Giancarlo Ganddini, TE, PTP

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Santa Ana, California 92705
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18-0143

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EXECUTIVE SUMMARY

The purpose of this Traffic Impact Analysis is to provide an assessment of traffic operations resulting from development of the proposed French Valley Library Facility Project and to identify measures necessary to mitigate potentially significant traffic impacts. This report analyzes traffic impacts for the anticipated project opening in Year 2021.

Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering.

PROJECT DESCRIPTION

The project site is located at the northeast corner of Winchester Road (SR-79) and Skyview Road in the unincorporated French Valley community of Riverside County. The currently vacant project site is proposed to be developed with a 25,000 square foot library. Full access for the project site is proposed at Skyview Road. The proposed project is anticipated to be constructed and fully operational by year 2021.

EXISTING CONDITIONS

The study intersections currently operate within acceptable Levels of Service during the peak hours for Existing conditions, except for the following study intersection (see Table 1):

- Winchester Road [SR-79] at Max Gilliss Boulevard/Thompson Road – #2 (AM peak hour – LOS E)

PROJECT TRIPS

The proposed project is forecast to generate a total of approximately 1,801 daily trips, including 25 trips during the AM peak hour and 204 trips during the PM peak hour (see Table 2).

FORECAST OPERATIONS

Existing Plus Project Conditions: The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions, except for the following study intersection that is forecast to continue operating at Level of Service E during the AM peak hour and deteriorate from Level of Service D to E during the PM peak hour (see Table 4):

- Winchester Road [SR-79] at Max Gilliss Boulevard/Thompson Road – #2 (AM/PM peak hours – LOS E)

With implementation of Mitigation Measure #1, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project conditions during the AM and PM peak hours.

Existing Plus Ambient Plus Project Conditions: The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Ambient Plus Project conditions, except for the following study intersection that is forecast to continue operating at Level of Service E during the AM peak hour and deteriorate from Level of Service D to E during the PM peak hour (see Table 5):

- Winchester Road [SR-79] at Max Gilliss Boulevard/Thompson Road – #2 (AM/PM peak hours – LOS E)

With implementation of Mitigation Measure #1 and improvements funded by adopted development impact fee programs, the proposed project is forecast to result in no significant traffic impacts at the study

intersections for Existing Plus Ambient Plus Project conditions during the AM and PM peak hours; no additional mitigation is required.

Existing Plus Ambient Plus Project Plus Cumulative Conditions: The study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Ambient Plus Project Plus Cumulative conditions, except for the following study intersection that is forecast to continue operating at Level of Service E during the AM peak hour and deteriorate from Level of Service D to F during the PM peak hour (see Table 6):

- Winchester Road [SR-79] at Max Gilliss Boulevard/Thompson Road – #2 (AM – LOS E, PM – LOS F)

With implementation of improvements funded by adopted development impact fee programs, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Ambient Plus Project Plus Cumulative conditions during the AM and PM peak hours; no additional mitigation is required.

MITIGATION MEASURES

Mitigation Measure #1:
The proposed project shall be responsible for implementing the following improvements prior to project occupancy:

- Winchester Road [SR-79] (NS) at Max Gilliss Boulevard/Thompson Road (EW) – #2
  - Restripe the eastbound approach to provide a second left turn lane.

1. INTRODUCTION

This section describes the purpose of this traffic impact analysis, project location, proposed development, and study area. Figure 1 shows the project location map and Figure 2 illustrates the project site plan.

PURPOSE AND OBJECTIVES

The purpose of this Traffic Impact Analysis is to provide an assessment of traffic operations resulting from development of the proposed French Valley Library Facility Project and to identify measures necessary to mitigate potentially significant traffic impacts. This report analyzes traffic impacts for the anticipated project opening in Year 2021.

Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering.

PROJECT DESCRIPTION

The project site is located at the northeast corner of Winchester Road (SR-79) and Skyview Road in the unincorporated French Valley community of Riverside County. The currently vacant project site is proposed to be developed with a 25,000 square foot library. Full access for the project site is proposed at Skyview Road. The proposed project is anticipated to be constructed and fully operational by year 2021.

STUDY AREA

The study intersections and general scope of the analysis were determined based on coordination with County of Riverside. A scoping agreement is provided in Appendix B.

The study area consists of the following study intersections within the County of Riverside, Caltrans and City of Murrieta jurisdictions:

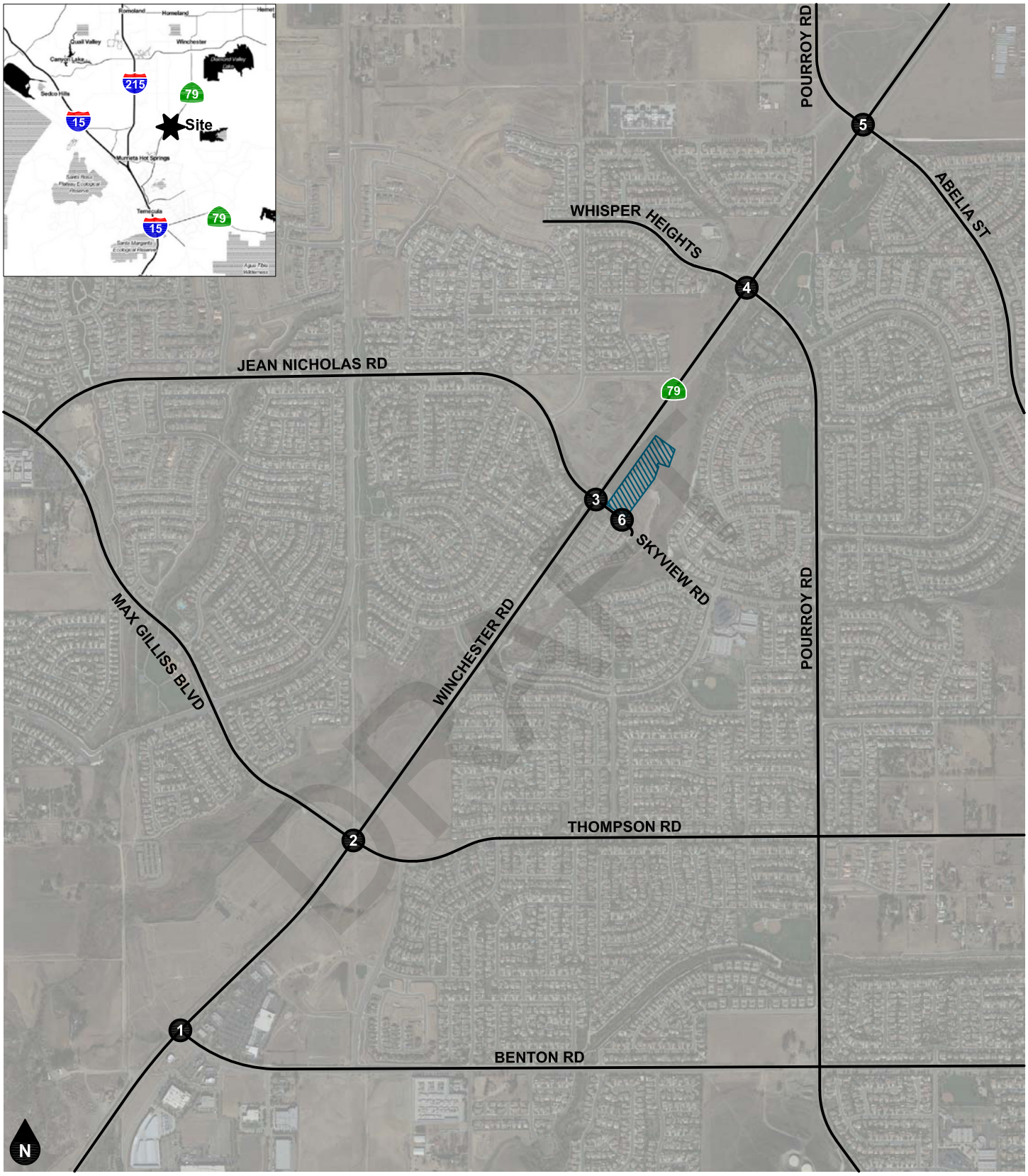
Study Intersections[1]	Jurisdiction[2]
1. Winchester Road [SR-79] (NS) at Benton Road (EW)	RivCo/Caltrans/Murrieta
2. Winchester Road [SR-79] (NS) at Max Gilliss Boulevard/Thompson Road (EW)	RivCo/Caltrans/Murrieta
3. Winchester Road [SR-79] (NS) at Jean Nicholas Road/Skyview Road (EW)	RivCo/Caltrans
4. Winchester Road [SR-79] (NS) at Whisper Heights/Pourroy Road (EW)	RivCo/Caltrans
5. Winchester Road [SR-79] (NS) at Pourroy Road/Abelia Street (EW)	RivCo/Caltrans
6. Project Driveway (NS) at Skyview Road (EW)	RivCo

[1] (NS) = north-south roadway; (EW) = east-west roadway; SR = State Route
[2] RivCo = County of Riverside; Caltrans = California Department of Transportation; Murrieta = City of Murrieta

ANALYSIS SCENARIOS

The following scenarios are analyzed during typical weekday AM and PM peak hour conditions:

- Existing Conditions
- Existing Plus Project Conditions
- Existing Plus Ambient Plus Project Conditions
- Existing Plus Ambient Plus Project Plus Cumulative Conditions

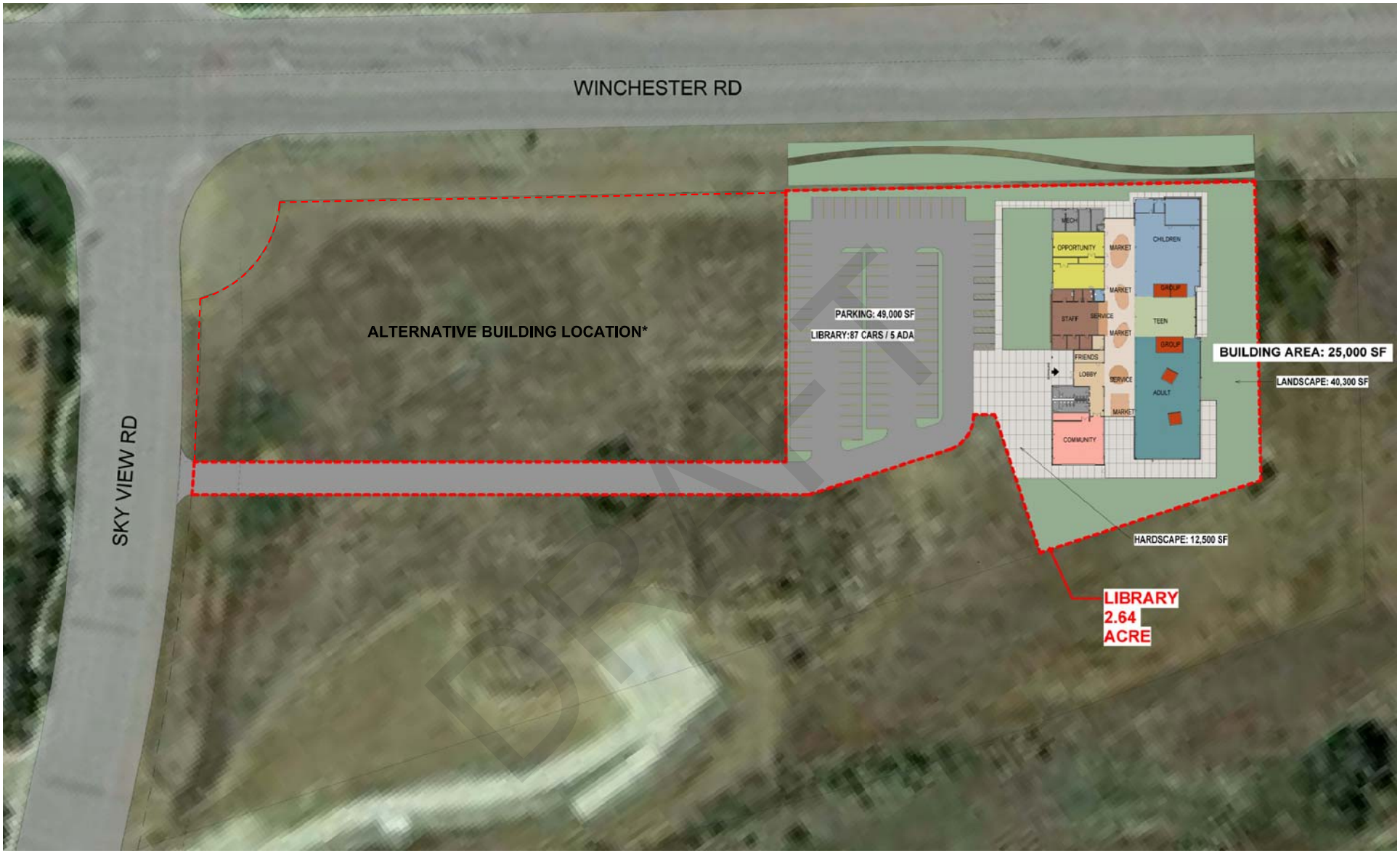


Legend

(#) Study Intersection

Project Site

Figure 1
Project Location Map



* The project building may potentially be located closer to Sky View Road; however, the access would remain at Sky View Road.

Source: CannonDesign

Figure 2
Draft Site Plan

2. METHODOLOGY

This section discusses the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies.

INTERSECTION DELAY METHODOLOGY

To assess the performance of an intersection, the County of Riverside uses the intersection delay method based on procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition). The methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: Transportation Research Board, Highway Capacity Manual (6th Edition).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). At intersections with traffic signal or all way stop control, Level of Service is determined by the average control delay for the overall intersection. At intersections with cross street stop control (i.e., one- or two-way stop control), Level of Service is determined by the average control delay for the worst individual movement (or movements sharing a single lane).

Intersection delay analysis was performed using the Vistro (Version 6.00-03) software in accordance with Exhibit C of the Riverside County Transportation Department Traffic Impact Analysis Preparation Guide (April 2008).

PERFORMANCE STANDARDS

County of Riverside

The definition of an intersection deficiency has been obtained from the County of Riverside General Plan. The General Plan states that Level of Service C shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.

Level of Service D shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest

Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.

Level of Service E may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed. Notwithstanding the forgoing minimum Level of Service targets, the Board of Supervisors may, on occasion by virtue of their discretionary powers, approve a project that fails to meet these Level of Service targets in order to balance congestion management considerations in relation to benefits, environmental impacts and costs, provided an Environmental Impact Report, or equivalent, has been completed to fully evaluate the impacts of such approval. Any such approval must incorporate all feasible mitigation measures, make specific findings to support the decision, and adopt a statement of overriding considerations.

The project site is located within the Southwest Area Plan; therefore, Level of Service D applies as the minimum acceptable Level of Service.

City of Murrieta

The definition of an intersection deficiency has been obtained from the City of Murrieta General Plan. The General Plan states that the City's Level of Service standards are Level of Service C for roadway segments and Level of Service D for peak hour intersection operations with Level of Service E for freeway interchanges.

California Department of Transportation

As stated in the Guide for the Preparation of Traffic Impact Studies (State of California, 2002), "California Department of Transportation endeavors to maintain a target LOS [Level of Service] at the transition between LOS "C" and LOS "D" on State highway facilities". The California Department of Transportation acknowledges this may not always be feasible and recommends consultation with the California Department of Transportation to determine the appropriate target Level of Service. For consistency with local requirements, this analysis defines Level of Service D as the minimum acceptable Level of Service for State Highway facilities.

THRESHOLDS OF SIGNIFICANCE

County of Riverside

Based on the established performance standards for County of Riverside, a potentially significant transportation impact is defined to occur if:

- The addition of project-generated trips is forecast to cause the performance of a study intersection to deteriorate from acceptable Level of Service (D or better) to unacceptable Level of Service (E or F); or,

- The addition of project generated trips is forecast to worsen the performance of a study intersection operating at unacceptable Level of Service (E or F) in the baseline condition.

City of Murrieta

Based on the established performance standards for City of Murrieta, a potentially significant transportation impact is defined to occur if:

- The addition of project-generated trips is forecast to cause the performance of a non-freeway interchange study intersection to deteriorate from acceptable Level of Service D or better to unacceptable Level of Service E or F; or,

- The addition of project-generated trips is forecast to cause the performance of a freeway interchange study intersection to deteriorate from acceptable Level of Service E or better to unacceptable Level of Service F; or,

- The addition of project generated trips is forecast to worsen the performance of an intersection operating at unacceptable Level of Service in the baseline condition.

California Department of Transportation

Based on the established performance standards for County of Riverside, a potentially significant transportation impact is defined to occur if:

- The addition of project-generated trips is forecast to cause the performance of a study intersection to deteriorate from acceptable Level of Service (D or better) to unacceptable Level of Service (E or F); or,

- The addition of project generated trips is forecast to worsen the performance of a study intersection operating at unacceptable Level of Service (E or F) in the baseline condition.

Mitigation Requirements

If a proposed project is forecast to result in a significant transportation impact, mitigation measures should be identified that will reduce the impact to a less than significant level. Mitigation measures can be in many forms, including the addition of lanes, traffic control modification, or demand management measures. If no feasible mitigation measures can be identified for a significantly impacted facility, project approval will require the County of Riverside Board of Supervisors to adopt a statement of overriding considerations.

Direct project impacts are identified in the Existing Plus Project analysis scenario and must be mitigated via conditions of approval requiring the construction of any improvements necessary to meet the established Level of Service standards (or reduce the project impact to pre-project conditions). Cumulative impacts are identified the cumulative conditions scenario and may be mitigated through the payment of various impact mitigation fees such as the County of Riverside Development Impact Fees, Road and Bridge Benefit District Fees, and the Transportation Uniform Mitigation Fees to the extent that these programs provide funding for the improvement facilities.

3. EXISTING CONDITIONS

EXISTING ROADWAY SYSTEM

Figure 3 identifies the lane geometry and intersection traffic controls for Existing conditions based on a field survey of the study area. Regional access to the project site is provided by the I-215 Freeway located approximately 3.65 miles west of the project site, and the I-15 Freeway located approximately 6.8 miles southwest of the project site. Key roadways providing local circulation include Winchester Road (SR-79), Benton Road, Max Gilliss Boulevard, Thompson Road, Jean Nicholas Road, Skyview Road, Whisper Heights, Pourroy Road, and Abelia Street.

GENERAL PLAN CONTEXT

Figure 4 shows the County of Riverside General Plan (Southwest Area) Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The County of Riverside standard roadway cross-sections are illustrated on Figure 5.

Figure 6 shows the City of Murrieta General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The City of Murrieta standard roadway cross-sections are illustrated on Figure 7.

TRANSIT SERVICE

Figure 8 shows Existing public transit facilities and routes in the project vicinity. As shown on Figure 8, the project vicinity is served by Riverside Transit Agency Routes 79 and 217 along Winchester Road. There is a transit stop for Route 79 at the intersection of Winchester Road and Whisper Heights/Pourroy Road.

BICYCLE FACILITIES

The County of Riverside bicycle facilities are illustrated on Figure 9.

EXISTING ROADWAY VOLUMES

Figure 10 shows the Existing average daily traffic volumes. The Existing average daily traffic volumes have been obtained from the 2017 Traffic Volumes on California State Highways by the California Department of Transportation (Caltrans), and factored from peak hour intersection turning movement volumes using the following formula for each intersection leg:

Evening Peak Hour (Approach Volume + Exit Volume) x 12.0 = Leg Volume.

Existing peak hour traffic conditions are based upon morning peak period and evening peak period intersection turning movement counts obtained in September 2019 during typical weekday conditions when local schools were in session. The weekday AM peak period was counted between 7:00 AM and 9:00 AM and the weekday PM peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15 minute periods with the highest total volume when all movements are added together. Thus, the weekday PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15 minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix C.

Figure 11 and Figure 12 show the Existing morning peak hour and evening peak hour intersection turning movement volumes.

EXISTING LEVELS OF SERVICE

The intersection Levels of Service for Existing conditions have been calculated and are shown in Table 1. Existing intersection Level of Service worksheets are provided in Appendix D.

As shown in Table 1, the study intersections currently operate within acceptable Levels of Service during the peak hours for Existing conditions, except for the following study intersection:

- Winchester Road [SR-79] at Max Gilliss Boulevard/Thompson Road – #2 (AM peak hour – LOS E)

Table 1
Existing Intersection Levels of Service

Study Intersection	Traffic Control[2]	AM Peak Hour		PM Peak Hour	
		Delay[3]	LOS[4]	Delay[3]	LOS[4]
1. Winchester Rd at Benton Rd	TS	13.9	B	29.5	C
2. Winchester Rd at Max Gilliss Blvd/Thompson Rd	TS	55.2	E	53.4	D
3. Winchester Rd at Jean Nicholas Rd/Skyview Rd	TS	13.2	B	13.7	B
4. Winchester Rd at Whisper Heights/Pourroy Rd	TS	18.1	B	24.8	C
5. Winchester Rd at Pourroy Rd/Abelia St	TS	18.7	B	14.9	B

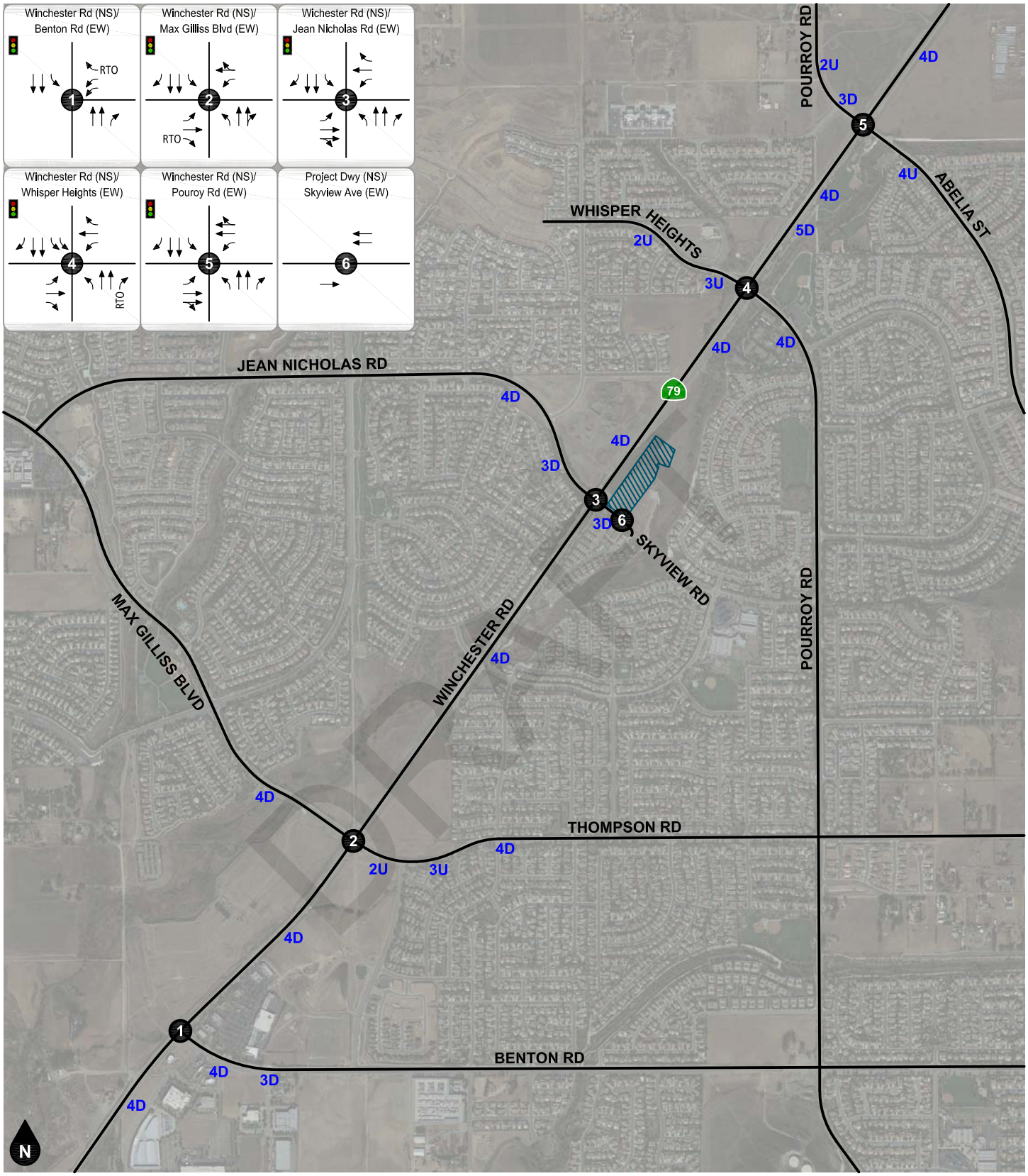
Notes:

(1) County = County of Riverside; Caltrans = California Department of Transportation; Murrieta = City of Murrieta

(2) TS = Traffic Signal

(3) Delay is shown in seconds/vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(4) LOS = Level of Service



Legend

- Traffic Signal
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Existing Lane
- RTO Right Turn Overlap

Figure 3
Existing Lane Geometry and Intersection Traffic Controls

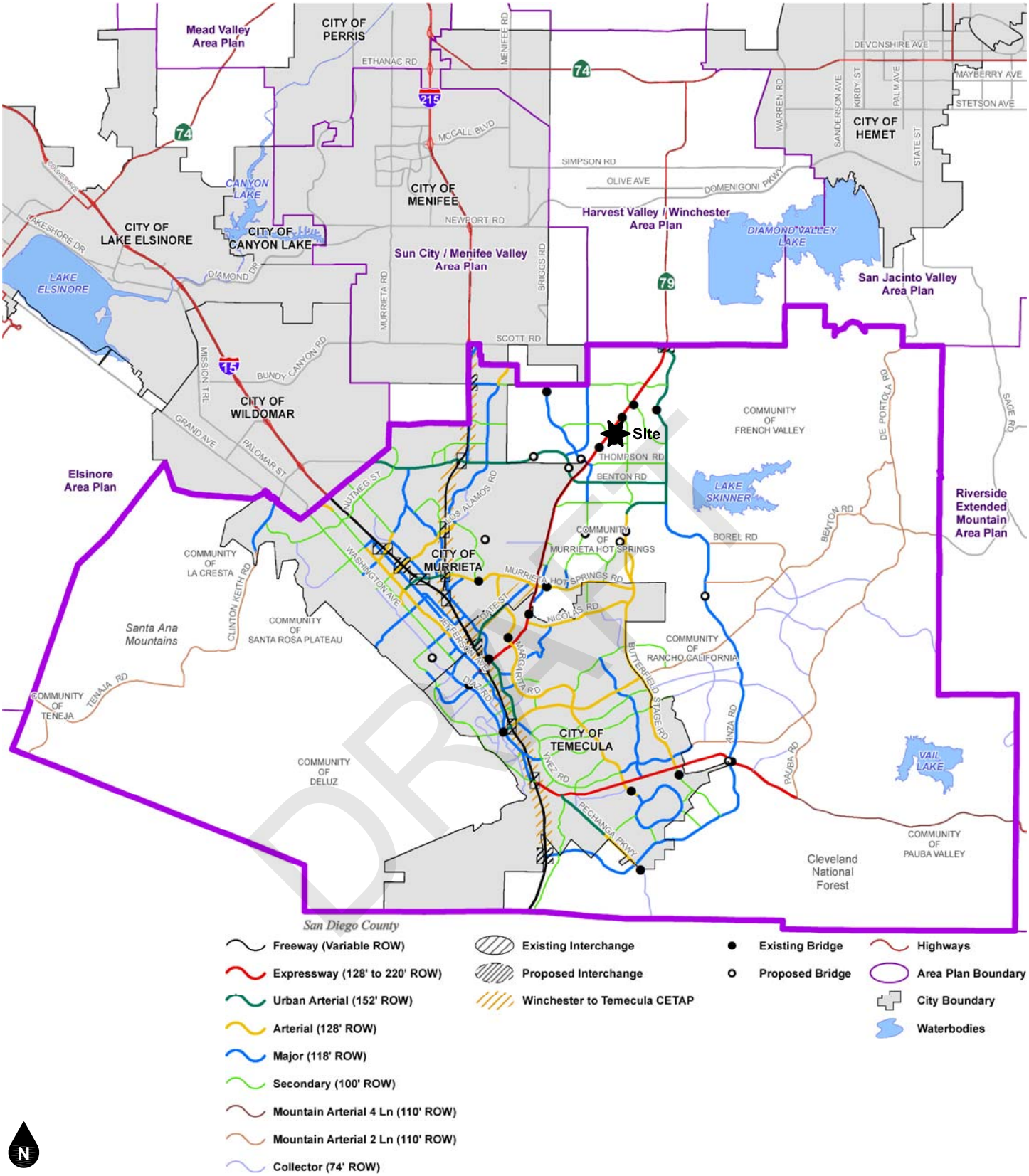
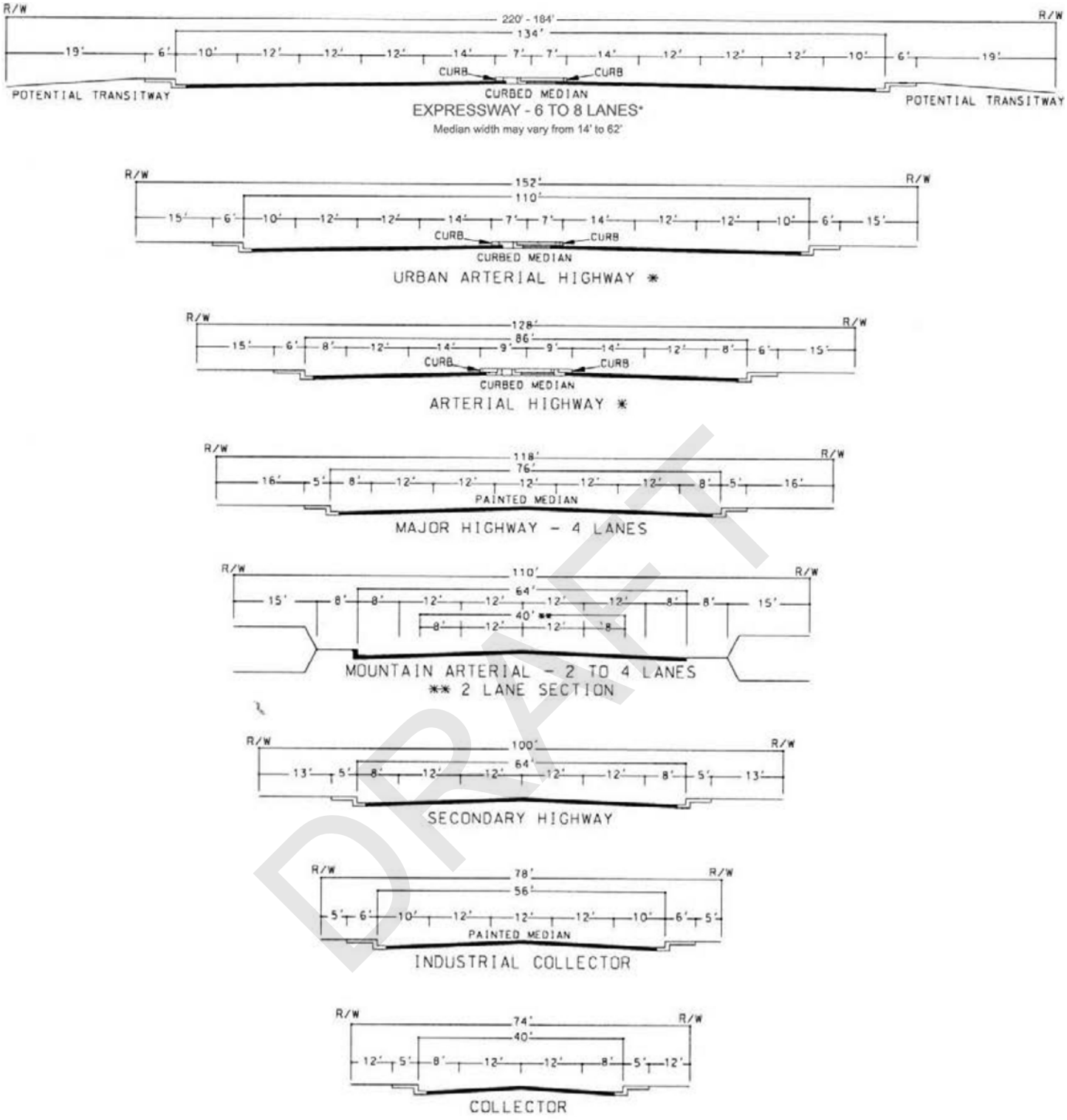


Figure 4
County of Riverside General Plan Circulation Element

Source: County of Riverside



*IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE. ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.

Figure 5
County of Riverside General Plan Roadway Cross-Sections

Source: County of Riverside

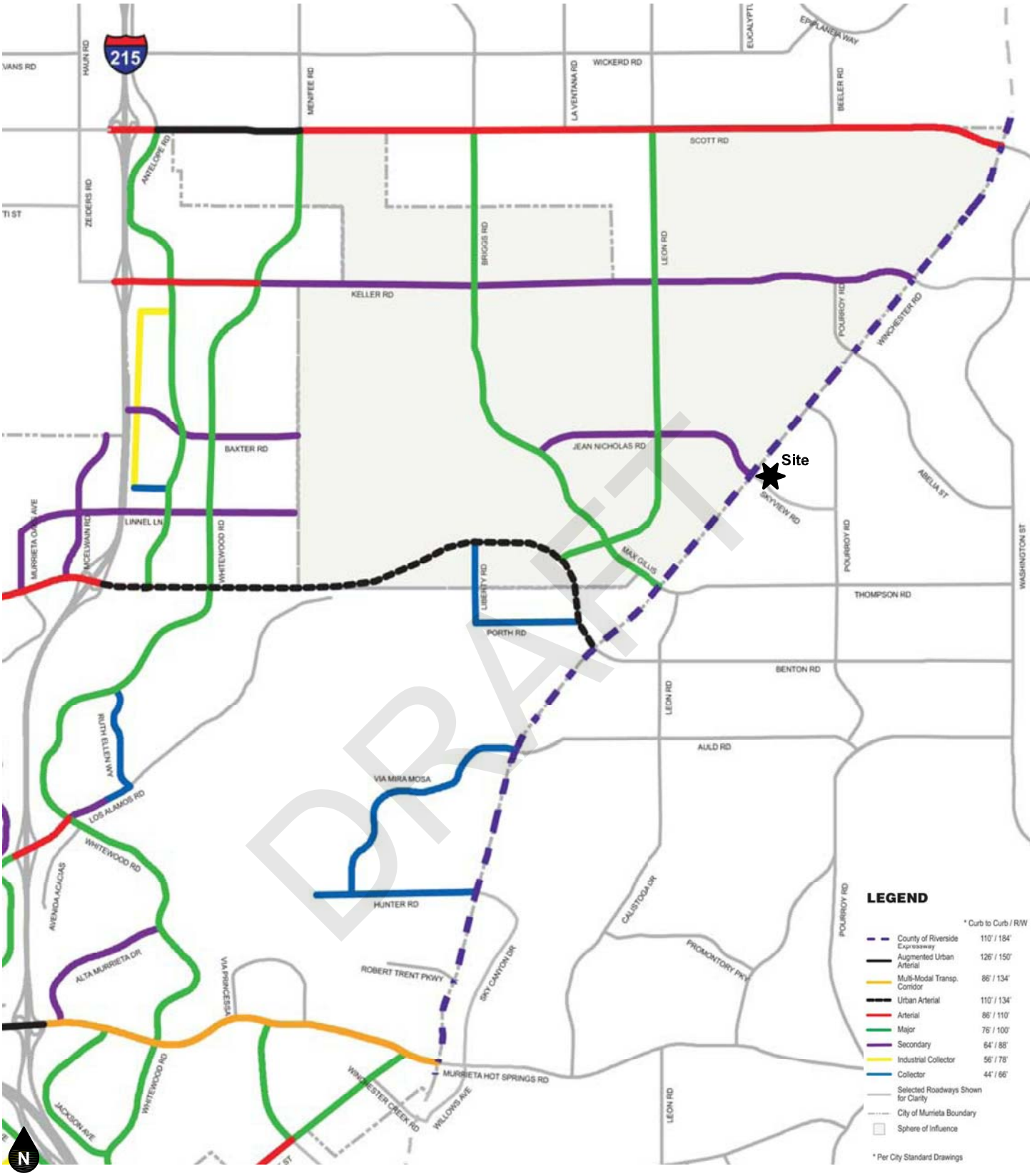


Figure 6
City of Murrieta General Plan Circulation Element

Source: City of Murrieta

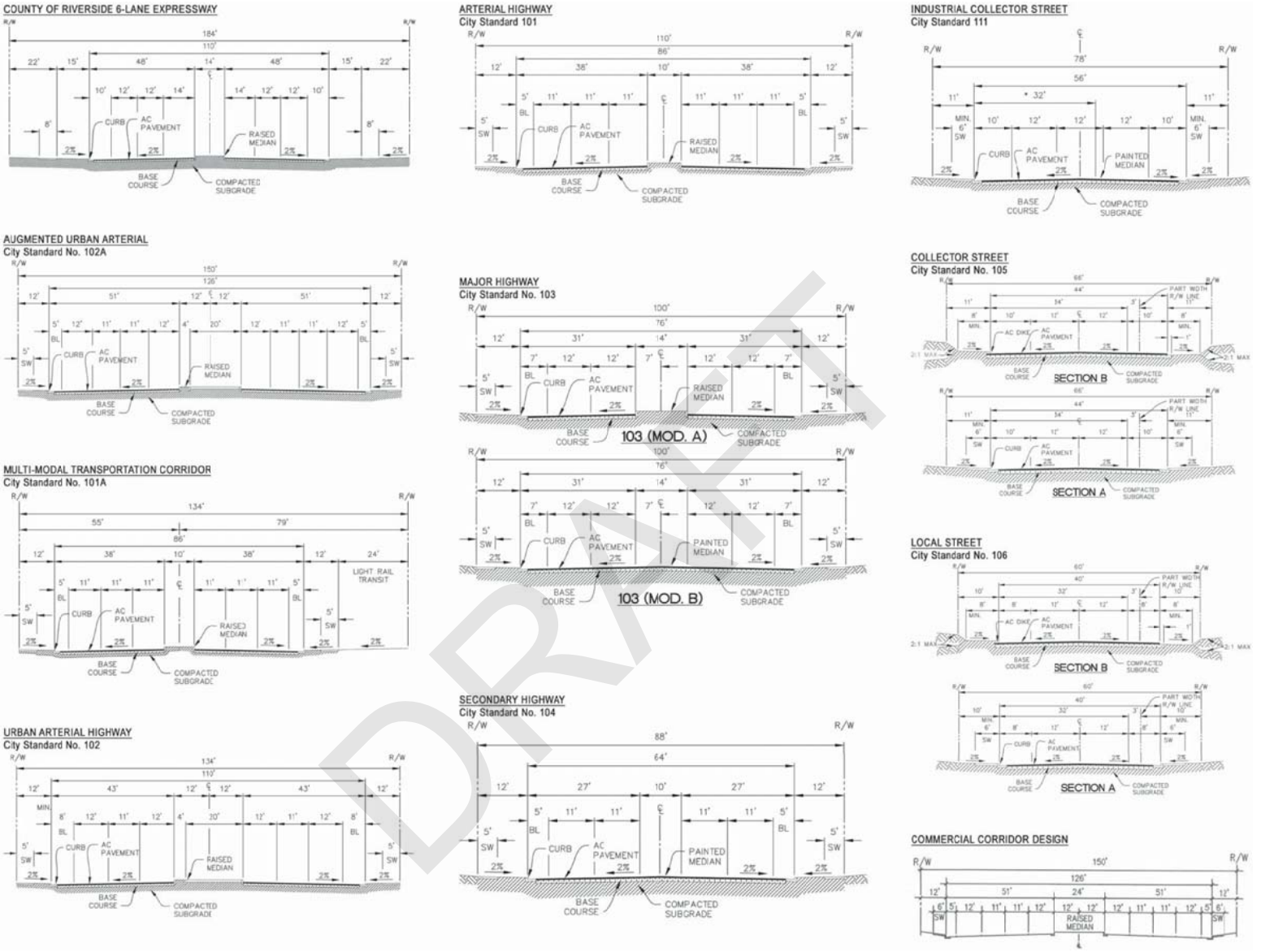


Figure 7
City of Murrieta General Plan Roadway Cross-Sections

Source: City of Murrieta

Figure 8
Existing Transit Routes

Source: Riverside Transit Agency

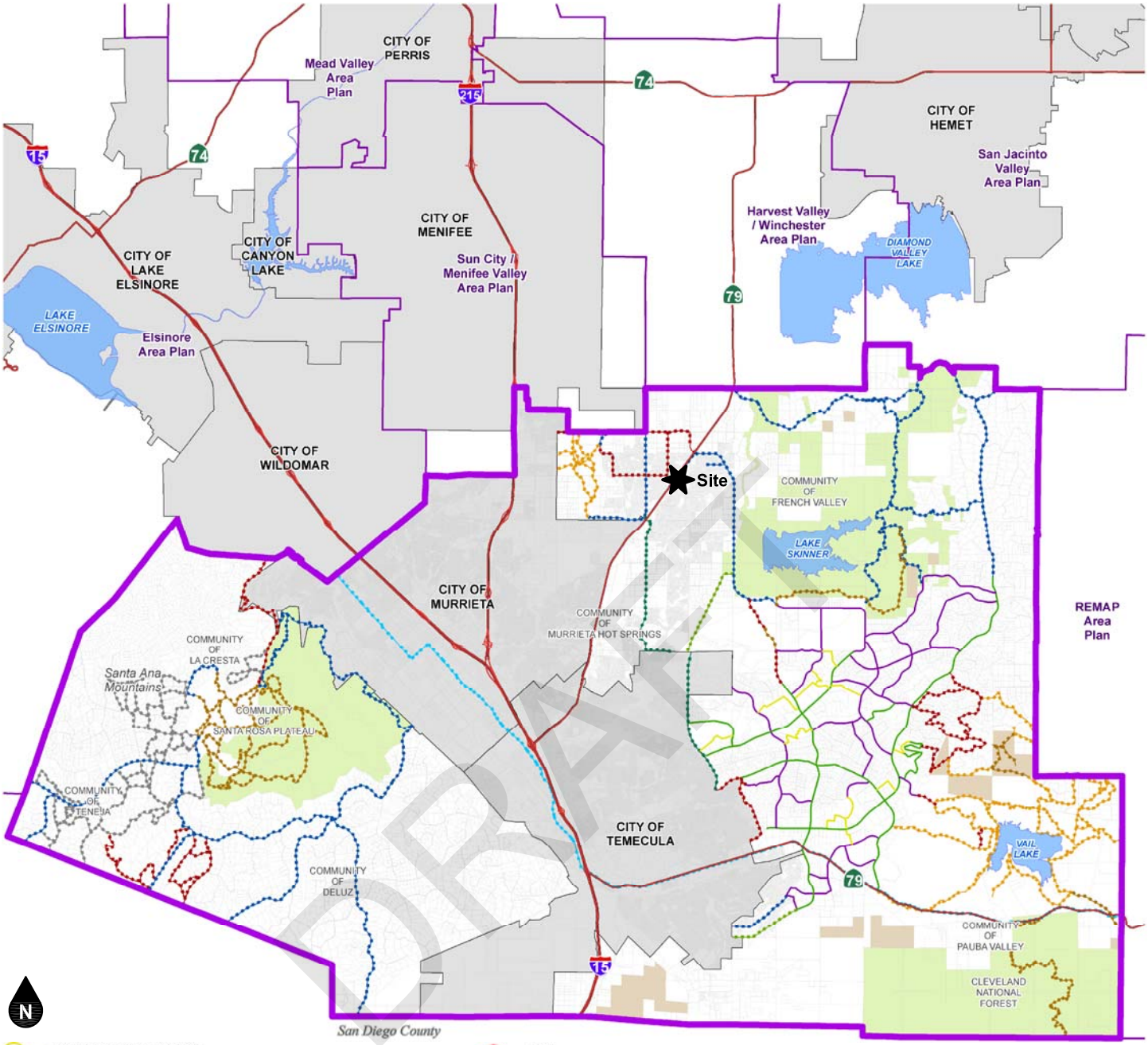
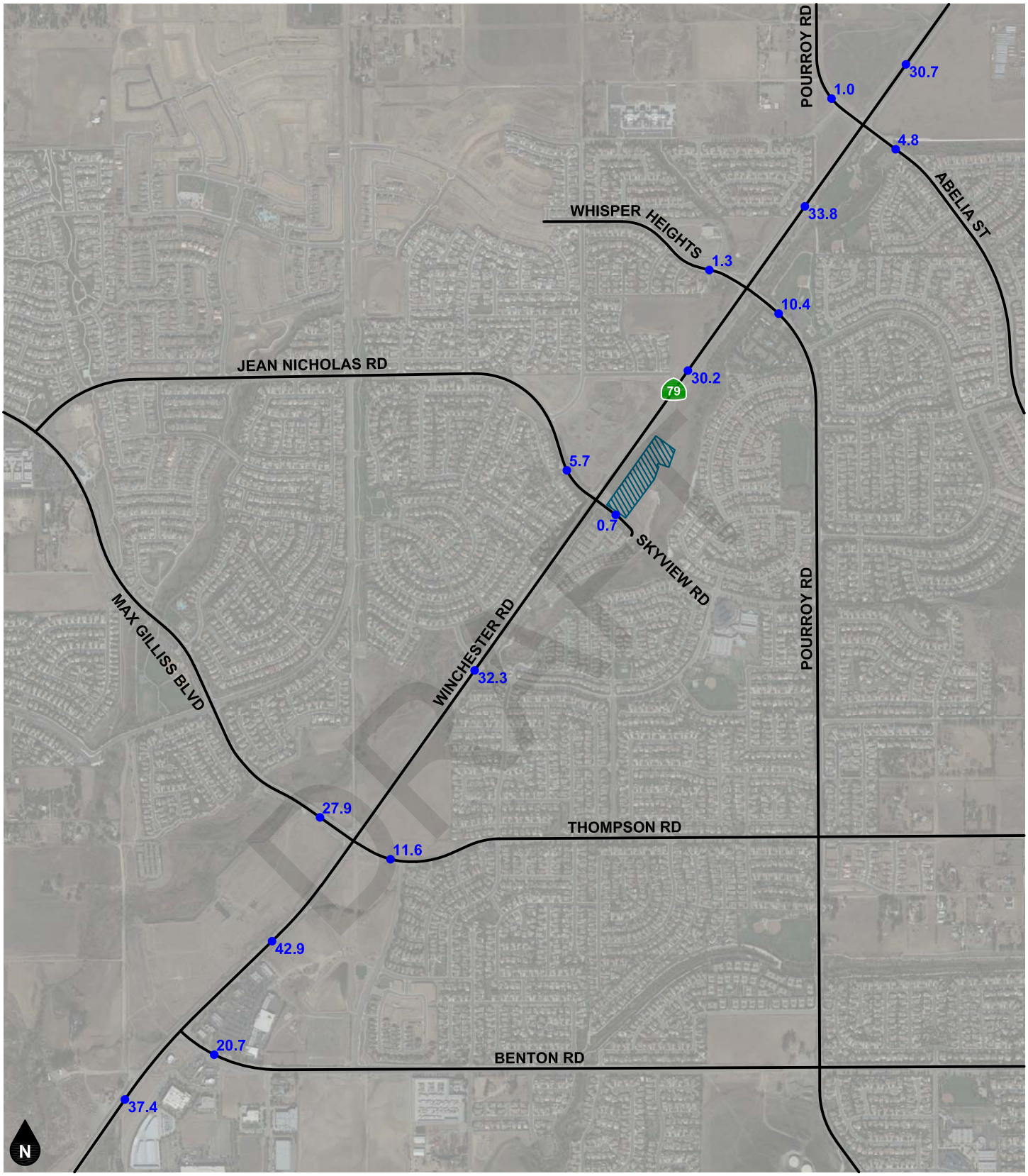


Figure 9
County of Riverside General Plan Bike Routes

Source: County of Riverside



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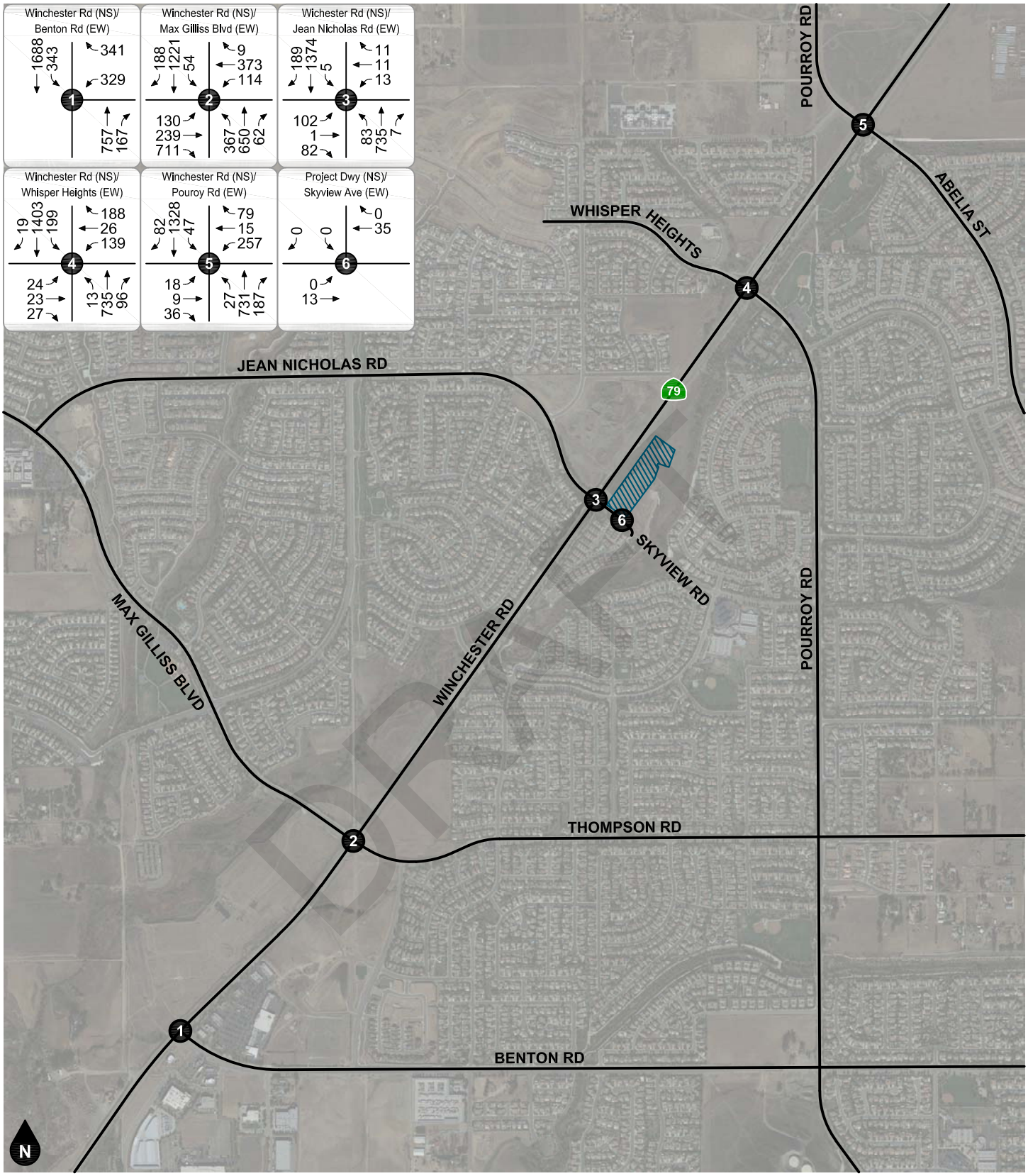
●## Vehicles Per Day (1,000's)

Figure 10
Existing Average Daily Traffic Volumes

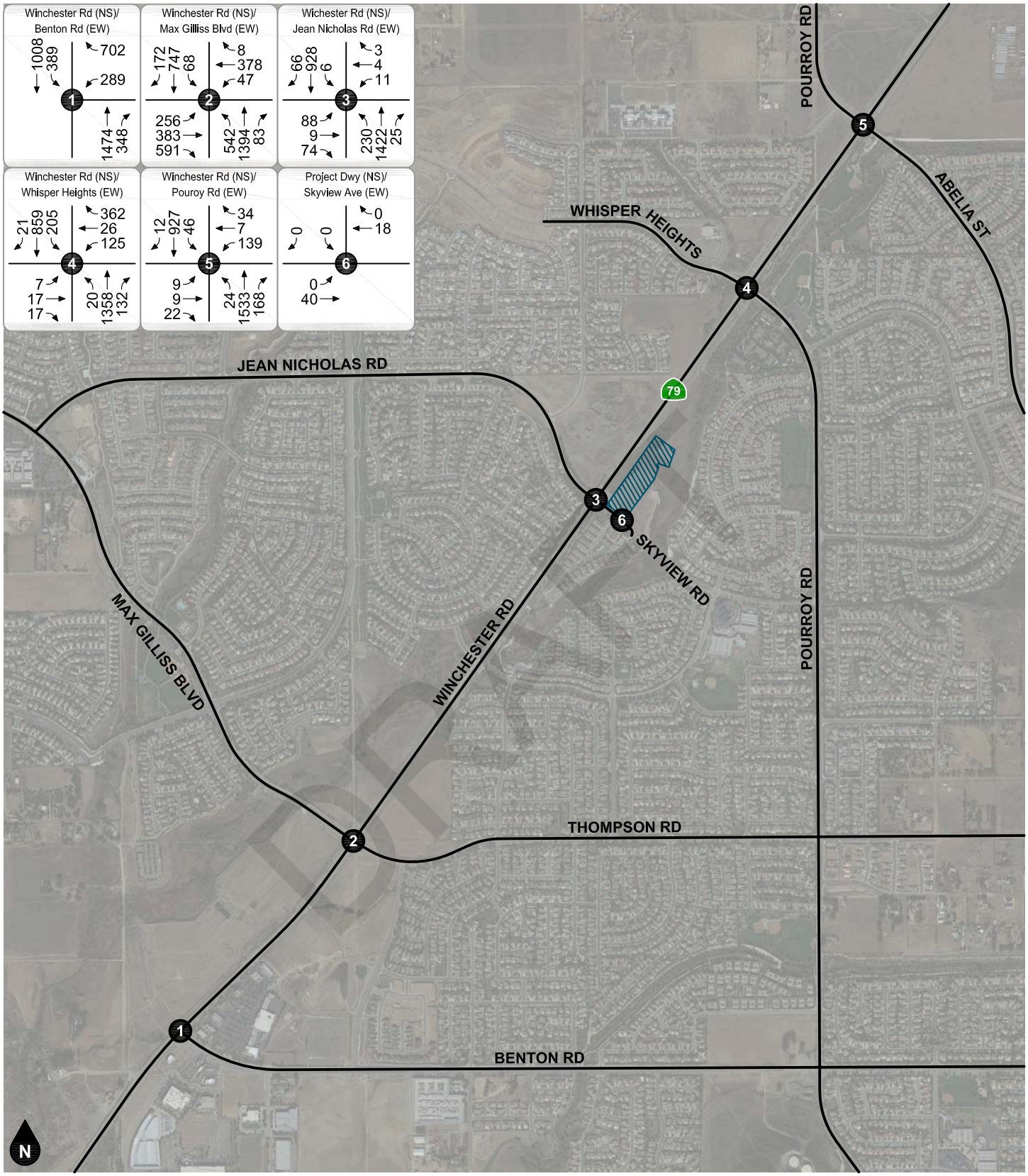


Legend

Study Intersection

Project Site

Figure 11
Existing AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Project Site

Figure 12
Existing PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT TRIP FORECASTS

This section describes how project trip generation, trip distribution, and trip assignment forecasts were developed. The forecast project volumes are illustrated on figures contained in this section.

PROJECT TRIP GENERATION

Table 2 shows the project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017. Trip generation rates were determined for daily trips, AM peak hour inbound and outbound trips, and PM peak hour inbound and outbound trips for the proposed land use. The number of trips forecast to be generated by the proposed project are determined by multiplying the trip generation rates by the land use quantity.

As shown in Table 2, the proposed project is forecast to generate a total of approximately 1,801 daily trips, including 25 trips during the AM peak hour and 204 trips during the PM peak hour.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Figure 13 shows the forecast directional outbound and inbound distribution patterns for the project generated trips. The project trip distribution patterns are based on review of existing volume data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Based on the identified project trip generation and distributions, project average daily traffic volumes have been calculated and shown on Figure 14. Project AM and PM peak hour intersection turning movement volumes expected from the project are depicted on Figure 15 and Figure 16, respectively.

PROJECT DESIGN FEATURES

The proposed project shall construct the following improvements to provide project site access:

Project Driveway at Skyview Road - #6

- Construct the project driveway to provide one inbound lane and one outbound lane with southbound stop-control.
- The existing eastbound lane on Skyview will allow shared through/left turn movements.
- The existing westbound lane on Skyview Road will allow shared through/right turn movements.
- The new southbound lane at the Project Driveway will allow shared left/right turn movements.

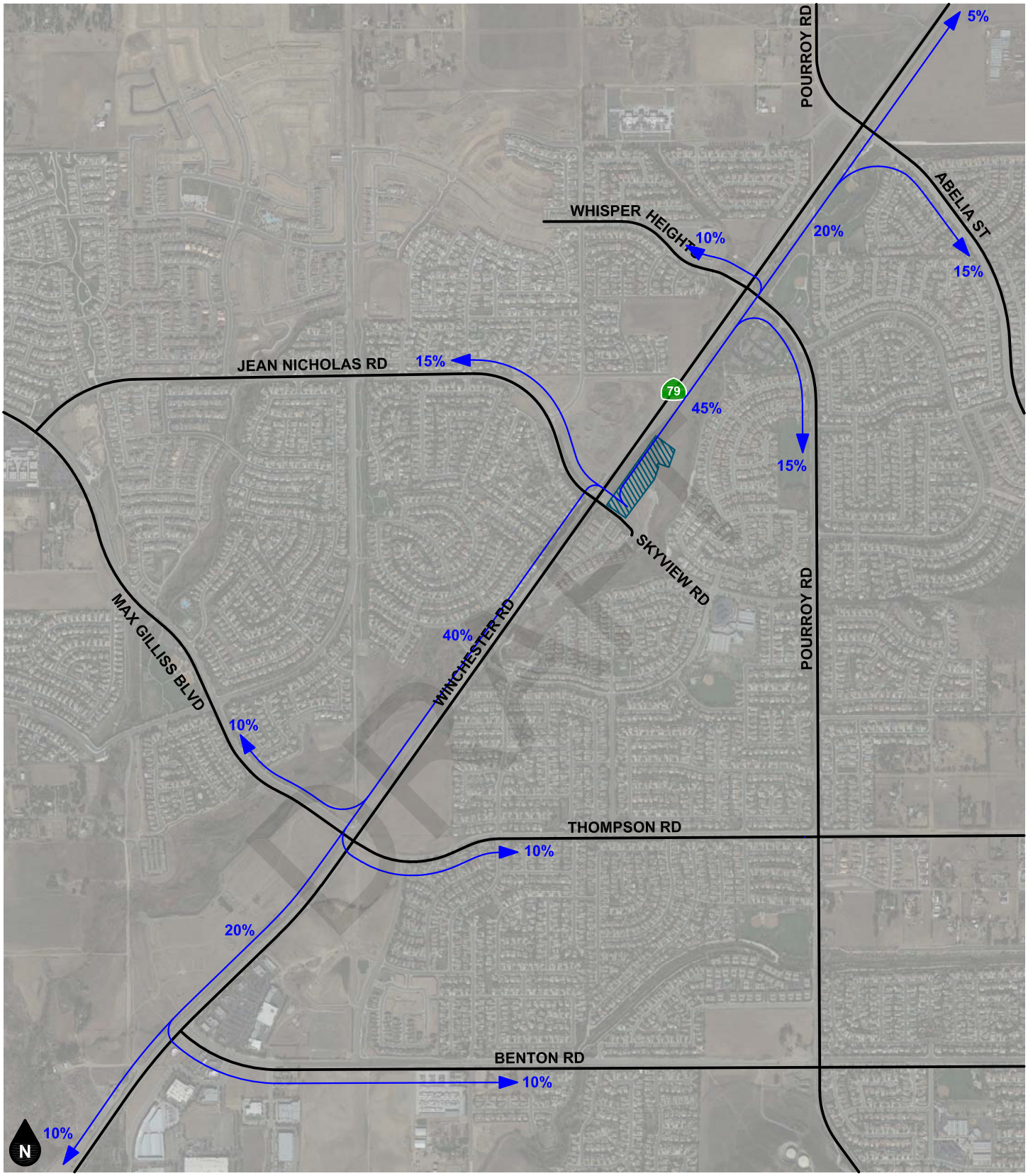
The project is not proposing secondary access to the project site. Since the proposed development is located adjacent to Winchester Road (SR-79), emergency vehicles will have the ability to park on the east side of Winchester Road adjacent to the project site in the event that the project driveway is inaccessible. The final decision regarding adequacy of emergency vehicle access for the project site should be made by the County of Riverside Fire Department.

Table 2
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use	Source[1]	Units[2]	% In	% Out	Rate	% In	% Out	Rate	Rate
Library	ITE 590	TSF	71%	29%	1.00	48%	52%	8.16	72.05

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[2]	In	Out	Total	In	Out	Total	Daily
Library	25.000	TSF	18	7	25	98	106	204	1,801

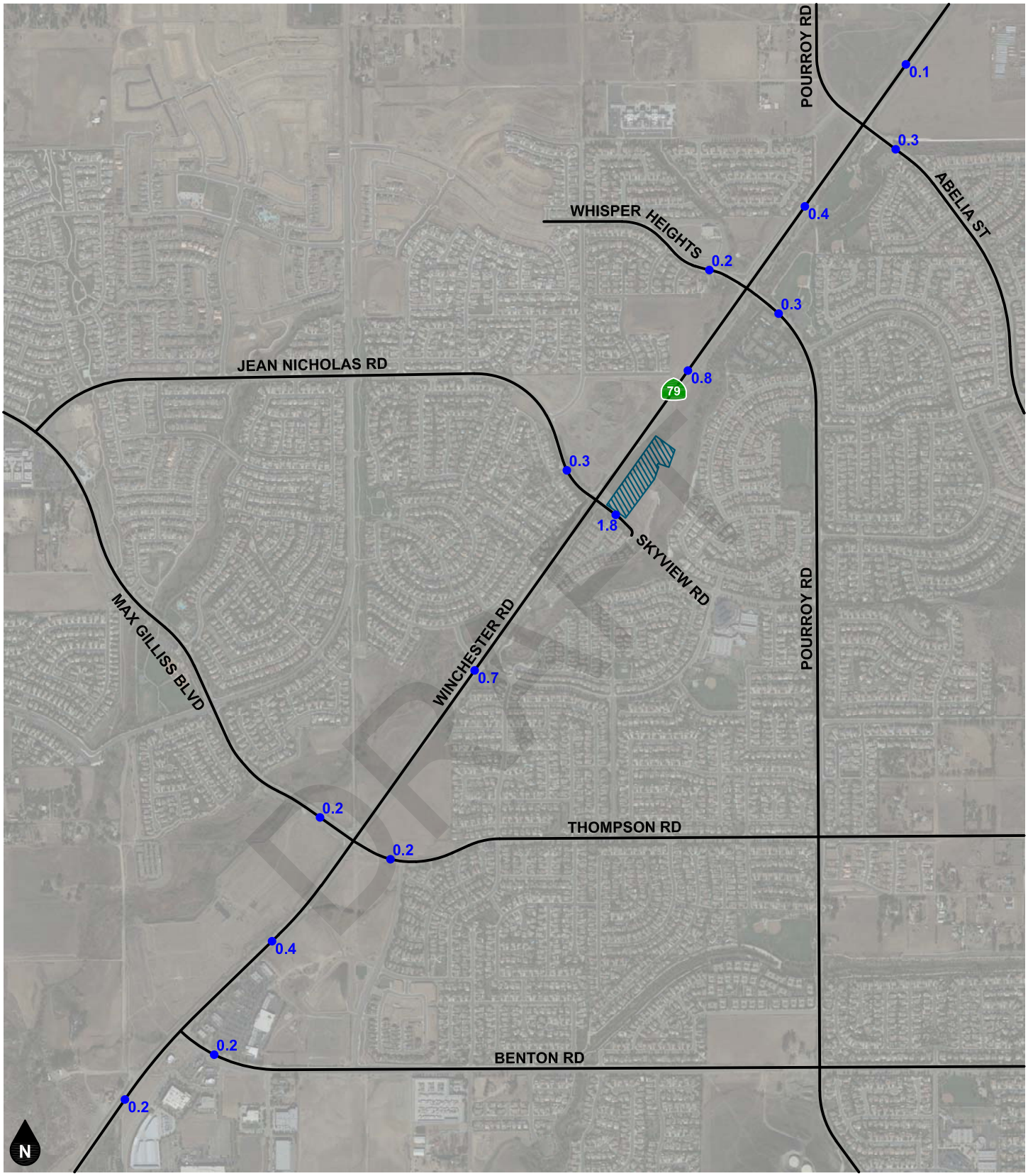
Notes:
1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; 590 = Land Use Code
2) TSF = Thousand Square Feet



Legend

10% Percent From/To Project

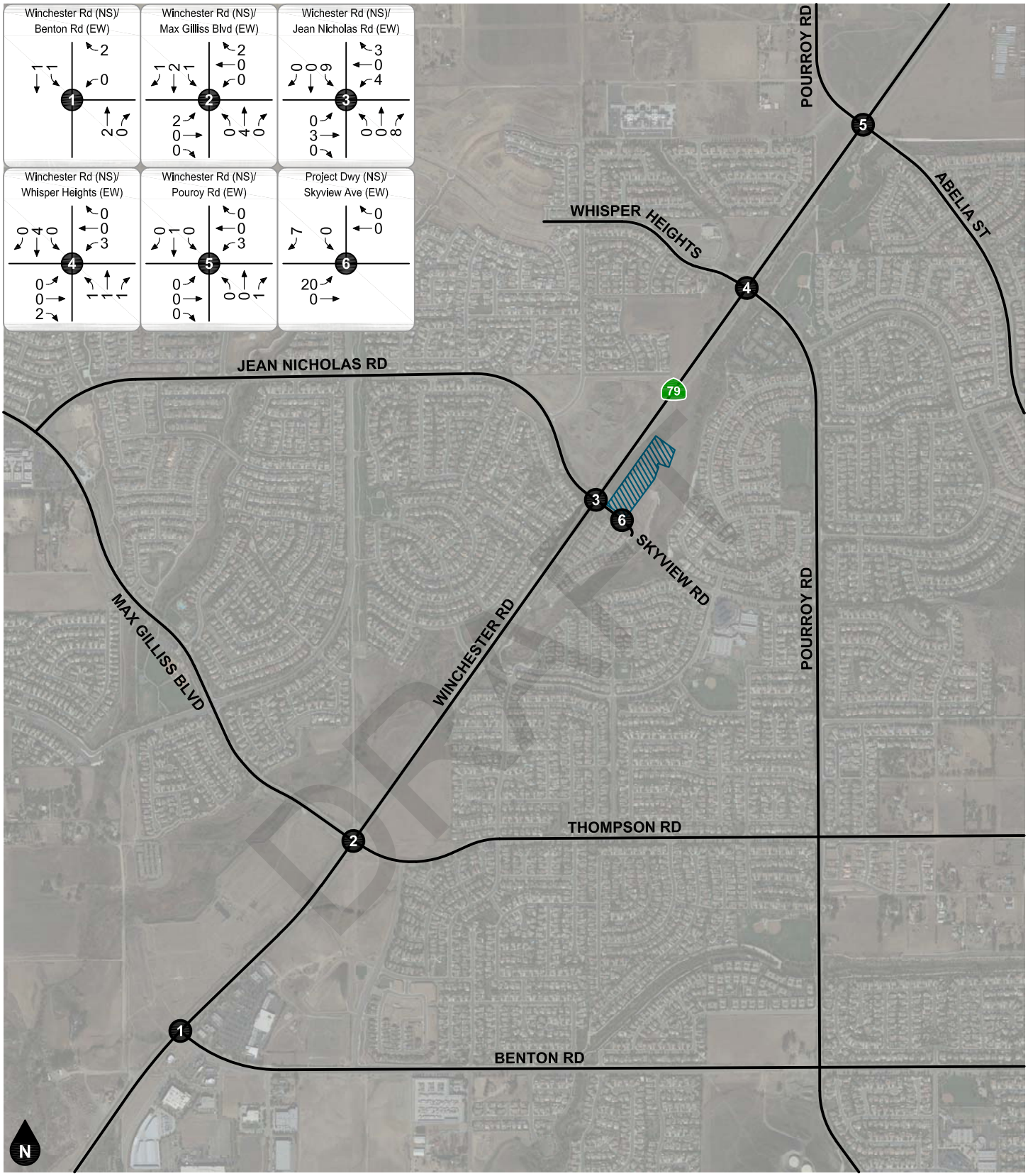
Figure 13
Project Trip Distribution



Legend

●## Vehicles Per Day (1,000's)

Figure 14
Project Average Daily Traffic Volumes

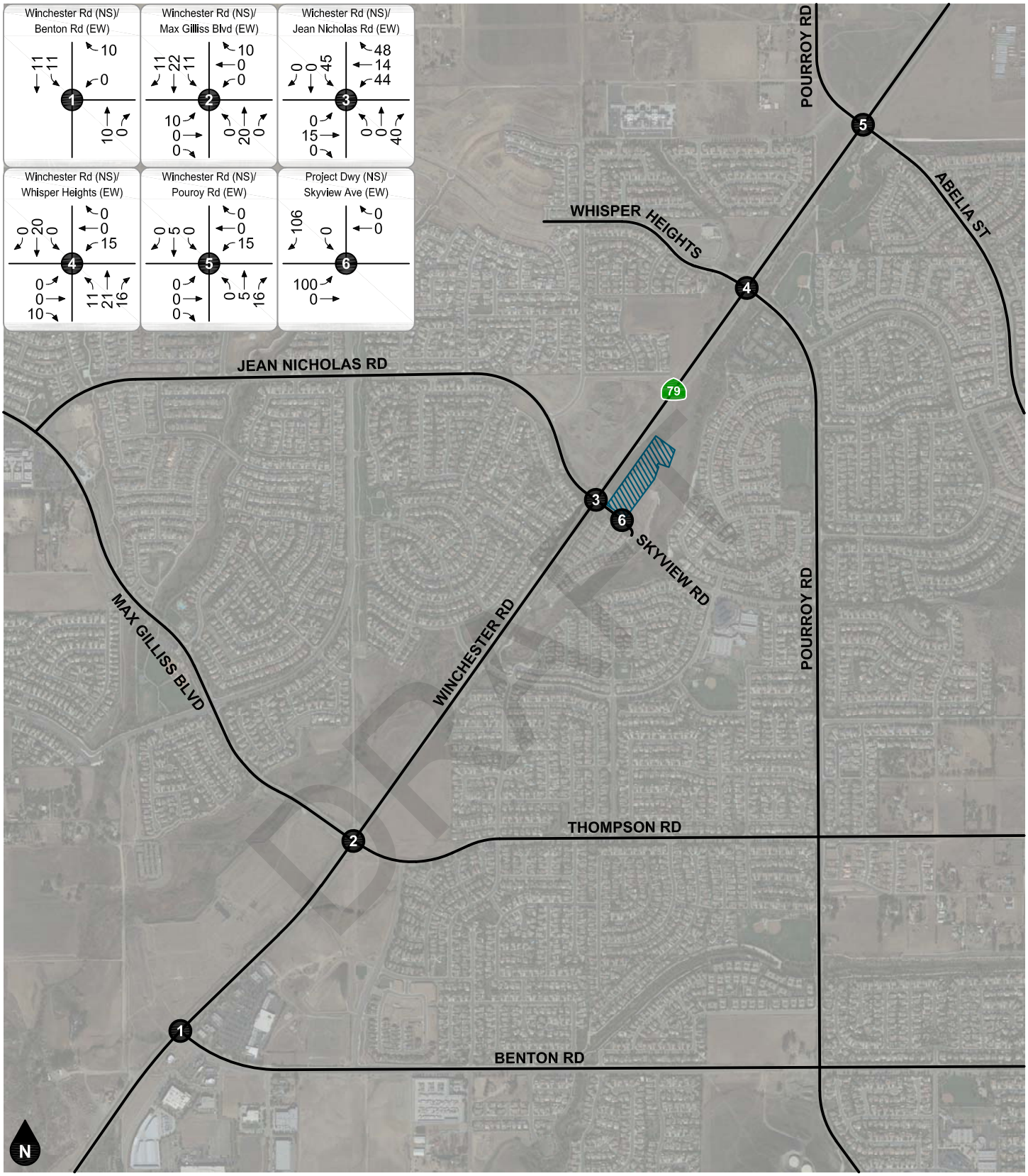


Legend

Study Intersection

Project Site

Figure 15
Project AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Project Site

Figure 16
Project PM Peak Hour Intersection Turning Movement Volumes

5. FUTURE VOLUME FORECASTS

This section describes how future volume forecasts for each analysis scenario were developed. Forecast study area volumes are illustrated on figures contained in this section.

CUMULATIVE TRIPS

Ambient Growth Rate

To account for ambient growth on roadways, existing roadway volumes were increased by a growth rate of two percent (2%) per year over two years for Opening Year (2021) conditions. This equates to a total growth factor of approximately 1.04. The ambient growth rate was conservatively applied to all movements at the study intersections.

Other Development

To account for trips generated by future development, trips generated by pending or approved other development projects in the project vicinity were added to the study area. Table 3 shows the trip generation summary for other development projects and Figure 17 shows the other development location map.

Figure 18 shows the forecast average daily traffic volumes for the other development. Figure 19 and Figure 20 show the forecast morning and evening peak hour intersection turning movement volumes for trips generated by other developments.

ANALYSIS SCENARIO VOLUME FORECASTS

Existing Plus Project

Existing Plus Project volume forecasts were derived by adding the project generated trips to Existing volumes. Existing Plus Project average daily traffic volumes are shown on Figure 21. Existing Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figure 22 and Figure 23.

Existing Plus Ambient Plus Project

To develop Existing Plus Ambient Plus Project volume forecasts, Existing Plus Project volumes were combined with ambient growth. Existing Plus Ambient Plus Project average daily traffic volumes are shown on Figure 24. Existing Plus Ambient Plus Project AM and PM peak hour intersection turning movement volumes are shown Figure 25 and Figure 26.

Existing Plus Ambient Plus Project Plus Cumulative

Existing Plus Ambient Plus Project Plus Cumulative volume forecasts were developed by adding trips generated by other developments to the Existing Plus Ambient Plus Project forecast. Existing Plus Ambient Plus Project Plus Cumulative average daily traffic volumes are shown on Figure 27. Existing Plus Ambient Plus Project Plus Cumulative AM and PM peak hour intersection turning movement volumes are shown on Figure 28 and Figure 29.

Table 3
Other Development Trip Generation

Project	Land Use	Source[1]	Quantity	Units[2]	Peak Hour						Daily
					Morning			Evening			
					Inbound	Outbound	Total	Inbound	Outbound	Total	
CUP03744	Industrial Warehouse (Brewery)	SR	33.025	TSF	15	4	19	23	24	47	443
PP25793	Fast-Food Restaurant with Drive-Thru	ITE 934	2.975	TSF	61	59	120	51	47	98	1,401
	- Pass-By Reduction (49% AM, 50% PM)[3]				-30	-29	-59	-26	-24	-50	-109
	Subtotal				31	30	61	25	23	48	1,292
PP26047	Office	ITE 712	2.88	TSF	5	1	6	2	5	7	47
PP26212	Mini Storage	ITE 151	114.138	TSF	7	5	12	9	10	19	172
	Car Wash	SANDAG	4.795	TSF	18	18	36	41	41	82	900
	Subtotal				25	23	48	50	51	101	1,072
PP26344	Shopping Center	ITE 820	133.877	TSF	136	83	219	324	351	675	7,331
	- Pass-By Reduction (34% PM)[3]				--	--	--	-110	-119	-229	-229
	Subtotal				136	83	219	214	232	446	7,102
PPT180016	Commercial Retail	ITE 820	49.100	TSF	29	18	47	90	97	187	1,854
	- Pass-By Reduction (34% PM)[3]				--	--	--	-31	-33	-64	-64
	Business Park	ITE 770	89.395	TSF	22	14	36	17	20	37	1,112
	Subtotal				51	32	83	76	84	160	2,902
TR31700	Single-Family Detached Residential	ITE 210	64	DU	12	36	48	40	23	63	604
TR32151	Multi-Family Residential	ITE 220	136	DU	14	48	62	48	28	76	996
TR32185	Single-Family Detached Residential[4]	ITE 210	213	DU	39	118	157	133	78	211	2,011
TR32272	Single-Family Detached Residential	ITE 210	38	DU	7	21	28	24	14	38	359
TR32323	Single-Family Detached Residential	ITE 210	38	DU	7	21	28	24	14	38	359
TR33303	Single-Family Detached Residential	ITE 210	24	DU	4	13	17	15	9	24	227
TR33423	Single-Family Detached Residential	ITE 210	134	DU	25	74	99	84	49	133	1,265
TR35161	Single-Family Detached Residential[5]	ITE 210	17	DU	3	9	12	11	6	17	160
TR36536	Single-Family Detached Residential[6]	ITE 210	42	DU	8	23	31	26	15	41	396
TR36722	Single-Family Detached Residential	ITE 210	146	DU	27	81	108	91	53	144	1,378
TR37028	Single-Family Detached Residential	ITE 210	133	DU	25	74	99	83	49	132	1,256
TR37053	Single-Family Detached Residential[7]	ITE 210	560	DU	104	311	415	349	205	554	5,286
TR37294	Single-Family Detached Residential	ITE 210	48	DU	9	27	36	30	18	48	453
Total					547	1,029	1,576	1,348	980	2,328	27,608

Notes:
(1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; ### = Land Use Code
SR = Staff Report
SANDAG = San Diego Association of Governments, Brief Guide of Vehicular Traffic Generation Rates for San Diego Region, April 2002.

(2) DU = Dwelling Units

(3) ITE = Institute of Transportation Engineers, Trip Generation Handbook, 3rd Edition, 2017.

(4) Development of 426 units is approximately half built.

(5) Development of 51 units is approximately two-thirds built.

(6) Development of 84 units is approximately half built.

(7) Development of 747 units is approximately one-quarter built.

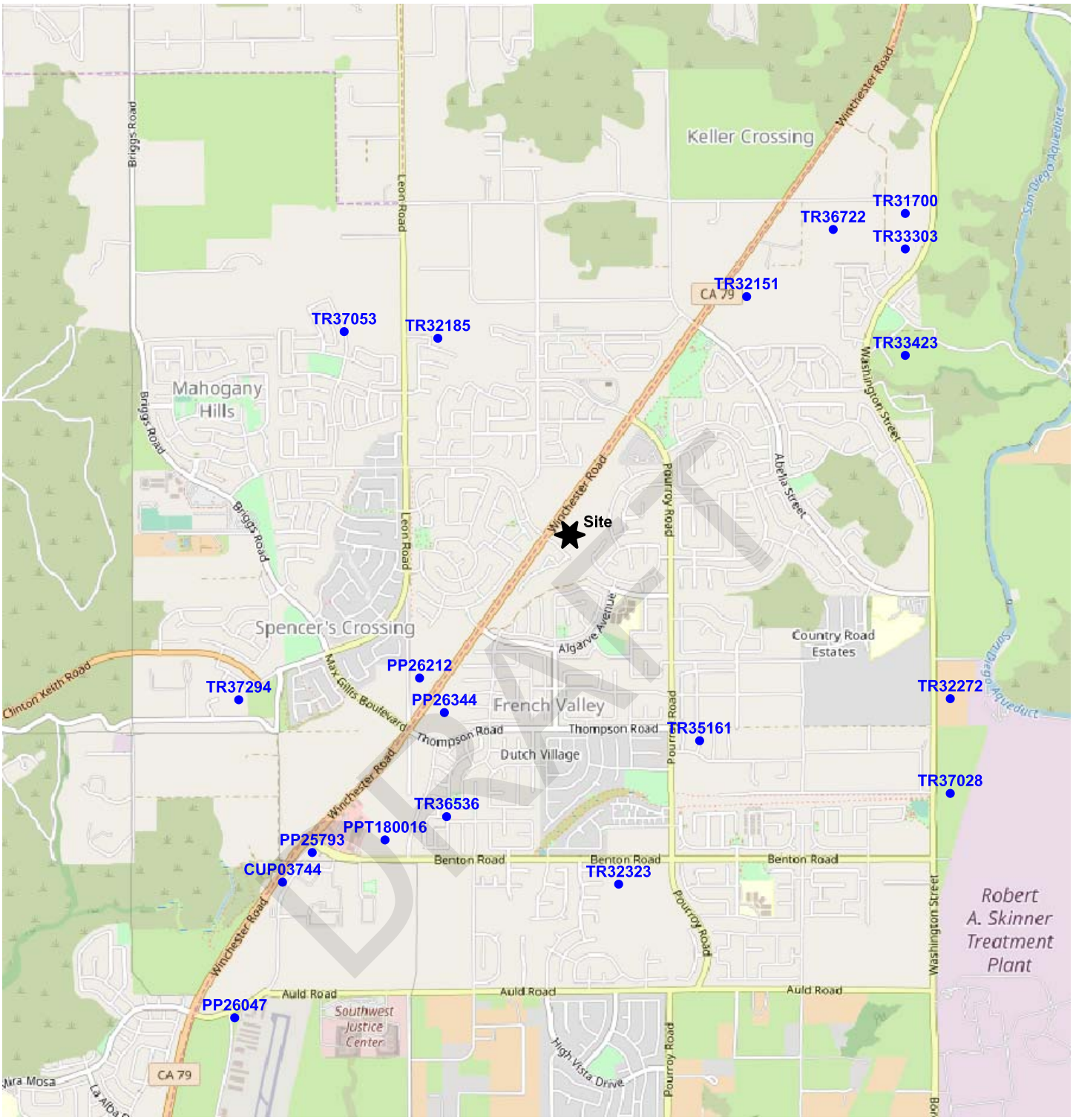
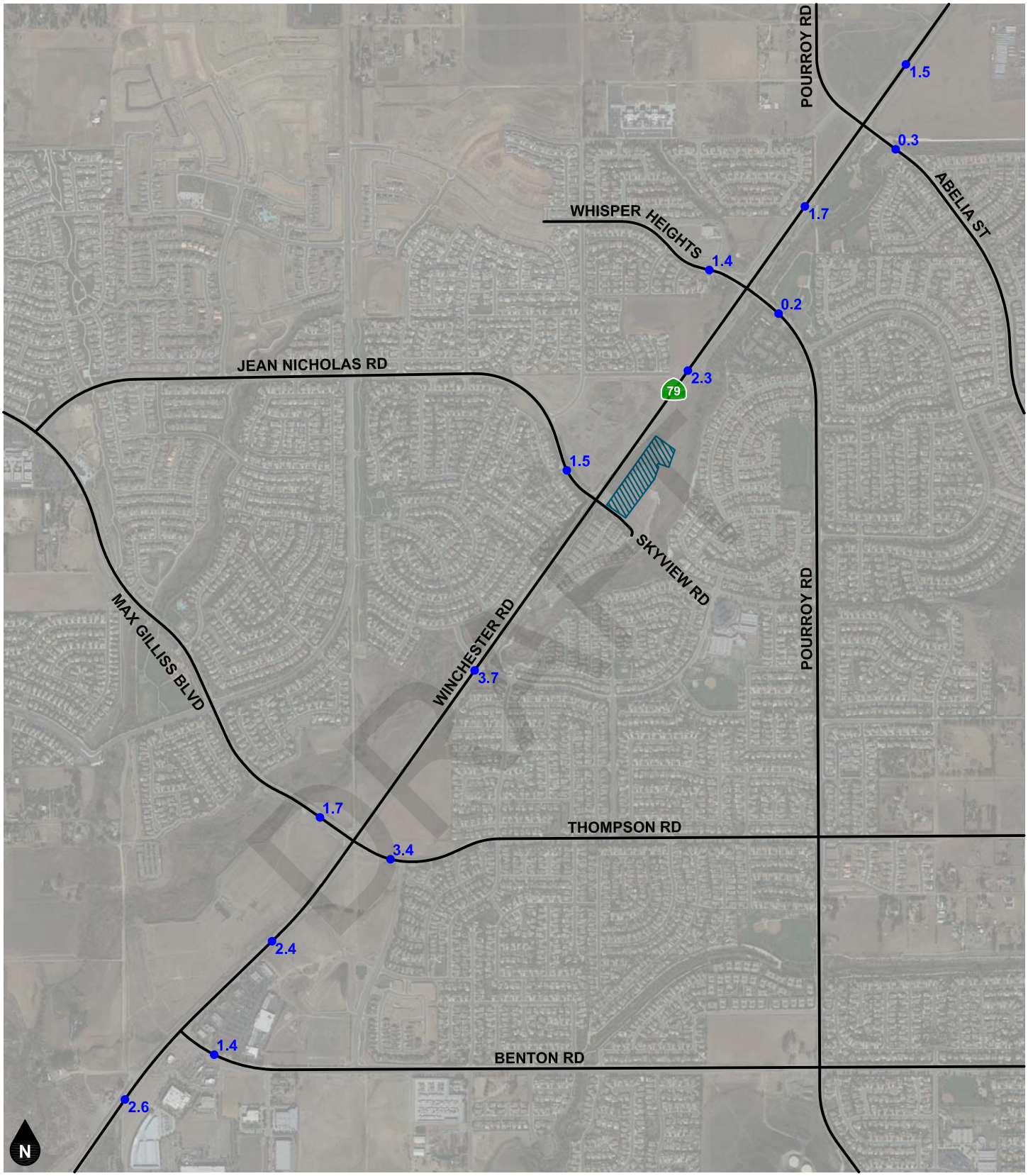


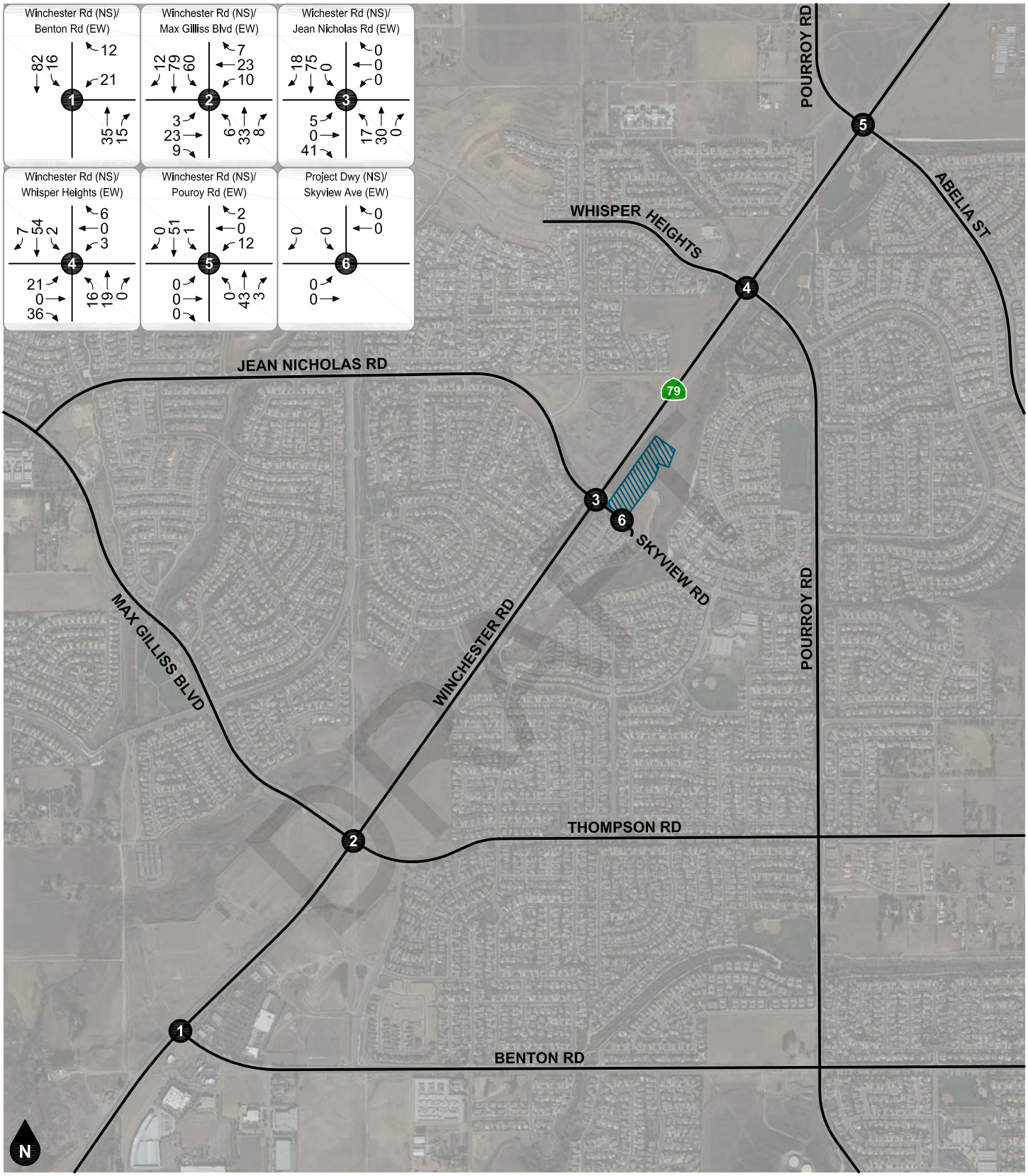
Figure 17
Other Development Location Map



Legend

●## Vehicles Per Day (1,000's)

Figure 18
Other Development Average Daily Traffic Volumes

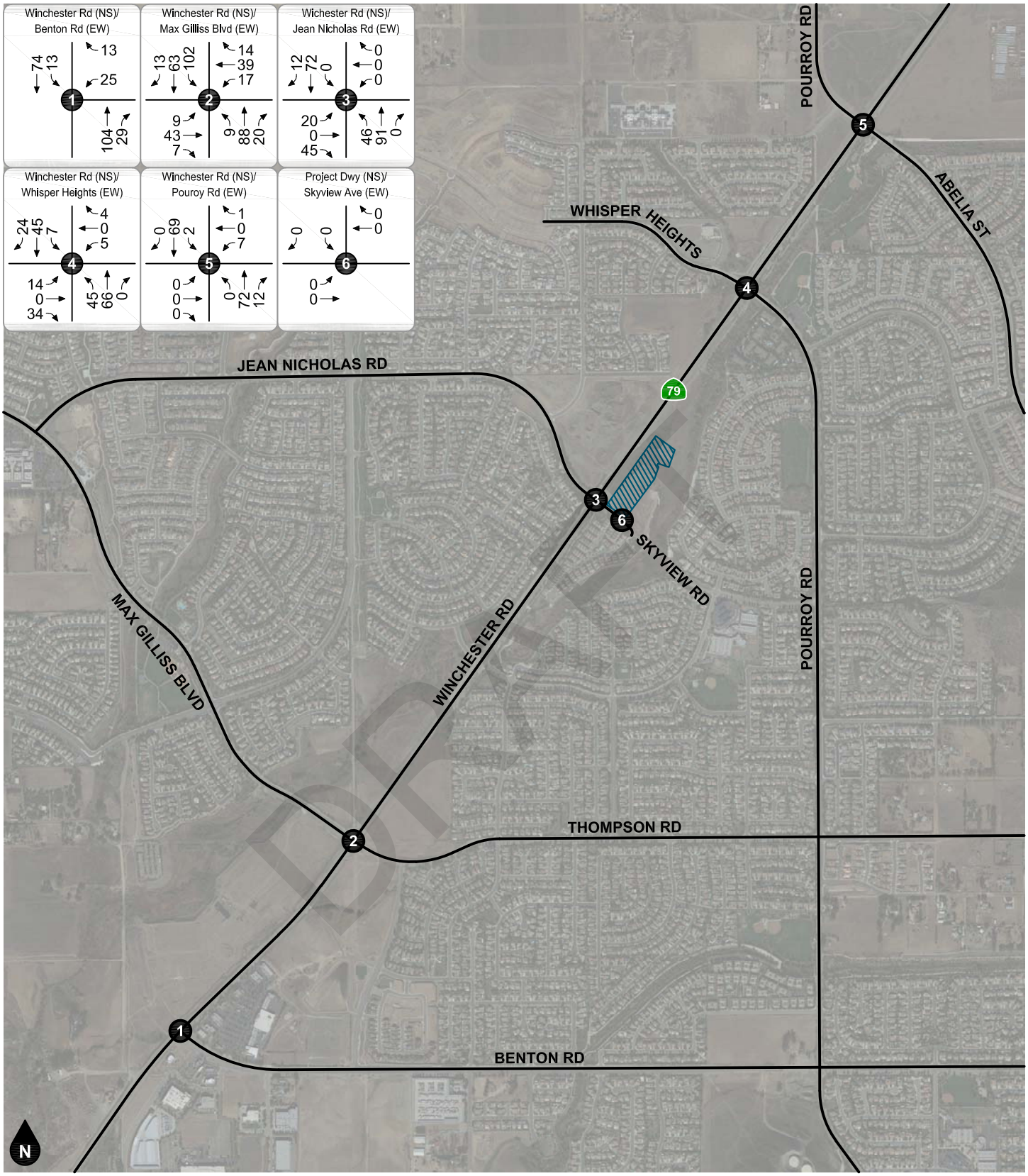


Legend

(#) Study Intersection

Project Site

Figure 19
Other Development
AM Peak Hour Intersection Turning Movement Volumes

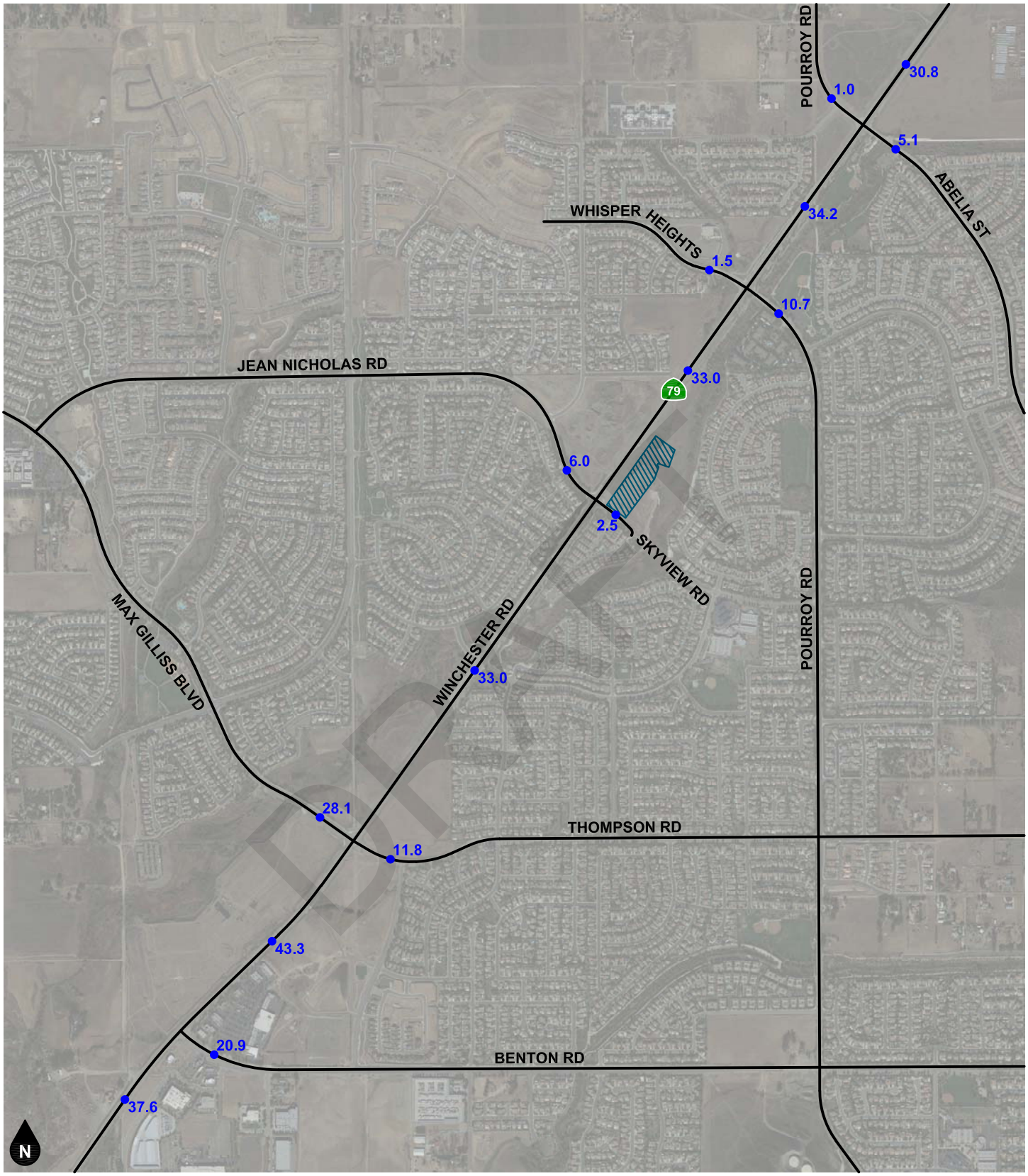


Legend

Study Intersection

Project Site

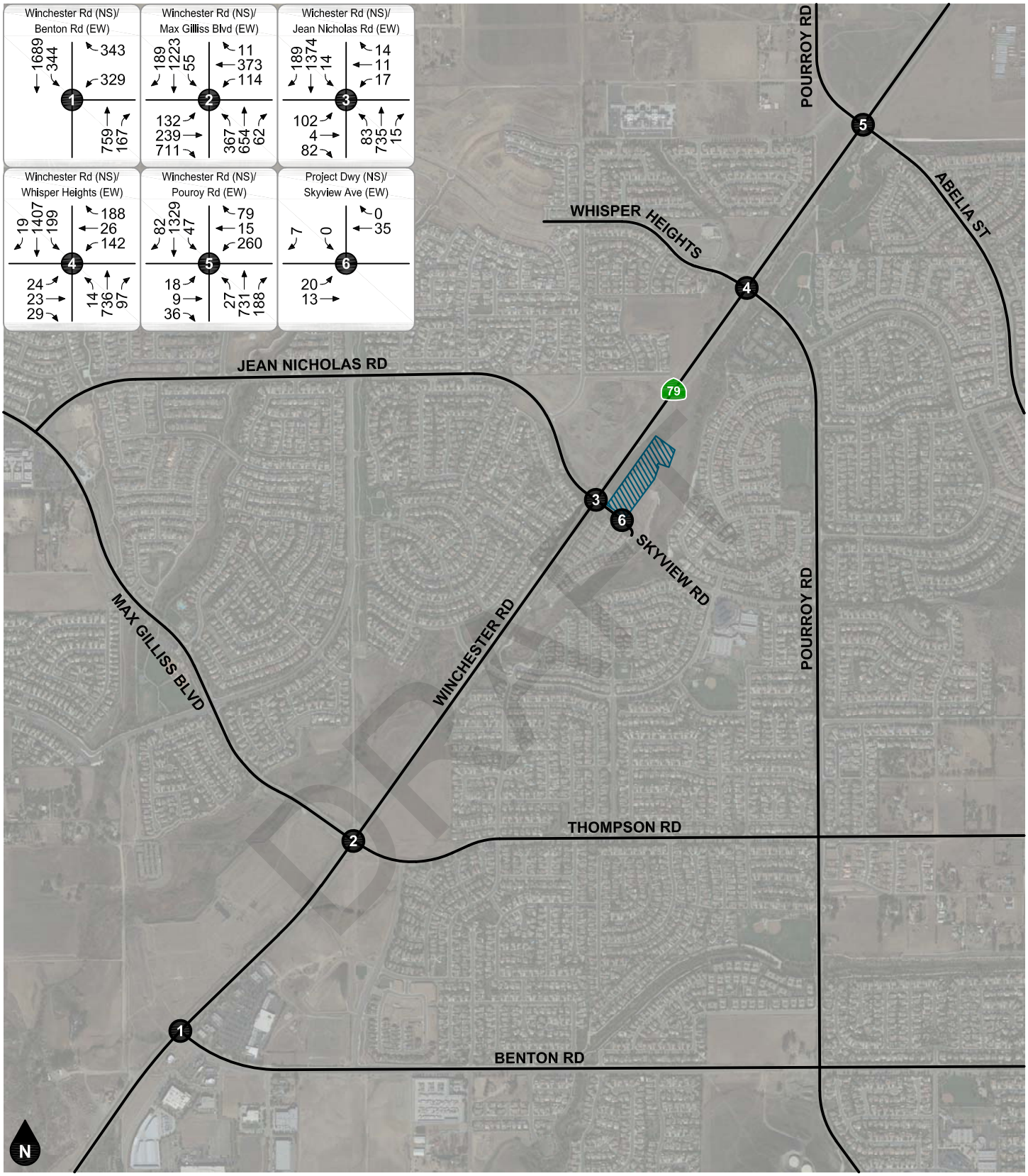
Figure 20
Other Development
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 21
Existing Plus Project Average Daily Traffic Volumes

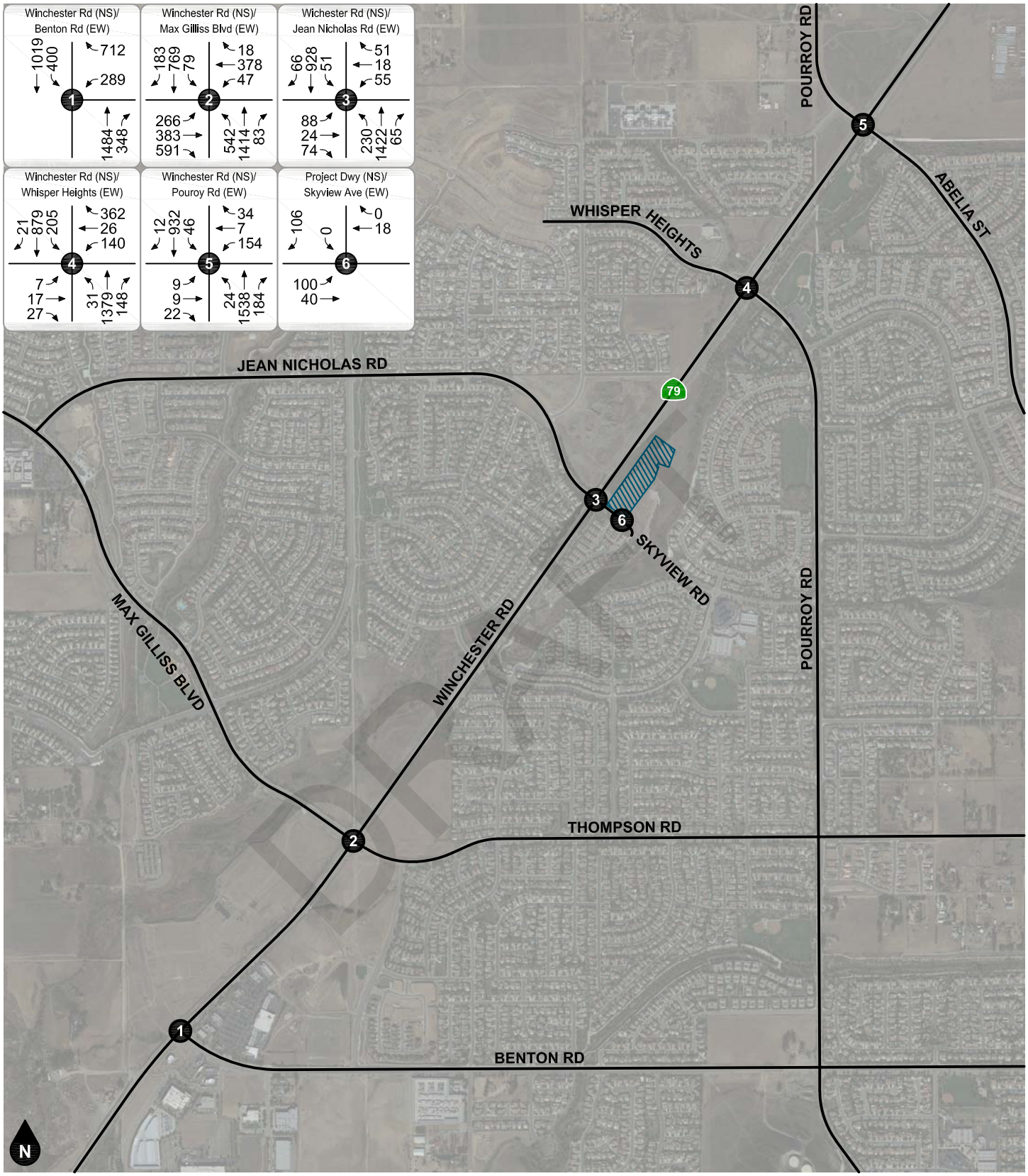


Legend

Study Intersection

Project Site

Figure 22
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes

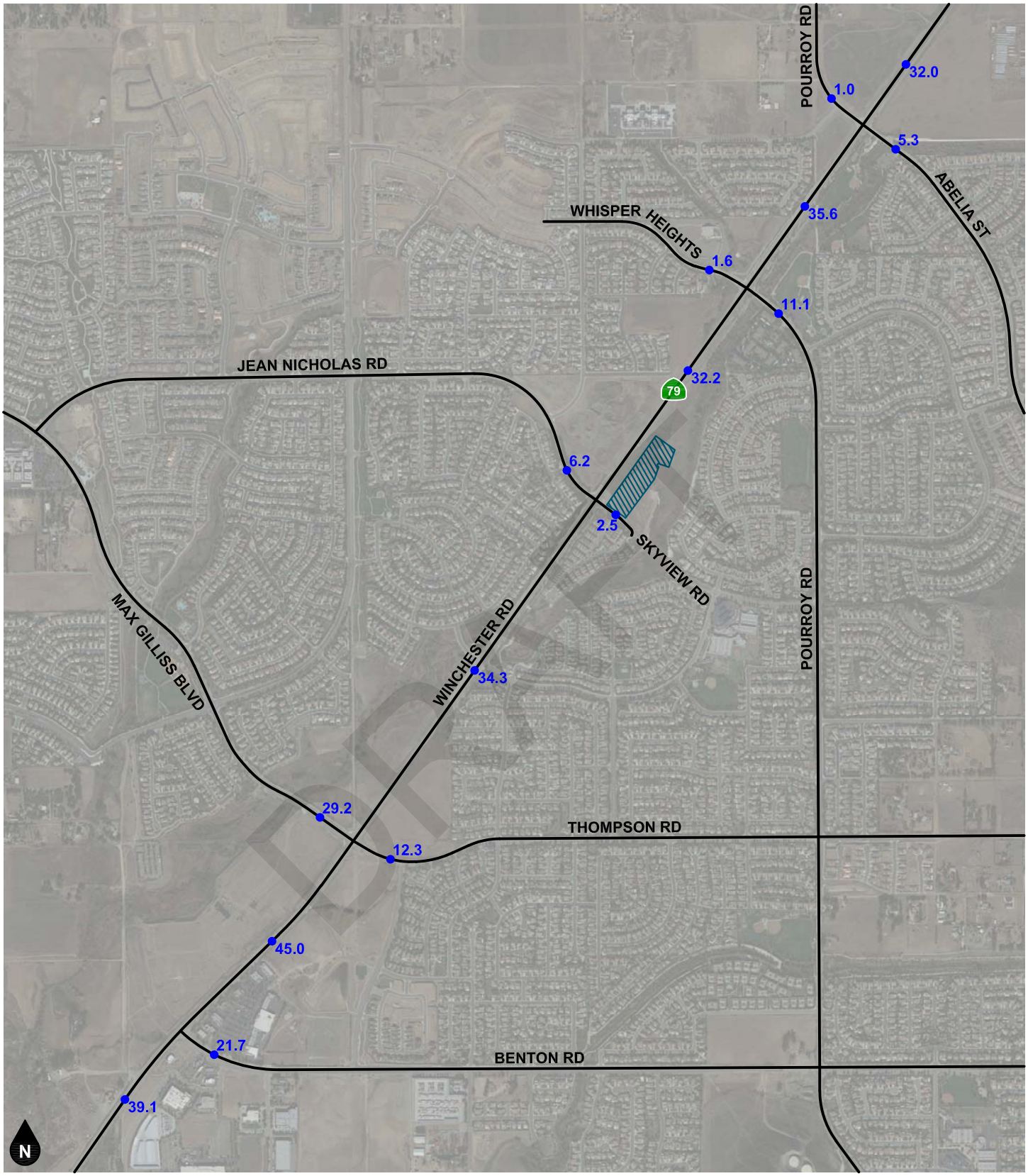


Legend

(#) Study Intersection

Project Site

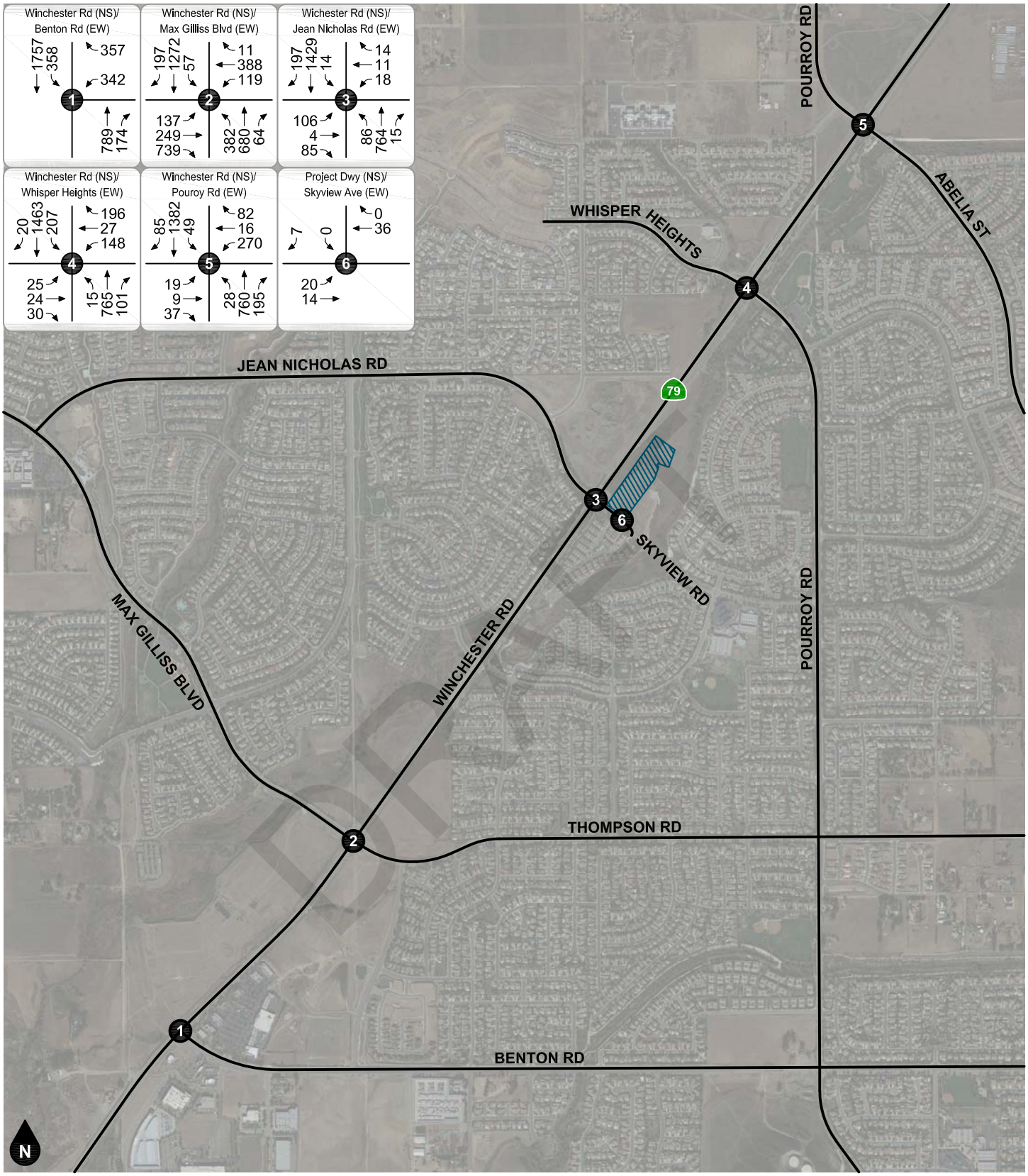
Figure 23
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 24
Existing Plus Ambient Plus Project Average Daily Traffic Volumes

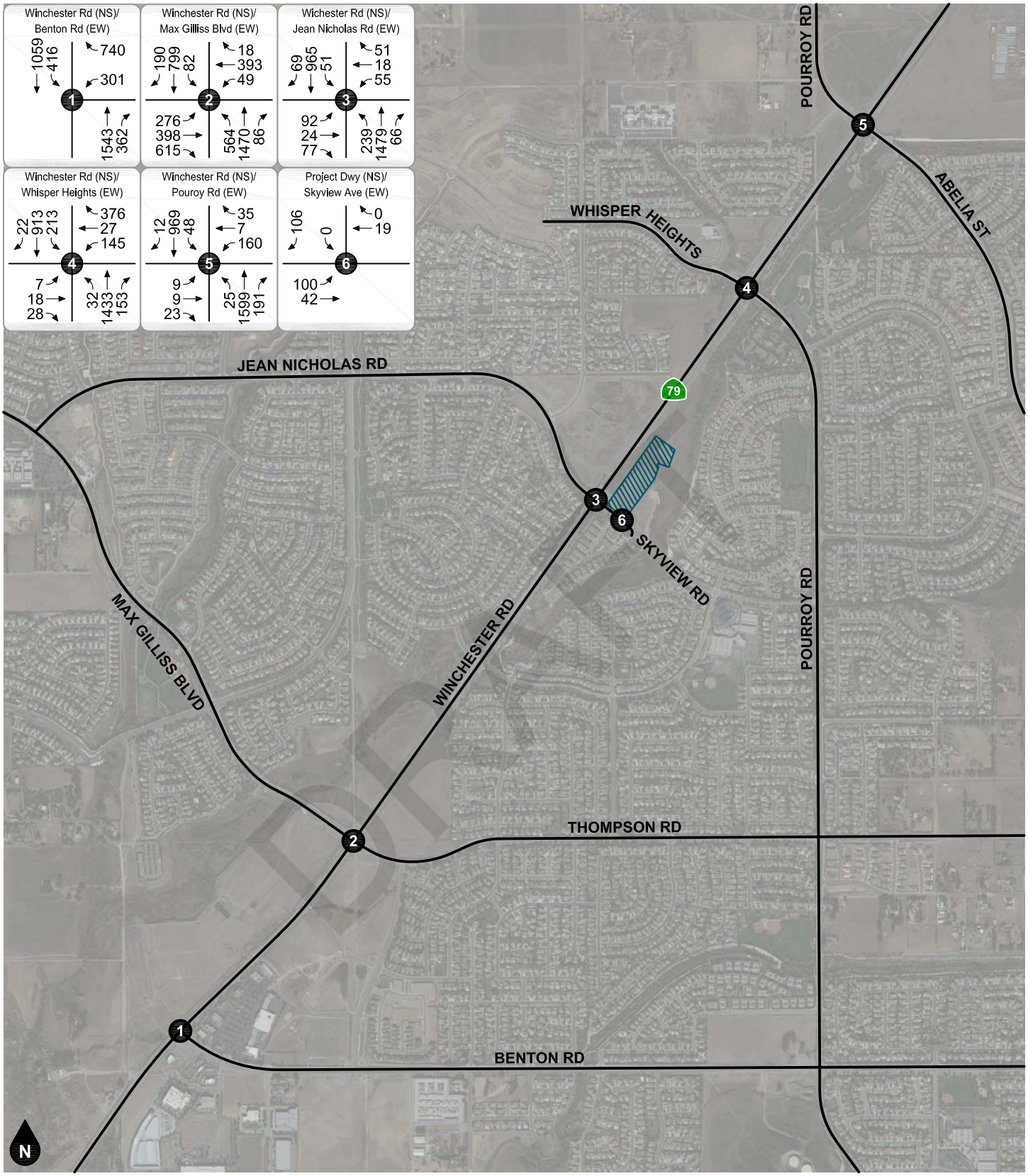


Legend

Study Intersection

Project Site

Figure 25
Existing Plus Ambient Plus Project
AM Peak Hour Intersection Turning Movement Volumes

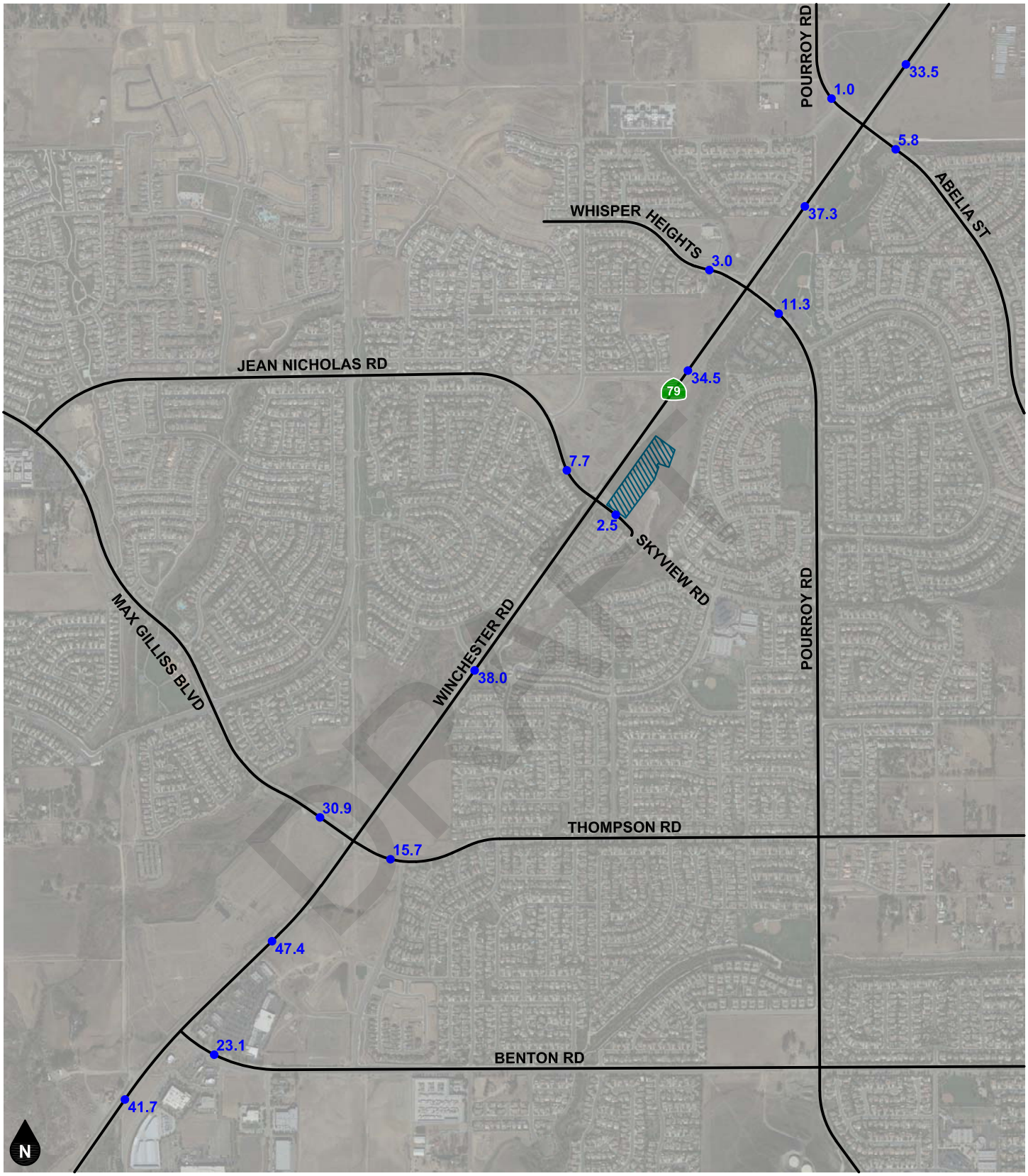


Legend

(#) Study Intersection

Project Site

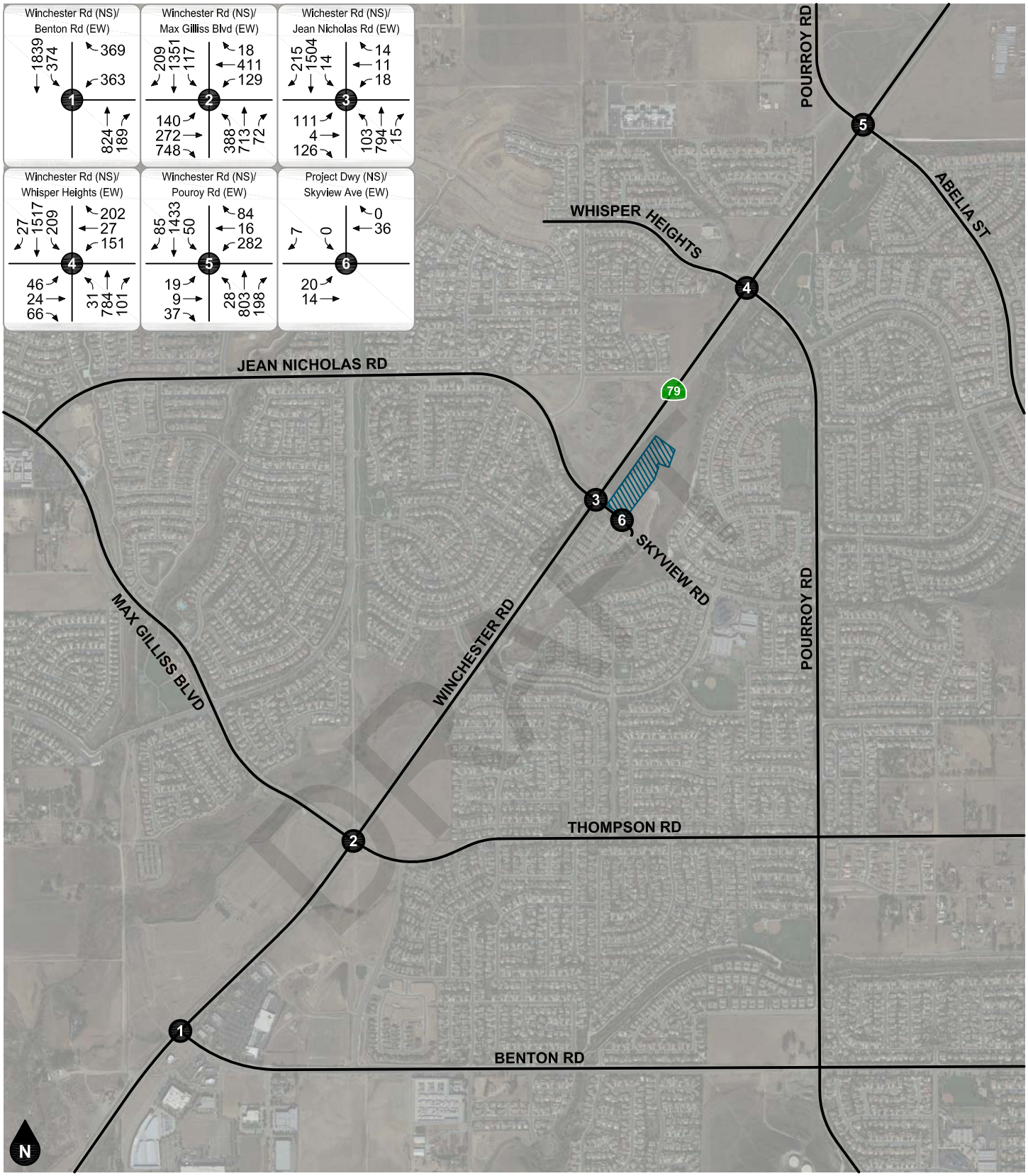
Figure 26
Existing Plus Ambient Plus Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 27
Existing Plus Ambient Plus Project Plus Cumulative Average Daily Traffic Volumes

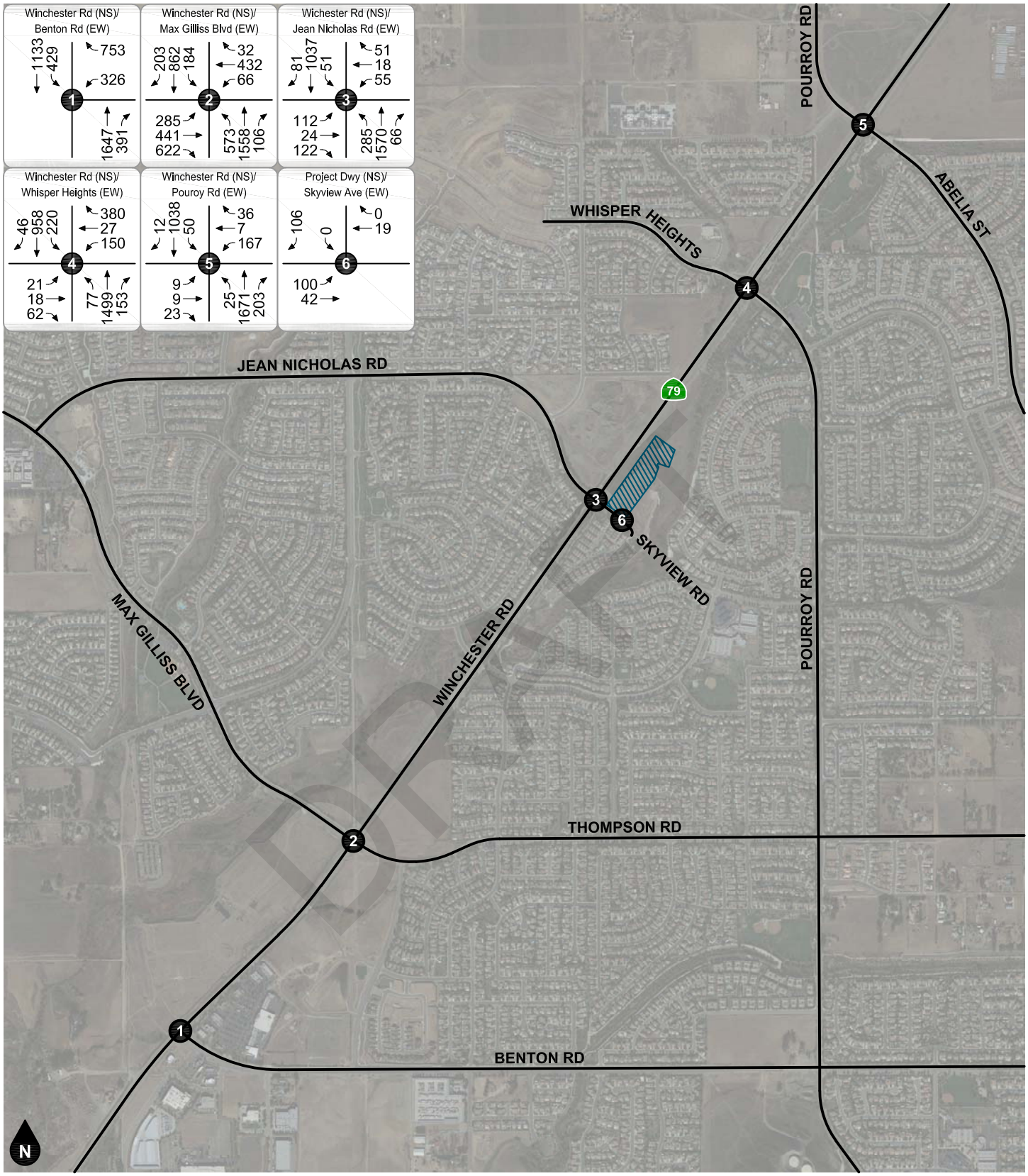


Legend

Study Intersection

Project Site

Figure 28
Existing Plus Ambient Plus Project Plus Cumulative
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Project Site

Figure 29
Existing Plus Ambient Plus Project Plus Cumulative
PM Peak Hour Intersection Turning Movement Volumes

6. FUTURE OPERATIONAL ANALYSIS

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix D.

EXISTING PLUS PROJECT

The intersection Levels of Service for Existing Plus Project conditions are shown in Table 4. As shown in Table 4, the study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions, except for the following study intersection that is forecast to continue operating at Level of Service E during the AM peak hour and deteriorate from Level of Service D to E during the PM peak hour:

- Winchester Road [SR-79] at Max Gilliss Boulevard/Thompson Road – #2 (AM/PM peak hours – LOS E)

The following mitigation measure has been identified to reduce the project impact to a less than significant level for Existing Plus Project conditions:

Mitigation Measure #1:
The proposed project shall be responsible for implementing the following improvements prior to project occupancy:

- Winchester Road [SR-79] (NS) at Max Gilliss Boulevard/Thompson Road (EW) – #2
  - Restripe the eastbound approach to provide a second left turn lane.

With implementation of Mitigation Measure #1, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Project conditions during the AM and PM peak hours.

EXISTING PLUS AMBIENT PLUS PROJECT

The intersection Levels of Service for Existing Plus Ambient Plus Project conditions are shown in Table 5. As shown in Table 5, the study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Ambient Plus Project conditions, except for the following study intersection that is forecast to continue operating at Level of Service E during the AM peak hour and deteriorate from Level of Service D to E during the PM peak hour:

- Winchester Road [SR-79] at Max Gilliss Boulevard/Thompson Road – #2 (AM/PM peak hours – LOS E)

In addition to the improvements identified in Mitigation Measure #1, the following additional improvement has been identified to reduce the project impact to a less than significant level for Existing Plus Ambient Plus Project conditions:

- Winchester Road [SR-79] (NS) at Max Gilliss Boulevard/Thompson Road (EW) – #2
  - Construct a second northbound left turn lane.

With implementation of Mitigation Measure #1 and improvements funded by adopted development impact fee programs, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Ambient Plus Project conditions during the AM and PM peak hours; no additional mitigation is required.

Since the additional improvement is required with the addition of background ambient growth to existing conditions, but not with the addition of project-generated trips alone, the improvement is considered to mitigate a cumulative impact. Cumulative impacts may be mitigated by fair share contributions via development impact fees. Available funding mechanisms are discussed in the following analysis scenario below.

EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE

The intersection Levels of Service for Existing Plus Ambient Plus Project Plus Cumulative conditions are shown in Table 6. As shown in Table 6, the study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Ambient Plus Project Plus Cumulative conditions, except for the following study intersection that is forecast to continue operating at Level of Service E during the AM peak hour and deteriorate from Level of Service D to F during the PM peak hour:

- Winchester Road [SR-79] at Max Gilliss Boulevard/Thompson Road – #2 (AM – LOS E, PM – LOS F)

The following improvements have been identified to reduce the cumulative project impact to a less than significant level:

- Winchester Road [SR-79] (NS) at Max Gilliss Boulevard/Thompson Road (EW) – #2
  - Northbound: Construct a second left turn lane and a dedicated right turn lane.
  - Southbound: Construct a third through lane
  - Eastbound: Restripe to provide a second left turn lane.

The proposed intersection improvements are also identified in the Clinton Keith Road Extension Project Traffic Operations Analysis (LSA Associates, May 2015). Funding for improvements at Winchester Road [SR-79] and Max Gilliss Boulevard is available through development impact fees assessed to private development projects by the County of Riverside Road and Bridge Benefit District (RBBD) and the Western Riverside Council of Governments Transportation Uniform Mitigation Fee (TUMF) programs. The proposed development is exempt from development impact fees since it is a public project. No additional mitigation measures are necessary.

With implementation of improvements funded by adopted development impact fee programs, the proposed project is forecast to result in no significant traffic impacts at the study intersections for Existing Plus Ambient Plus Project Plus Cumulative conditions during the AM and PM peak hours; no additional mitigation is required.

Table 4
Existing Plus Project Intersection Levels of Service

Study Intersection	Traffic Control[2]	AM Peak Hour		PM Peak Hour	
		Delay[3]	LOS[4]	Delay[3]	LOS[4]
1. Winchester Rd at Benton Rd	TS	13.9	B	30.6	C
2. Winchester Rd at Max Gilliss Blvd/Thompson Rd	TS	55.6	E	57.4	E
- With Improvements[5]	TS	52.2	D	43.3	D
3. Winchester Rd at Jean Nicholas Rd/Skyview Rd	TS	13.7	B	18.5	B
4. Winchester Rd at Whisper Heights/Pourroy Rd	TS	18.2	B	25.3	C
5. Winchester Rd at Pourroy Rd/Abelia St	TS	18.9	B	15.6	B
6. Project Dwy at Skyview Rd	CSS	7.3	A	7.9	A

Notes:

(1) County = County of Riverside; Caltrans = California Department of Transportation; Murrieta = City of Murrieta

(2) TS = Traffic Signal; CSS = Cross Street Stop

(3) Delay is shown in seconds/vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(4) LOS = Level of Service

(5) Additional eastbound left turn lane.

Table 5
Existing Plus Ambient Growth Plus Project Intersection Levels of Service

Study Intersection	Traffic Control[2]	AM Peak Hour		PM Peak Hour	
		Delay[3]	LOS[4]	Delay[3]	LOS[4]
1. Winchester Rd at Benton Rd	TS	14.8	B	35.6	D
2. Winchester Rd at Max Gilliss Blvd/Thompson Rd	TS	64.5	E	65.3	E
- With Improvements[5]	TS	54.3	D	41.2	D
3. Winchester Rd at Jean Nicholas Rd/Skyview Rd	TS	14.1	B	19.1	B
4. Winchester Rd at Whisper Heights/Pourroy Rd	TS	19.2	B	26.8	C
5. Winchester Rd at Pourroy Rd/Abelia St	TS	19.9	B	16.4	B
6. Project Dwy at Skyview Rd	CSS	7.3	A	7.9	A

Notes:

(1) County = County of Riverside; Caltrans = California Department of Transportation; Murrieta = City of Murrieta

(2) TS = Traffic Signal; CSS = Cross Street Stop

(3) Delay is shown in seconds/vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(4) LOS = Level of Service

(5) Additional northbound left turn lane and eastbound left turn lane

Table 6
Existing Plus Ambient Growth Plus Project Plus Cumulative Intersection Levels of Service

Study Intersection	Traffic Control[2]	AM Peak Hour		PM Peak Hour	
		Delay[3]	LOS[4]	Delay[3]	LOS[4]
1. Winchester Rd at Benton Rd	TS	15.6	B	42.4	D
2. Winchester Rd at Max Gilliss Blvd/Thompson Rd	TS	77.3	E	97.7	F
- With Improvements[5]	TS	39.1	D	53.9	D
3. Winchester Rd at Jean Nicholas Rd/Skyview Rd	TS	16.0	B	22.0	C
4. Winchester Rd at Whisper Heights/Pourroy Rd	TS	22.8	C	31.4	C
5. Winchester Rd at Pourroy Rd/Abelia St	TS	20.9	C	17.2	B
6. Project Dwy at Skyview Rd	CSS	7.3	A	7.9	A

Notes:

(1) County = County of Riverside; Caltrans = California Department of Transportation; Murrieta = City of Murrieta

(2) TS = Traffic Signal; CSS = Cross Street Stop

(3) Delay is shown in seconds/vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(4) LOS = Level of Service

(5) Additional northbound left turn lane, dedicated northbound right turn lane, additional eastbound left turn lane, and southbound through lane

7. CONCLUSIONS

PROJECT DESIGN FEATURES

The proposed project shall construct the following improvements to provide project site access:

Project Driveway at Skyview Road - #6

- Construct the project driveway to provide one inbound lane and one outbound lane with southbound stop-control.
- The existing eastbound lane on Skyview will allow shared through/left turn movements.
- The existing westbound lane on Skyview Road will allow shared through/right turn movements.
- The new southbound lane at the Project Driveway will allow shared left/right turn movements.

The project is not proposing secondary access to the project site. Since the proposed development is located adjacent to Winchester Road (SR-79), emergency vehicles have the ability to park on the east side of Winchester Road adjacent to the project site in the event that the project driveway was inaccessible.

LEVEL OF SERVICE SUMMARY

Table 7 shows a summary of the intersection Level of Service analysis for the scenarios evaluated.

MITIGATION MEASURES

Mitigation Measure #1:
The proposed project shall be responsible for implementing the following improvements prior to project occupancy:

- Winchester Road [SR-79] (NS) at Max Gilliss Boulevard/Thompson Road (EW) – #2
  - Restripe the eastbound approach to provide a second left turn lane.

With implementation of improvements funded by the RBBD and TUMF programs, the proposed project is forecast to result in no significant traffic impacts at the study intersections for cumulative conditions during the AM and PM peak hours; no additional mitigation is required.

GENERAL RECOMMENDATIONS

All roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project should be constructed in accordance with applicable engineering standards and to the satisfaction of the County of Riverside Transportation & Land Management Department.

Site-adjacent roadways should be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the County of Riverside Transportation & Land Management Department.

On-site traffic signing and striping plans should be submitted for County of Riverside approval in conjunction with detailed construction plans for the project.

Off-street parking should be provided to meet County of Riverside Municipal Code requirements.

The final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable County of Riverside/California Department of Transportation sight distance standards.

As is the case for any roadway design, the County of Riverside should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

Table 7

Summary of Intersection Levels of Service

Study Intersection	Peak Hour Delay-LOS[1]							
	Existing		Existing Plus Project		Existing Plus Ambient Plus Project		Existing Plus Ambient Plus Project Plus Cumulative	
	AM	PM	AM	PM	AM	PM	AM	PM
1. Winchester Rd at Benton Rd	13.9-B	29.5-C	13.9-B	30.6-C	14.8-B	35.6-D	15.6-B	42.4-D
2. Winchester Rd at Max Gilliss Blvd/Thompson Rd	55.2-E	53.4-D	55.6-E	57.4-E	64.5-E	65.3-E	77.3-E	97.7-F
- With Improvements	--	--	52.2-D	43.3-D	54.3-D	41.2-D	39.1-D	53.9-D
3. Winchester Rd at Jean Nicholas Rd/Skyview Rd	13.2-B	13.7-B	13.7-B	18.5-B	14.1-B	19.1-B	16-B	22-C
4. Winchester Rd at Whisper Heights/Pourroy Rd	18.1-B	24.8-C	18.2-B	25.3-C	19.2-B	26.8-C	22.8-C	31.4-C
5. Winchester Rd at Pourroy Rd/Abelia St	18.7-B	14.9-B	18.9-B	15.6-B	19.9-B	16.4-B	20.9-C	17.2-B
6. Project Dwy at Skyview Rd	--	--	7.3-A	7.9-A	7.3-A	7.9-A	7.3-A	7.9-A

Notes:

(1) Delay shown in seconds per vehicle; LOS = Level of Service.

APPENDICES

APPENDIX A

GLOSSARY

GLOSSARY OF TERMS

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
LOS	Level of Service
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CONTROL DELAY: The component of delay, typically expressed in seconds per vehicle, resulting from the type of traffic control at an intersection. Control delay is measured by comparison with the uncontrolled condition; it includes delay incurred by slowing down, stopping/waiting, and speeding up.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.

CYCLE LENGTH: The time period in seconds required for a traffic signal to complete one full cycle of indications.

CUL-DE-SAC: A local street open at one end only and with special provisions for turning around.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENT (PCE): A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SHARED/RECIPROCAL PARKING AGREEMENT: A written binding document executed between property owners to provide a designated number of off-street parking stalls within a designated area to be available for specified businesses or land uses.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queueing to occur.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle on the major roadway travelling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 6 inches above the pavement.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

SCOPING AGREEMENT

Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the Riverside County Transportation Department requirements for traffic impact analysis of the following project. The analysis must follow the Riverside County Transportation Department Traffic Study Guidelines dated April 2008.

Case No. _____
Related Cases -
SP No. _____
EIR No. _____
GPA No. _____
CZ No. _____
Project Name: French Valley Library Facility Project
Project Address: Northeast of Winchester Road and Skyview Road
Project Description: 25,000 Square Foot Library

	Consultant	Developer
Name:	Ganddini Group, Inc./ Bryan Crawford	CFP Riverside, LLC/ Steve Collins
Address:	550 Parkcenter Dr. Suite 202	18336 Minnetonka Boulevard, Suite C
	Santa Ana, Ca 92705	Deephaven, Minnesota 55391
Telephone:	714-795-3100 ext 104	
Fax:	bryan@ganddini.com	

A. Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation, 10th Edition, 2017

Current GP Land Use _____ Proposed Land Use _____

Current Zoning _____ Proposed Zoning _____

Current Trip Generation	In	Out	Total	Proposed Trip Generation In	Out	Total
AM Trips	-	-	-	18	7	25
PM Trips	-	-	-	98	106	204

Internal Trip Allowance ☐ Yes ☒ No (_____ % Trip Discount)
Pass-By Trip Allowance ☐ Yes ☒ No (_____ % Trip Discount)

A passby trip discount of 25% is allowed for appropriate land uses. The passby trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: N 45 % S 40 % E 0 % W 15 %
(attach exhibit for detailed assignment)

C. Background Traffic

Project Build-out Year: 2021 Annual Ambient Growth Rate: 2.0 %

Phase Year(s) _____
Other area projects to be analyzed: Please provide cumulative data.

Model/Forecast methodology Manual build up approach

D. Study intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. Winchester Rd SR-79 (NS) at Benton Rd (EW)
2. Winchester Rd SR-79 (NS) at Max Gilliss Blvd/Thompson Rd (EW)
3. Winchester Rd SR-79 (NS) at Jean Nicholas Rd/Skyview Rd (EW)
4. Winchester Rd SR-79 (NS) at Whisper Heights/Pourroy Rd (EW)
5. Winchester Road SR-79 (NS) at Abelia St/Pourroy Rd (EW)
6. Project Driveway (NS) at Skyview Rd(EW)
7.
8.
9.
10.

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

E. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? [X] Yes [ ] No

If so, name of City Jurisdiction: City of Murrieta

F. Site Plan (please attach reduced copy) See Figure 2

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Transportation Department)
(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts New Counts

***NOTE* Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to receipt of the fee.**

Recommended by:

Bryan Crawford — 9/4/2019
Consultant's Representative — Date

Scoping Agreement Submitted on _____

Revised on _____

Approved Scoping Agreement:

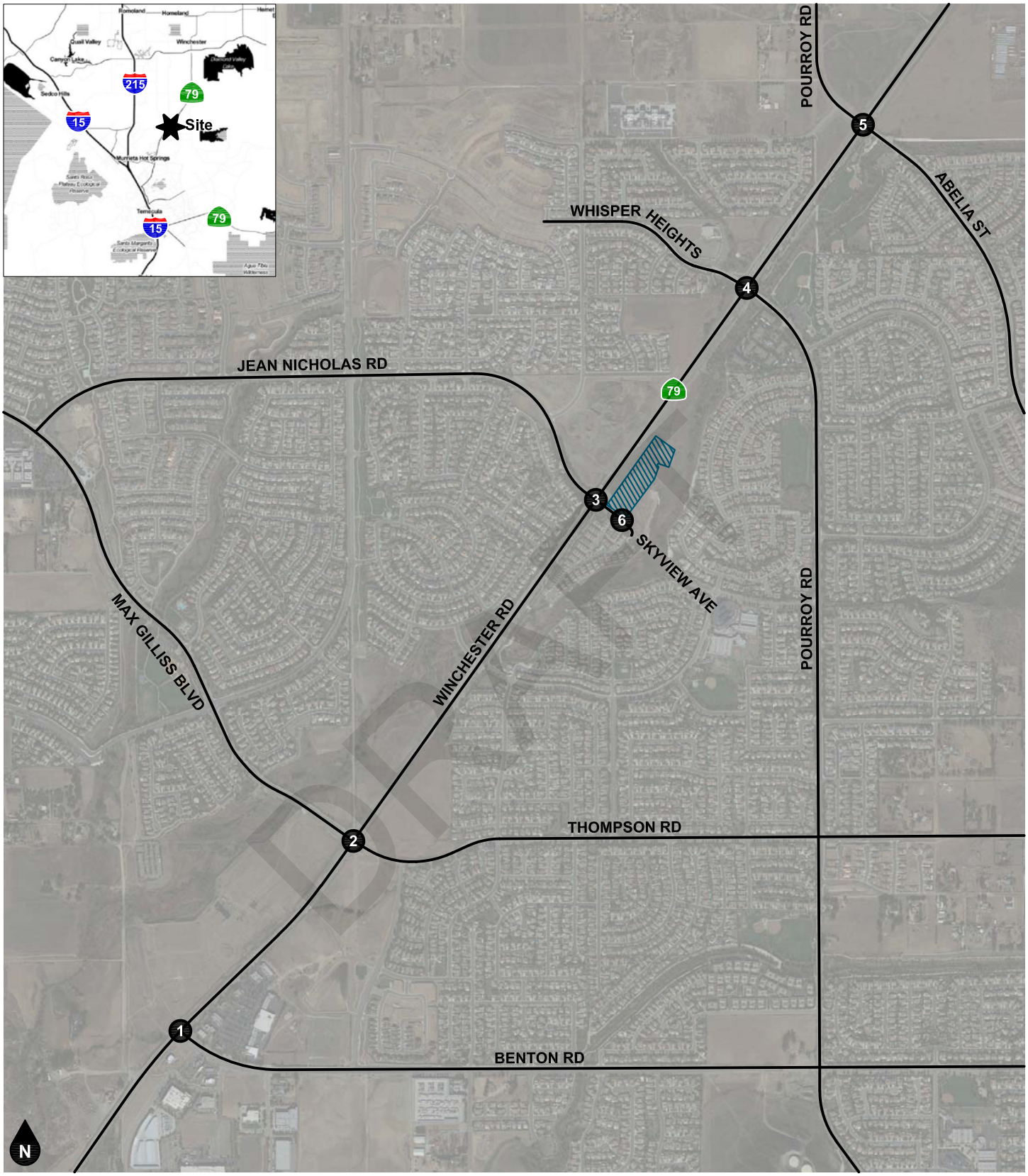
_____ — _____
Riverside County Transportation Department — Date

Table 1
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use	Source[1]	Units[2]	% In	% Out	Rate	% In	% Out	Rate	Rate
Library	ITE 590	TSF	71%	29%	1.00	48%	52%	8.16	72.05

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[2]	In	Out	Total	In	Out	Total	Daily
Library	25.000	TSF	18	7	25	98	106	204	1,801

Notes:
1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; 590 = Land Use Code
2) TSF = Thousand Square Feet

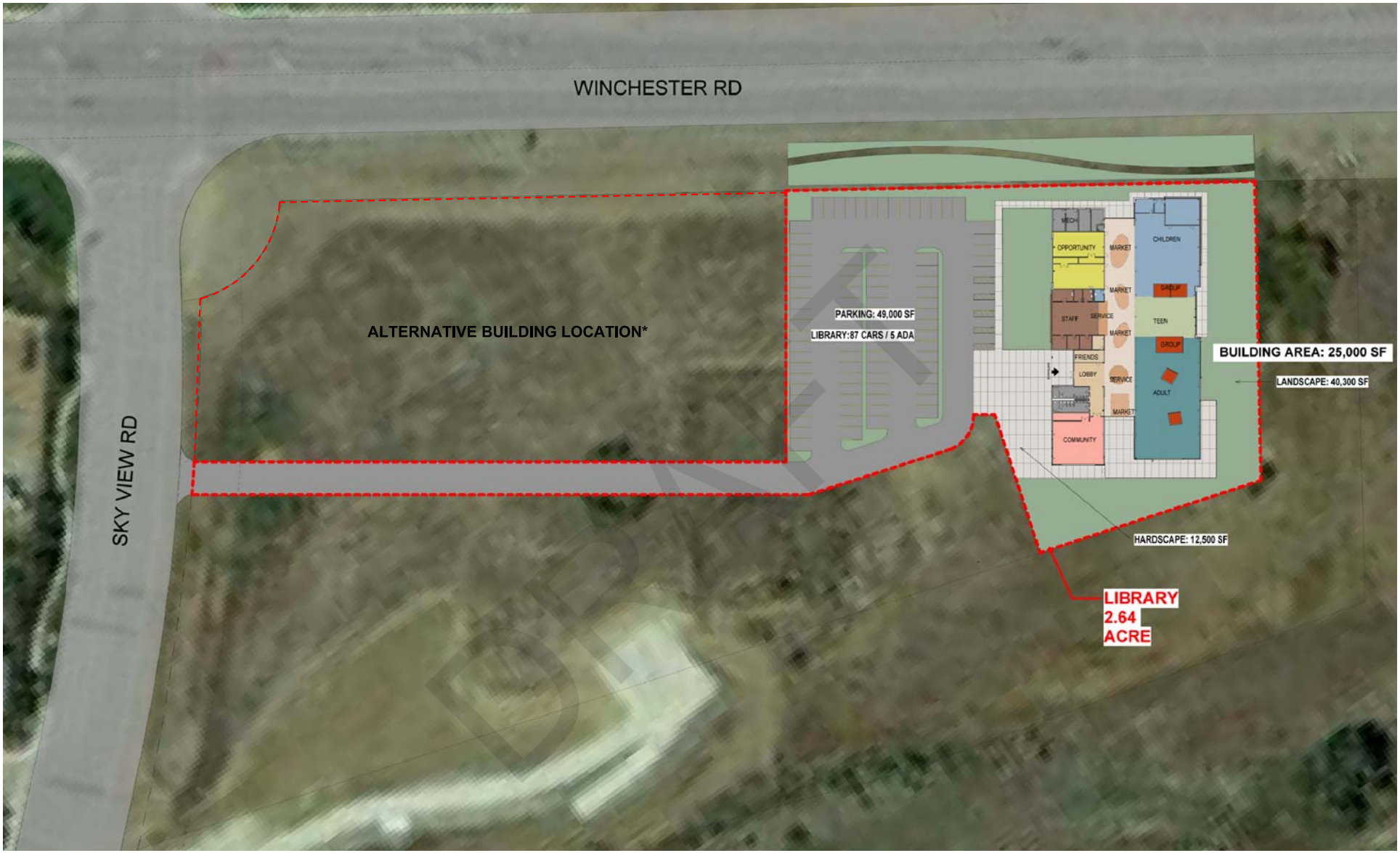


Legend

(#) Study Intersection

Project Site

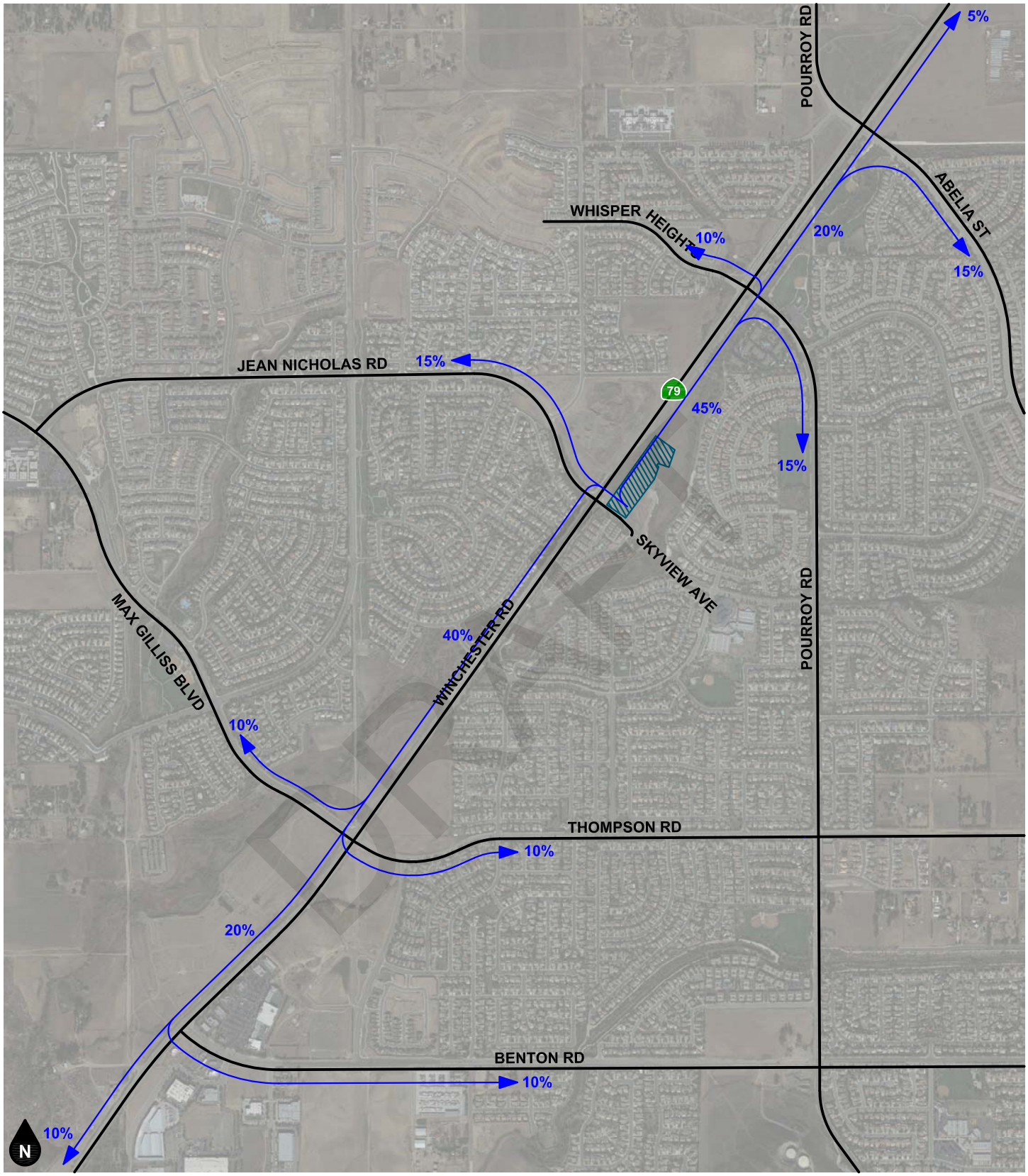
Figure 1
Project Location Map



* The project building may potentially be located closer to Sky View Road; however, the access would remain at Sky View Road.

Source: CannonDesign

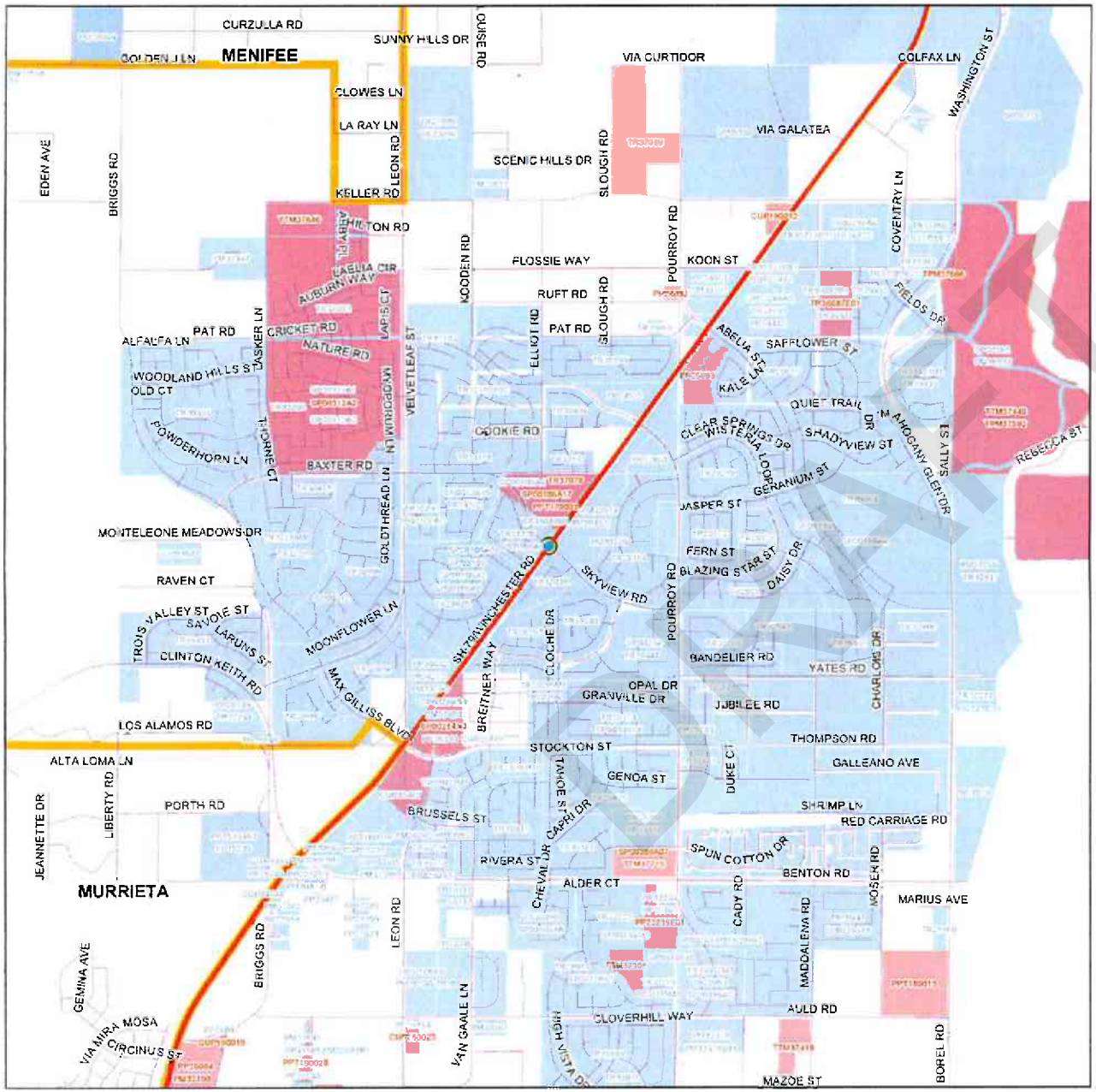
Figure 2
Draft Site Plan



Legend

10% Percent From/To Project

Figure 3
Project Trip Distribution



The County of Riverside assumes no warranty or legal responsibility for the information contained on this map. Data and information retrieved with this map is subject to updates, modifications and may not be complete or appropriate for all purposes. County GIS and other sources should be contacted for the most current information. Do not copy or resell this map.

N

Cities (Outline)

Active Major Cases (CUP, PM, PP, PUP, SP, TR)

Approved Major Cases (CUP, PM, PP, PUP, SP, TR)

0 1,000 2,000 4,000 Feet

Printed by ltsang on 5/18/10

Active Cases as of 9/16/2019

- Active & not Approved

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
CUP180023	LDC REVIEW	10/22/2018		
SERVICE AND GAS STATIONS, CONVENIENCE STORE AND CAR WASHES				
CUP190012	LDC REVIEW	7/12/2019		
PROPOSING A CONSTRUCTION OF A SELF STORAGE BUILDING CONSISTING OF SEVEN ONE STORY BUILDINGS WITH AN OFFICE IN BUILDING A AND ONE THREE STORY BUILDING TOTALING 185,468 SF.				
CUP190019	APPLIED	8/26/2019		
CANNABIS RETAIL STORE				
PM37190	LDC REVIEW	8/19/2016		
SCHEDULE "E" PARCEL MAP - 6 LOTS				
PP23239E01	APPLIED	4/4/2019		
PP23239E01				
PP25693	LDC REVIEW	10/21/2014		
VERIZON-50 FT MONO-PINE CONSISTING OF TWELVE (12) PANEL ANTENNAS, TWO (2) PARABOLIC ANTENNAS, NINE (9) REMOTE RADIO UNITS, TWO (2) TOWER MOUNTED JUNCTION BOXES, FIVE (5) OUTDOOR EQUIPMENT CABINETS, THREE (3) GPS ANTENNAS, ONE STAND-BY GENERATOR, AND TWO (2) 50KVA TRANSFORMERS WITHIN AN APPROXIMATELY 440 SQUARE-FOOT LEASE AREA.				
PP26084	LDC REVIEW	8/19/2016		
CONSTRUCT A 351,060 SQ. FT. WALMART SHOPPING CENTER WITH RETAIL PADS, RESTURANT & OFFICE PADS APPROXIMATELY 44.35 ACRES				
PP26092	LDC REVIEW	9/8/2016		
PH I/NEW CHURCH, HALL, SUNDAY SCHOOL CLASSES				
PPT170003	LDC REVIEW	12/19/2017		
APPROXIMATELY 168 CONDO UNITS WITH LOTS FOR OS AND WATER QUALITY. TR37078 A THREE 3 PARCEL RESIDENTIAL MAP, SERVES TO IMPLEMENT THE STANDARDS FOR SCHEDULE A SUBDIVISION.				
PPT180013	DH	4/18/2018		
PROPOSAL TO CONSTRUCT A WIRELESS COMMUNICATION FACILITY CONSISTING OF A 70 FOOT HIGH MONO-PINE FOR VERIZON WIRELESS WITH 12 PANEL ANTENNAS, ONE (1) 4-FOOT PARABOLIC ANTENNA DISH, ONE (1) 2-FOOT PARABOLIC ANTENNA DISH, 12 REMOTE RADIO UNITS, TWO (2) TOWER MOUNTED JUNCTION BOX UNITS, A 195 SQ. FT. EQUIPMENT SHELTER, AND A 30 KW GENERATOR WITHIN AN APPROXIMATE 900 SQ. FT. LEASE AREA ENCLOSED BY A 6-FOOT TALL DECORATIVE BLOCK WALL.				
PPT190020	ASSIGNED	6/27/2019		
SINGLE STORY INDUSTRIAL CONDOMINIUMS				
SP00106A17	LDC REVIEW	5/22/2006		
AMEND ZONES WITHIN SP				
SP00284A4	ADOPTED	9/14/2017		
SPECIFIC PLAN AMENDMENT TO SP284/AREAS 22 AND 23				

Active Cases as of 9/16/2019

– Active & Not Approved

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
SP00286A07	APPLIED	5/1/2019		
SPA FOR TTM37715 PROPOSED 145 RESIDENTIAL LOTS				
SP00312A2	ADOPTED	1/28/2016		
INCREASE DENSITY/EXTEND BOUNDARY OF SP 312				
TPM37592	LDC REVIEW	10/18/2018		
TPM37592 SCHEDULE J MAP				
TPM37666	LDC REVIEW	12/4/2018		
TENTATIVE PARCEL MAP SUBDIVIDE 1.15 GROSS ACRES TO 4 PARCELS				
TR36687E01	BOS	1/30/2019		2/2/2022
FIRST EXTENSION OF TIME FOR TR36687				
TR37078	LDC REVIEW	9/6/2016		
TENTATIVE TRACT MAP FOR CONDO DEVELOPMENT				
TR37089	LDC REVIEW	3/17/2017		
PROPOSE SCH B DEV 48.4 AC TO 21 SFR LOTS 2 OPEN SP				
TTM37308	LDC REVIEW	6/26/2018		6/25/2021
DIVIDE 11.09 AC INTO EIGHT LOTS				
TTM37418	LDC REVIEW	12/20/2017		12/19/2020
SUBDIVIDE 15.6 ACRES INTO SIX (6) 2.5 ACRE LOTS.				
TTM37449	LDC REVIEW	3/1/2018		
TENTATIVE TRACT MAP FOR 371 RESIDENTIAL LOTS				
TTM37646	LDC REVIEW	3/21/2019		3/20/2022
DIVIDE 13.7 ACRES INTO 55 RESIDENTIAL LOTS				
TTM37715	APPLIED	5/1/2019		4/30/2022
TTM37715 PROPOSED 145 RESIDENTIAL LOTS				

Approved Cases as of 09/16/2019

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
CUP01485	APPROVED	2/5/2008		
PROPOSAL FOR PLANNED RESIDENTIAL DEVELOPMENT				
CUP03295	APPROVED	8/16/1999		
CUP FOR RV/BOAT STORAGE W/CARETAKER QUARTERS.				
CUP03359	APPROVED	12/13/2001		4/15/2006
CHEVRON GAS STATION W/CONVENIENCE STORE & CAR WASH				
CUP03385	APPROVED	7/25/2002		
NEIGHBORHOOD SHOPPING CENTER				
CUP03467	APPROVED	9/13/2005		12/18/2010
SHOPPING CENTER W/ 106,278 SF HOME DEPOT W/ 34,760 SF OUTDOOR GARDEN CENTER, 3 MAJOR TENENTS TOTALING 91,182 SF, 5 DRIVE-THRU BUSINESSES TOTALING 20,506 SF, 4 PADS TOTALING 39,362 SF, ONE 6,258 SF SHOP, ONE 3,081 SF GAS STATION/CONVENINCE MARKET WITH T HE SALE OF BEER AND WINE, AND 1,454 PARKING SPACES .				
CUP03471	APPROVED	10/18/2005		12/13/2009
SELF STORAGE FACILITY ON 4.63 AC UNDER SHED. E				
CUP03681	APPROVED	3/6/2012		6/30/2035
WEDDING/SPECIAL EVENTS FACILITIES				
CUP03700	APPROVED	1/7/2014		
CONSTRUCT A NEW ARCO AM/PM STORE CONSISTING OF A 3 050 SQ.FT. COVENIENCE STORE (BLDG 1) WITH TYPE 20 (BEER AND WINE) AND OPEN 24 HOURS. ATTACHED TO TH E COVENEINCE STORE ARE TWO (2) RETAIL STORES (BLDG 2 = 1665 SQ.FT.) AND (BLDG 3 = 1560 SQ.FT.). PRO JECT ALSO CONSISTS OF A 3499 SQ.FT. CANOPY WITH SI X (6) FULEING DISPENSARIES AND AN 800 SQ.FT. CAR W ASH. - Built				
CUP03744	APPROVED	4/14/2016		
INDUSTRIAL BLDG W/BREWERY, WINE PRODUCTION/STORAGE 33,025sf Industrial Warehouse				
CUP03779	APPROVED	9/7/2017	15/4 23/24 443 - Trip Gen	
* NEW GASOLINE SERVICE STATION W/SALE OF BEER/WINE - PP26344				
PM28909	APPROVED	8/12/1998		3/29/2002
SUBDIVIDE 29.39 AC INTO FOUR PARCELS W/ 5 AC MIN.				
PM30239	APPROVED	6/8/2001		
DIVIDE 103.7 GROSS ACRES INTO 3 PARCELS				
PM30363	APPROVED	3/6/2002		10/7/2006
SUBDIVIDE 4.42 AC INTO 3 PARCELS				
PM30474	APPROVED	1/11/2002		4/15/2014
SCHED E DIVISION OF 5 AC INTO 4 PARCELS.				
PM30590	APPROVED	4/9/2002		
DIVIDE 5 ACRES INTO TWO 2.5 ACRE PARCELS				
PM30693	APPROVED	6/11/2003		6/8/2007
COMM. DEV. 16.05 ACRES INTO 12 COMMERCIAL LOTS				
PM30693M1	APPROVED	8/18/2005		11/20/2010
ADD DED EASEMNTS/ROW,CHANGE LL,REDUCE LTS/SEE DESC ADD LOTS A & B FOR DEDICATED EASEMENTS AND RIGHTS OF WAY, MODIFY LOT LINE SO AS NOT TO CROSS BLDG FOOTPRINTS, REDUCE # OF LOTS FROM 12 TO 11, REALIGN OTHER PARCELS TO ACCOMMODATE TENANTS				
PM30790	APPROVED	12/12/2002		7/13/2016
DIVIDE 20 ACRES INTO 19 CPS AND MSC LOTS AND 2 DET ENTION BASINS.				
PM30853	APPROVED	10/4/2002		10/7/2006
SCH "H" MAP-DIVIDE 10AC INTO (2) 5AC LOTS				

= Built / Expired = Built = Approved & not constructed (other developments)

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
PM31447	APPROVED	9/24/2003		
SUBDIVIDE 25.26 ACRES INTO 4 5AC PARCELS & 1 REMAI				
PM32379	APPROVED	5/7/2004		6/14/2018
(1) 21 AC PARCEL INTO (3) LOTS & ROAD REALIGNMENT				
PM32379E03	APPROVED	3/26/2018		6/14/2021
THIRD EXTENSION OF TIME PM32379				
PM32914	APPROVED	3/24/2005		2/6/2009
SCHED H SUBDIVISION OF 29.59 AC INTO 2 PARCELS				
PM33691	APPROVED	11/22/2005		3/25/2017
SCHED E DIVISION OF 82.07 AC INTO 11 PARCELS & 6 O				
PM33691R1	APPROVED	8/14/2012		
RECONDITION TRANSPORTATION CONDITIONS				
PM33750	APPROVED	7/20/2005		5/8/2020
SCHED E DIVISION OF 28.19 AC. INTO 3 PARCELS 1 OPE				
PM33859	APPROVED	9/30/2005		2/5/2011
SCHED H DIVISION OF 20 ACRES INTO 4 PARCELS.				
PM36049	APPROVED	6/9/2008		4/9/2015
SCH H DIVISION OF 29.5 AC INTO 2 PARCELS. THIS MAP IS INTENDED FOR LAND SALE ONLY. THE APPL ICANTS INTENTION IS TO ACQUIRE PARCEL 1 TO USE IT FOR A RETENTION/DETENTION BASIN FOR HIS ADJACENT C OMM'L PROJECT FOR THE REQUIREMENT OF THE COUNTY. T HEREFORE THIS APPLICANT IS NOT PLANNING ANY RESIDE NTIAL DEVELOPMENT				
PM36161	APPROVED	4/6/2009		8/5/2020
SCHEDULE E SUBDIVISION OF 23.66 AC. INTO 6 PARCELS				
PM36628	APPROVED	12/23/2014		
SCHEDULE I PARCEL MAP TO SUBDIVIDE 285.46 ACRES IN TO TEN (10) PARCELS				
PM37082	APPROVED	3/31/2016		1/4/2020
SCH E MAP/SUBDIVIDE 7 LOT INTO 2 PARCELS				
PM37259	APPROVED	12/1/2016		8/8/2020
DIVIDE 98 ACRES INTO 3 LOTS AS A FINANCE MAP				
PM37399	APPROVED	9/15/2017		
SUBDIVIDE 1 PARCEL INTO 15 PARCELS FOR COML RETAIL				
PM37404	APPROVED	9/7/2017		
SCH E MAP-SUBDIVIDE 3 EXISTING LOTS INTO 16 LOTS				
PP13046	APPROVED	11/21/1991		4/11/1999
ESTABLISH COMMERCIAL USES, BAKERY, RESTAURANT ETC IN SP 106 AMD 6 ESTABLISH DUTCH THEME COMMERCIAL USES EA 36136, SP 106 A#6, CZ 6101 SP 106, SP 106 A#1-A#6, CZ 5971				
PP15239	APPROVED	12/2/1997		9/21/2000
75' FT. MONOPOLE/ANTENNA FOR WIRELESS TELECOM SITE				
PP15239R1	APPROVED	2/28/2001		
REVISE PP15239-ADD SHELTER/ANNTENNAS TO TOWER UNMANNED CELLULAR ANTENNA FACILITY (SPRINT) 65' MONOPOLE/PREFAB CABINET/ANTENNAS				
PP16117	APPROVED	8/24/1999		8/19/2004
MINI STORAGE FACILITY				
PP17282	APPROVED	8/15/2001		
CONSTRUCT TWO 23,467 SF DISTRIBUTION FACILITIES				

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
PP17367	APPROVED	9/28/2001		12/22/2005
85 FT MONOPINE W/12 ANTENNAS				
PP18411	APPROVED	1/23/2003		
204 MULTI FAMILY CONDO UNITS IN 34 BLDGS				
PP19317	APPROVED	3/24/2004		10/31/2007
7,143 SQ. FT. CHILD CARE CENTER				
PP19414	APPROVED	5/3/2004		1/23/2010
PP FOR 3-STORY COM. OFF. BLDG ON 4.2 AC IN A-1-5				
PP19442	APPROVED	5/13/2004		3/13/2009
186 MULTI-FAMILY CONDOMINIUMS W/I 32 BUILDINGS				
PP19962	APPROVED	11/9/2004		4/18/2008
PLOT PLAN FOR 140 CONDO UNITS WITH TR33170				
PP20375	APPROVED	3/23/2005		1/12/2014
PROPOSED FARMER BOYS RESTAURANT W/DRIVE TRHU LANE				
PP20392	APPROVED	3/30/2005		7/10/2010
BOYS & GIRLS CLUB FACILITY				
PP20682	APPROVED	7/21/2005		
MINI STORAGE				
PP21024	APPROVED	10/28/2005		7/31/2009
THE CONSTRUCTION OF A 51,314 SQUARE FOOT BUILDING TO BE USED FOR A FRITO LAY DISTRIBUTION CENTER AND FOUR TENANT SPACES INCLUDING 33,159 SQUARE FEET O F LANDSCAPING AND 115 PARKING STALLS. TOTALING 84, 473 SQ. FT.				
PP21163	APPROVED	11/22/2005		2/25/2013
27 1STORY OFFICE BLDGS 39 1STORY INDUSTRIAL BLDGS, 67,813 AND 214,288 SQ. FT. RESPECTIVELY, PLUS 879 PARKING SPACES AND APPROX. 199,450 SQ. FT. OF LAND SCAPING.				
PP22650	APPROVED	3/20/2007		12/17/2009
174 APTS UNITS WITHIN 9 3STORY BLDG /SING CLUB HSE				
PP23239	APPROVED	12/27/2007		4/6/2011
CONSTRUCT A 44 FEET MONOPINE WIRLESS FACILITY				
PP23860	APPROVED	10/30/2008		9/21/2011
70' BROADLEAF TREE W/9 ANTENNAE & 160 SQ FT EQUIPM ENT SHELTER/ 722 SQ FT LEASE AREA				
PP23975	APPROVED	2/4/2009		9/14/2011
CONSTRUCT A 24,605 S.F. BLDG FOR EXOTIC ELECTRO OP				
PP24054	APPROVED	4/6/2009		8/5/2017
160,680 SF MIX OF COMMERCIAL, RESTAURANT, FINANCIA L AND DAYCARE USES ON 23.66 ACRES, CONSTRUCTED IN 3 PHASES				
PP24903	APPROVED	3/31/2011		5/1/2016
CHURCH CAMPUS TOTALING 80,673 SF IN 3 PHASES				
PP25183	APPROVED	8/14/2012		
331,003 S.F. 57 UNIT INDUSTRIAL OFFICE COMPLEX				
PP25793	APPROVED - Built	4/3/2015		
DENNY'S RESTAURANT-4320SF/EL POLLO RESTRNT-2975SF DENNY'S RESTAURANT IS LOCATED ON PARCEL 2 AND EL POLLO LOCO IS LOCATED ON PARCEL 1 OF PM30474.				
PP25848	APPROVED	7/16/2015		
VERIZON MODIFY EXISTING BY-RIGHT CELL TOWER				

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
PP25998	APPROVED	3/28/2016		
156,499 SF MULTI-BLDG. SELF STORAGE/RV STORAGE FAC ILITY WITH OFFICE IN 2 PHASES. 38 COVERED AND OPE N RV SPACES. 6 SINGLE STORY MULTI-UNIT STORAGE BUI LDINGS TOTALING 106,999 SF IN PHASE 1 AND ONE 2-ST ORY MULTI-UNIT STORAGE BLDG AND RV STORAGE IN PHAS E 2. – Built				
PP26047	APPROVED	6/16/2016		
1 STORY OFFICE BUILDING -2,880SF				
PP26212	APPROVED +PP 20682	3/1/2017		
PLOT PLAN FOR DRIVE-THRU CARWASH – 114,133 SF Mini Storage 4,795SF Car Wash				
PP26249	TENT. APPROV	4/26/2017		
SUBDIVISION AND DEVEL OF SINGLE FAM DWLG ON 48 LOT -TR 37294				
PP26309	APPROVED	7/6/2017		
TEN27 CHURCH-TO OCCUPY EAST HALF OF EXIST BUILDING				
PP26344	APPROVED	9/7/2017		
DEVELOP 133,877SF SHOPPING CENTER INCLUDING-RETAIL /FAST-FOOD/GROCERY/BANK/OTHER USES				
PPT180016	APPROVED	6/5/2018 – 49,100 SF Retail + 89,395 SF Business Park		
PLOT PLAN FOR 15 COMM BLDGS W/ TOTAL AREA OF 138,495SF ON 15 SEP. LOTS				
SP00106	APPROVED	1/10/1973		
SP ON 2,866 ACRES WITH 2,919 DU'S ON 2,630 RESIDEN TIAL ACRES, 64.5 ACRES OF COMMERCIAL, * SP 106 A#1-A#6, SP 284, CZ 5971, CZ 6101, PP 13046 SP 106 A#1-A#6, SP 284, CZ 5971, CZ 6101, PP 13046				
SP00106A2	APPROVED	6/30/1981		
AMEND 2,866 ACRES OF SP 106 BY DELETING 1,618 ACRE S AND REALLOCATING LAND USES ON 1248 ACRES, * EA 13422 SP 106, SP 106 A#1-A#6, SP 284, CZ 5971,CZ 6101*				
SP00106A3	APPROVED	7/3/1985		
AMEND SP 106 BY DELETING COND. 45 REQUIRING WATER & SEWER IN 3 YRS & REALLOCATING USES ON 1248 AC* EA 20140 SP 106, SP 106 A#1-A#6, SP 284, CZ 5971,CZ 6101*				
SP00106A4	APPROVED	1/14/1989		
AMEND 28.7 AC OF SP 106 FROM RESIDENT. W/ 6 DU'S T O 16.7 AC OF COMMERCIAL & 12.17 AC OF INDUSTRIAL EA 33795, CZ 5464 SP 106, SP 106 A#1-A#6, SP 284, CZ 5971,CZ 6101*				
SP00106A5	APPROVED	2/5/1991		
AMEND 30.1 ACRES OF SP 106 FROM RESIDENTIAL W/ 4 D U'S TO 30.1 ACRES OF INDUSTRIAL EA 35732, CZ 5971 SP 106, SP 106 A#1-A#6, SP 284, CZ 6101,PP 13046				
SP00106A7	APPROVED	8/6/1998		
CHANGE DESIGNATION TO 3.0 DU/AC & 3.7 DU/AC				
SP00106A8	APPROVED	1/22/1999		
CHANGE FROM AG DESIGNATION TO SINGLE FAMILY				
SP00106A9	APPROVED	1/25/2000		
CHANGE INDUSTRIAL DESIGNATION TO SFR.				
SP00106AA	APPROVED	3/7/2001		
AMEND LAND USE DESIG.FOR PORTIONS OF PA8,PA9,PA10, PA1B AND PA1C TO MEDIUM DENSITY RESIDENTIAL (3-5DU /AC)				
SP00106AB	APPROVED	12/12/2002		
AMEND SP00106 TO CHANGE LAND USE DESIGNATIONS ON A PPROXIMATELY 20 ACRES FROM VERY LOW DENSITY RESIDE NTIAL (2.5 AC MIN LOT SIZE), LOW DENSITY RESIDENTI AL (1 AC MIN LOT SIZE), OPEN SPACE, AND LOW DENSIT Y RESIDENTAK (0.5 AC MIN LOT SIZE) TO COMMERCIAL, OPEN SPACE, AND MANUFACTURING-SERVICE COMMERCIAL.				

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
SP00106AC	APPROVED	12/17/2002		
CHANGE DESIG FROM 5 AC MIN TO 3-5 DU/AC				
SP00106AD	APPROVED	5/15/2003		
AMEND DUTCH VILLAGE DENSITY FROM LOW TO MEDIUM				
SP00106AE	APPROVED	6/4/2003		
CHANGE OF LAND USE FORM INDUSTRIAL TO RESIDENTIAL				
SP00106AG	APPROVED	10/12/2005		
SC FOR SP106-13.2 AC LDR-MDR 11.09 AC MDR-RR				
SP00284	APPROVED	10/3/1990		8/30/2004
DEVELOPMENT OF MIXED USE COMMUNITY OVERWRITE SP 106 ON 470.1 ACRE FOR 1,318 DU'S ON 2 79.2 RESIDENTIAL ACRES, 45.3 ACRES OF COMMERCIAL * EA 35523, EIR 371, CZ 5913, CGPA 301, AGP 710 DA 55, SP 106				
SP00284A2	APPROVED	9/29/2004		6/27/2026
AMD SP00284 PLANNING AREA 6 FROM MHDR TO HDR				
SP00284A4	ADOPTED	9/14/2017		
SPECIFIC PLAN AMENDMENT TO SP284/AREAS 22 AND 23				
SP00286	APPROVED	11/5/1990		8/15/2010
1889.6 ACRES IN MIXED USES SP ON 1,576.8 ACRES FOR 4,679 DU'S ON 1,099.0 ACRE S, 101.8 ACRES OF COMMERCIAL, * EA 35588, EIR 374, CZ 5932, CGPA 306, AGP 737				
SP00286A1	APPROVED	8/20/1999		
AMEND PL AREAS 43-47 FOR INCREASE OF 65 RES UNITS				
SP00286A2	APPROVED	6/18/2001		
ADD 40.1 ACRES TO SP286 FOR CONSTRUCTION OF 93 SFR				
SP00286A3	APPROVED	12/13/2001		
AMD SP TO ADD PLANNING AREA 51				
SP00286A4	APPROVED	9/27/2002		
AMENDING PLANNING AREA BOUNDARIES/STANDARDS				
SP00286A5	APPROVED	11/9/2004		6/5/2027
CHANGE PA7 MDR TO PA2A OS/DRAINAGE, TRANSFER OF RESIDENTIAL DWELLING UNITS FROM THOSE 5.6 ACRES TO SUPPLEMENT THE MAXIMUM DU TOTAL FOR PA 9 (ADDITION OF 21 D/U'S). TRANSFER OF UNREALIZED RES D/U FROM OTHER PA'S IN SP286 WITH RECORDED MAPS (PA'S 10A, 10B, 11, 13B, 14A, 14B, 24,32, R39) TO SUPPLEMENT THE MAXIMUM D/U TOTAL FOR PA9 (ADDITION OF 55 D/U'S) CHANGE IN RES DENSITY FOR PA9 FROM MEDIUM DENSITY RES TO HIGH DENSITY RES, WITH AN INCREASE IN MAX D/U'S FROM 110 D/U'S TO 186 D/U'S.				
SP00286A6	APPROVED	3/25/2014		
SPA TO AMEND WINCHESTER 1800 TO 105.5 AC OF SITE. RENUMBER PLAN AREAS 1,5A,6&7 TO 1,3,5A,6,7,52A&52B REALIGN KELLER RD AND ACCOMODATE A LOWER-DENSITY R ESIDENTIAL SUBDIVISION				
SP00310	APPROVED	5/5/1998		
SPECIFIC PLAN OF LAND USE				
SP00312	APPROVED	9/14/1998		
SP ON 607.8 ACRES WITH 2,135 DU'S AND 1.5 A. COMM				
SP00312A1	APPROVED	12/22/2011		
MODIFY PA'S TO REDUCE INTENSITY AND CHNG LAND USES				
SP00312A2	ADOPTED	1/28/2016		
INCREASE DENSITY/EXTEND BOUNDARY OF SP 312				

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
SP00380	APPROVED	11/24/2009		
SP COMMERCIAL OFFICE,RETAIL MIXED USE,RESIDENTIAL				
SP00382	APPROVED	4/23/2012		
343.6 AC SPECIFIC PLAN FOR RES DEV "BELLE TERRE" PROPOSING; MDR 36.0 AC MHDR 83.5 AC HDR 21.1 AC VHDR 17.1 AC PARKS 47.4 AC OPEN SPACE 97.7 AC STREETS 40.8 AC				
TR25930	APPROVED	3/21/1990		11/19/1997
DIVIDE APPROX 80 ACRES INTO 31 LOTS DIVIDE 80 ACRES INTO 31 LOTS EA 34935				
TR28092M1	APPROVED	11/16/2000		
REVISE TRAFFIC STUDY AN CONDITION OF APPROVAL IN RELATION TO TRAFFIC ISSUES. (100 DU, 25.6 ACRES)				
TR28093M1	APPROVED	6/24/1998		10/24/1999
MINOR CHANGE TO AMEND TRANSPORTATION DEPT. COA (142 DU)				
TR28296	APPROVED	10/28/1996		7/8/2001
DIVIDE 33.8 AC INTO 108 RES. LOTS,1 PARK,4 OPEN SP				
TR28296M1	APPROVED	10/22/1999		7/8/2003
ELIM PK SITE ADD 2 INT DET BASINS ELIM F/POR E DR (106 DU, 33.8 ACRES)				
TR28297	APPROVED	10/28/1996		7/8/2005
DIVIDE 23.5 ACRES INTO 88 RES LOTS,1 MEADOW 2 OS				
TR28298	APPROVED	10/28/1996		7/8/2005
DIVIDE 38.1 AC INTO 147 RES LOT 1MEADOW,1PARK2OPEN SPACE LOTS.				
TR28460	APPROVED	11/26/1996		8/18/2001
DIVISION OF 36.2 AC INTO 183 RES LOTS 2 OPEN SP LO				
TR28695	APPROVED	9/16/1998		5/1/2006
DVD 166AC TO 421SFR/1 MFR/1 SCHOOL/1 PRK/21 OS LOT 1 SCHOOL SITE AND 1 PARK SITE				
TR28847	APPROVED	4/21/1998		9/1/2001
DIV 52.5 AC TO 207 RES LOTS & 3 OPEN SPACE(DETENTI				
TR28914	APPROVED	8/6/1998		11/1/2002
DVD 80 AC/240 SFR LOTS/3 DETN BASIN/1 OS LOT				
TR29017	APPROVED	9/15/1998		10/26/2003
117.37AC/364 SFR LOTS/1 PRK/1TRL/7 RD WY L/S LOTS				
TR29098	APPROVED	7/29/1999		10/17/2017
DVD 80.4 AC/39 SFR LOTS/4 O-S/1 DETN BSN/1 MSHCP				
TR29114	APPROVED	12/20/2000		12/11/2007
DIVIDE 74.12 AC/259 SFR LOTS/7 OPEN SPACE LOTS				
TR29174	APPROVED	1/22/1999		11/8/2002
DIV APX 60 AC INTO 227 LOTS & 2 DET BASINS				
TR29202	APPROVED	8/3/2000		
30 ACRES INTO 107 RES. LOTS				
TR29214	APPROVED	2/4/2003		1/24/2007
SCH "A" SUBDIVISION (1)135AC PARCEL INTO 375 LOTS				
TR29268	APPROVED	5/6/1999		5/16/2003
51 AC INTO 123 RES LOTS AND 3 OPEN SPACES				
TR29269	APPROVED	5/6/1999		5/16/2003
34.46 ACRES DIVIDED INTO 143 RES LOTS AND OPEN SP				
TR29270	APPROVED	5/6/1999		5/16/2003
35.49 ACRES INTO 127 RES LOTS AND 2 OPEN SPACE				

Approved Cases as of 09/16/2019

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
TR29971	APPROVED	5/6/1999		5/16/2003
17.74 AC INTO 55 RES LOTS AND 1 OPEN SPACE				
TR29442	APPROVED	8/20/1999		5/2/2003
SUBD 120 AC INTO 305 RES/10 OPEN SP/1 SCHOOL/1 PK				
TR29484	APPROVED	1/19/2000		8/28/2005
DIV 90.61 AC 242 RES,3 DET BSNS,3 OS & 1 LIFT STA				
TR29675	APPROVED	6/30/2000		7/17/2004
DIV 87.53 AC INTO 253 RES,1 PARK,4 OS & 1 DET BASN LOTS.				
TR29789	APPROVED	4/21/2000		
SUDIVIDE 10.05 ACRES INTO 34 RESIDENTIAL PARCELS				
TR29847	APPROVED	7/6/2000		
DIV 62.40 AC IN 156 RES, 1 SCH 1 PARK 4 OS LOTS				
TR29875	APPROVED	7/6/2000		4/17/2004
SUBD 80 AC INTO 306 RES, 1 PARK 3 OPEN SPACE LOTS				
TR29952	APPROVED	7/5/2001		
SUBDIVIDE 40 ACRES INTO 93 SINGLE FAMILY RES LOTS				
TR29952A1	APPROVED	9/19/2002		12/9/2005
MC- CHANGE COA NO. 50 TRANS 23 (SECONDARY ACCESS) (93 DUS, 40 ACRES)				
TR29962	APPROVED	3/27/2001		6/22/2007
SUBDIVIDE 46 ACRES INTO 149 SFR/1 O/S & 1 PARK LOT				
TR30069	APPROVED	1/15/2002		10/28/2006
DIVIDE 317 AC INTO 654 RES LOTS & 27 OPEN SPACE				
TR30094	APPROVED	3/7/2001		10/23/2004
DIVIDE 40 AC INTO 132 LOTS,3 OPEN SPACES & ONE DET ENTION BASIN.				
TR30098	APPROVED	3/7/2001		10/23/2004
DIVIDE 45.67 AC IN 133 LOTS, 1 OPEN SPACE & 2 DETE NTION BASINS				
TR30110	APPROVED	6/12/2001		
DIVIDE 52.6 AC INTO 168 SFR LOTS				
TR30167	APPROVED	5/22/2001		
SUBDIVIDE 40 AC INTO 143 RES LOTS/8 OPEN SP LOTS				
TR30433	APPROVED	12/20/2001		11/15/2015
SUBD 167 AC INTO 498 RES LOTS & 33 OPEN SP LOTS				
TR30441	APPROVED	12/13/2001		
SUBDIVIDE 39.96 ACRES INTO 125 SFR				
TR30599	APPROVED	11/6/2002		
SUBDIVIDE 52.93 ACRES INTO 179 SINGLE FAMILY RES- IDENTIAL LOTS, 7200 SQ. FT. LOT SIZE, SCHEDULE A MAP				
TR30694	APPROVED	11/14/2002		8/10/2007
SUBDIVIDE 33.81 ACRES INTO 81 LOTS				
TR30695	APPROVED	5/7/2003		11/9/2007
SUBD 49.27 AC INTO 111 RES LOTS				
TR30696	APPROVED	5/7/2003		8/10/2009
SCHED A SUBDIVISION OF 173 AC INTO 438 RES LOTS				
TR30791	APPROVED	12/17/2002		9/9/2007
SUBD 20 AC INTO 50 SFR/1 OPEN SPACE/1 PARK SITE				

Approved Cases as of 09/16/2019

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
TR30837	APPROVED	10/23/2002		10/19/2020
SUBDIVIDE 99.77 ACRES INTO 335 SINGLE FAMILY LOTS				
TR30988	APPROVED	5/1/2003		5/11/2007
TO DIVIDE 80 AC INTO 117 RES LOTS				
TR30996	APPROVED	12/24/2002		8/24/2007
TO DIVIDE 40 AC INTO 74 RES LOTS/1 COMM/3 O/S				
TR31007	APPROVED	1/23/2003		
SCHEDULE "A" MAP DIVIDE 19.1 ACRES INTO 204 CONDO UNITS IN 34 BLDGS ON 2 LOTS				
TR31118	APPROVED	5/6/2003		2/24/2007
CREATE 133 RESID LOTS & 2 OPEN SPACE LOTS ON 40.43				
TR31119	APPROVED	5/6/2003		1/27/2007
CREATE 31 LOTS & 1 DET BASIN ON 20.01 ACRES				
TR31119M1	APPROVED	12/9/2005		1/24/2009
INCREASED TO 32 LOTS FROM 31 DUE TO DETENTION BASI				
TR31330	APPROVED	6/4/2003		5/4/2007
SUBDIVIDE 29.3 ACRES INTO 86 RES. LOTS, 1 PARK &				
TR31700	APPROVED	9/3/2003		8/29/2018
SCHED "A" SUBDIVISION OF 20.9 AC INTO 64 SFR LOTS				
TR31700E03	APPROVED	7/11/2018		8/29/2021
3RD EXTENSION OF TIME FOR TR31700				
TR32011	APPROVED	3/17/2004		10/3/2015
SUBDIVIDE 12 AC INTO 33 SINGLE FAMILY LOTS - SCHED ULE A MAP				
TR32049	APPROVED	12/23/2003		1/26/2008
DIVIDE 18.5 AC INTO 1 LOT FOR 162 CONDO UNTS/3 OS				
TR32049M1	APPROVED	10/18/2006		2/6/2010
ENCROACH W/IN THE 15' SB AREA AGAINST OPEN SPACE				
TR32151	APPROVED	5/13/2004		3/13/2018
MULTI-FAMILY SCH"A" SUBDIVISION (136 CONDOMINIUMS)				
TR32151E02	APPROVED	2/22/2018		3/13/2021
SECOND EXTENSION OF TIME FOR TR32151				
TR32171	APPROVED	2/5/2004		12/14/2013
DIVIDE 9.04 AC INTO 56 RES LOTS				
TR32185	APPROVED - Half Built	2/18/2004		11/30/2018
DIV 163.57 AC INTO 426 SFR LOTS, 32 OPEN SP LOTS FROM 7200 SF TO 38,590 SF IN SIZE, 24 OPEN SPACE L OTS AND 1 PARK LOT W/DETENTION BASIN - SCHEDULE A MAP				
TR32185E02	APPROVED	1/30/2018		11/30/2021
SECOND EXTENSION FOR TR32185				
TR32272	APPROVED	4/1/2004		5/23/2018
SUBDIVIDE 12 ACRES INTO 38 RES & 1 DET BASIN LOTS				
TR32272E03	APPROVED	2/26/2018		5/23/2021
THIRD EXTENSION OF TIME FOR TR32272.				
TR32289	APPROVED - Built	8/24/2004		1/18/2016
DIV 81.87 ACRES INTO 197 SFR LOTS/SCHEDULE A IN SP312				

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
TR32289M1	APPROVED	2/14/2011		
THE MC PROPOSES TO COMBINE LOTS 181-183, 184-197 A ND 214-219 (A TOTAL OF 19 LOTS.) THE TENTATIVE MA P WILL CONSIST OF 179 RESIDENTIAL LOTS, 18 OPEN SP ACE LOTS, 2 DETENTION BASIN LOTS ON 81.87 ACRES AF TER LOTS ARE COMBINED.				
TR32290	APPROVED	8/24/2004		3/1/2017
DIVIDE 267.40 ACRES INTO 808 SFR LOTS - SCHEDULE A				
TR32323	APPROVED	10/12/2005	12/8/2020	7/25/2020
SUBDIV 20 AC INTO 38 SFR - SCHEDULE A / SP106AG				
TR32542	APPROVED	5/12/2004		1/26/2016
SUBDIVIDE INTO 11 SF RES LOTS AND 1 OPEN SPACE LOT SCHEDULE A MAP				
TR33170	APPROVED	11/9/2004		4/18/2016
CONDO MAP CREATING 24 MULTI-FAMILY LOTS				
TR33303	APPROVED	9/22/2005		4/24/2021
SUBDIVIDE 7.4 ACRES INTO 24 SFR LOTS				
TR33303E02	APPROVED	2/21/2018		4/24/2021
SECOND EXTENSION OF TIME FOR TR33303				
TR33307	APPROVED	2/17/2005		5/31/2016
DIVIDE 13 AC INTO 41 SFR & 1 OPEN SPACE LOT				
TR33423	APPROVED	3/16/2005		1/23/2017
DIVIDE 46.15 ACRES INTO 134 SFR LOTS - SCHEDULE A				
TR33423M1	APPROVED	5/19/2008		1/23/2018
REVISING ACCESS' N TO FIELDS & S TO SALLY STREET				
TR35161	APPROVED - 2/3 Built	3/14/2008		6/22/2018
SCHEDULE 'A' TO DIVIDE 20 ACRES INTO 51 SFR LOTS MINIMUM 7200 S.F. AND INCLUDING 1 WATER DETENTION BASIN				
TR35664	APPROVED	7/13/2007		6/24/2015
SUBDIVIDE 2.31 ACRES INTO (5) 1/2 LOTS				
TR36418	APPROVED	12/22/2011		10/8/2016
SUBDVD 10.06AC INTO 50 SFR LOTS,1 UTILITY,3 OS LOT				
TR36437	APPROVED	11/21/2012		4/8/2017
SUBDIVIDE 40 AC INTO 102 SFR LOTS-SCHEDULE A MAP				
TR36536	APPROVED - 1/2 Built	3/14/2013		9/17/2017
84 SINGLE FAMILY DETACHED. SCHEDULE A SUBDIVISION WITHIN SPACE284 MIN LOT SIZE 5000 SF				
TR36687	APPROVED	4/18/2014		2/2/2019
SCHED A SUBDIV OF 20.3 AC INTO 71 RES & 14 OS LOTS				
TR36687R1	APPROVED	10/11/2016		
REVISION OF TR36687				
TR36722	APPROVED	3/25/2014	6/2/2018	6/2/2021
SCHED A SUBDIV OF 40.6 AC INTO 146 RES & 22 OS LOT				
TR36722E01	APPROVED	1/17/2018		6/2/2021
1ST EXTENSION OF TIME FOR TR36722				
TR37028	APPROVED	10/14/2015		10/18/2020
SCHED A-43.91 AC INTO 133 LOTS/1 OPEN SPC/6 BASINS				
TR37053	APPROVED 1/4 Built	1/28/2016	1/23/2021	7/11/2020
SCHED A - 747 RESIDENTIAL LOTS/84 OPEN SPACE LOTS				

Approved Cases as of 09/16/2019

CASE NAME	STATUS	APPLIED DATE	APPROVAL DATE	EXPIRED DATE
CASE DESCRIPTION				
TR37294	TENT. APPROV	4/26/2017		
SUBDIVISION AND DEV OF 48 SINGLE FAMILY HOME LOTS				

Gmail **Bryan Crawford <bryandavidcrawford@gmail.com>**

TIA Scoping Agreements for Riverside County EDA Library Projects

Giancarlo Ganddini <giancarlo@ganddini.com> Tue, Sep 10, 2019 at 2:08 PM
To: "msullivan@rivco.org" <msullivan@rivco.org>
Cc: "Tsang, Kevin" <KTSANG@rivco.org>, Kip Dubbs <kdubbs@omniwestgroup.com>, Bryan Crawford <bryan@ganddini.com>

Mr. Sullivan,

Our firm is preparing traffic impact studies for three proposed library developments located in unincorporated French Valley area, City of Menifee, and City of Desert Hot Springs. Riverside County is the lead agency as these projects are driven by the Economic Development Agency (EDA). Accordingly, we have been instructed to process all three traffic impact studies for environmental review through your department.

Attached for County review/approval are the proposed scoping agreements for each of the sites. We are shooting to submit draft studies by October 4th, so please let us know if there are any comments as soon as possible.

We will need to obtain a list of cumulative development projects in the area for each project. Let me know if that is something your department would take the lead on or if we should reach out directly to City of Menifee and City of Desert Hot Springs. Please provide a list of pending/approved development projects in the French Valley area.

I have copied Kevin Tsang from the County traffic division, the project manager Kip Dubbs, and our senior associate Bryan Crawford.

Please confirm receipt and let us know if you have any questions.

Thanks,

Giancarlo Ganddini, PE, PTP

Principal

GANDDINI GROUP, INC.

550 Parkcenter Drive, Suite 202

Santa Ana, CA 92705

o. 714 795 3100 x 101

c. 949 735 9314

www.ganddini.com

3 attachments

TIA Scoping - French Valley Library.pdf
1356K

TIA Scoping - Menifee Library.pdf
1205K

TIA Scoping - DHS Library.pdf
1182K

Gmail **Bryan Crawford <bryandavidcrawford@gmail.com>**

TIA Scoping Agreements for Riverside County EDA Library Projects

Tsang, Kevin <KTSANG@rivco.org> Mon, Sep 16, 2019 at 12:04 PM
To: Giancarlo Ganddini <giancarlo@ganddini.com>
Cc: Kip Dubbs <kdubbs@omniwestgroup.com>, Bryan Crawford <bryan@ganddini.com>, "Sullivan, Michael" <MSullivan@rivco.org>

Hello Giancarlo,

See my responses below.

For the French Valley Library, I recommend that EDA reach out to Fire Department to determine if secondary access is required. This may alter the trip distribution for the project.

I also recommend that EDA reach out to the Planning Department (Russell Brady or Larry Ross) to determine what is needed, if any, to change the existing OS-R/OS-C land use to Public Facility.

Thanks

From: Giancarlo Ganddini [mailto:giancarlo@ganddini.com]
Sent: Thursday, September 12, 2019 3:03 PM
To: Tsang, Kevin <KTSANG@RIVCO.ORG>
Cc: Kip Dubbs <kdubbs@omniwestgroup.com>; Bryan Crawford <bryan@ganddini.com>; Sullivan, Michael <MSullivan@rivco.org>
Subject: RE: TIA Scoping Agreements for Riverside County EDA Library Projects

Kevin,

My understanding is that all three sites are in fact County-owned land; therefore, County of Riverside is the lead agency. We have the following questions:

· Can you please provide a list of cumulative development projects in the French Valley area? Attached.

· In terms of consulting local jurisdictions, will they be reviewing the scoping agreement or only providing cumulative development projects? I recommend contacting the jurisdiction to determine if they have comments on the scoping agreement and if they can provide a list of cumulative projects.

· Will County TLMA consult with local jurisdictions or should Ganddini Group contact them directly? Please contact

the jurisdiction directly.

[Quoted text hidden]

fvlibrary_cp.pdf
1008K

APPENDIX C

VOLUME COUNT WORKSHEETS

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Sep 18, 19	LOCATION:	French Valley	PROJECT #:	SC2356
	NORTH & SOUTH:	Winchester	LOCATION #:	1
	EAST & WEST:	Benton	CONTROL:	SIGNAL

NOTES:

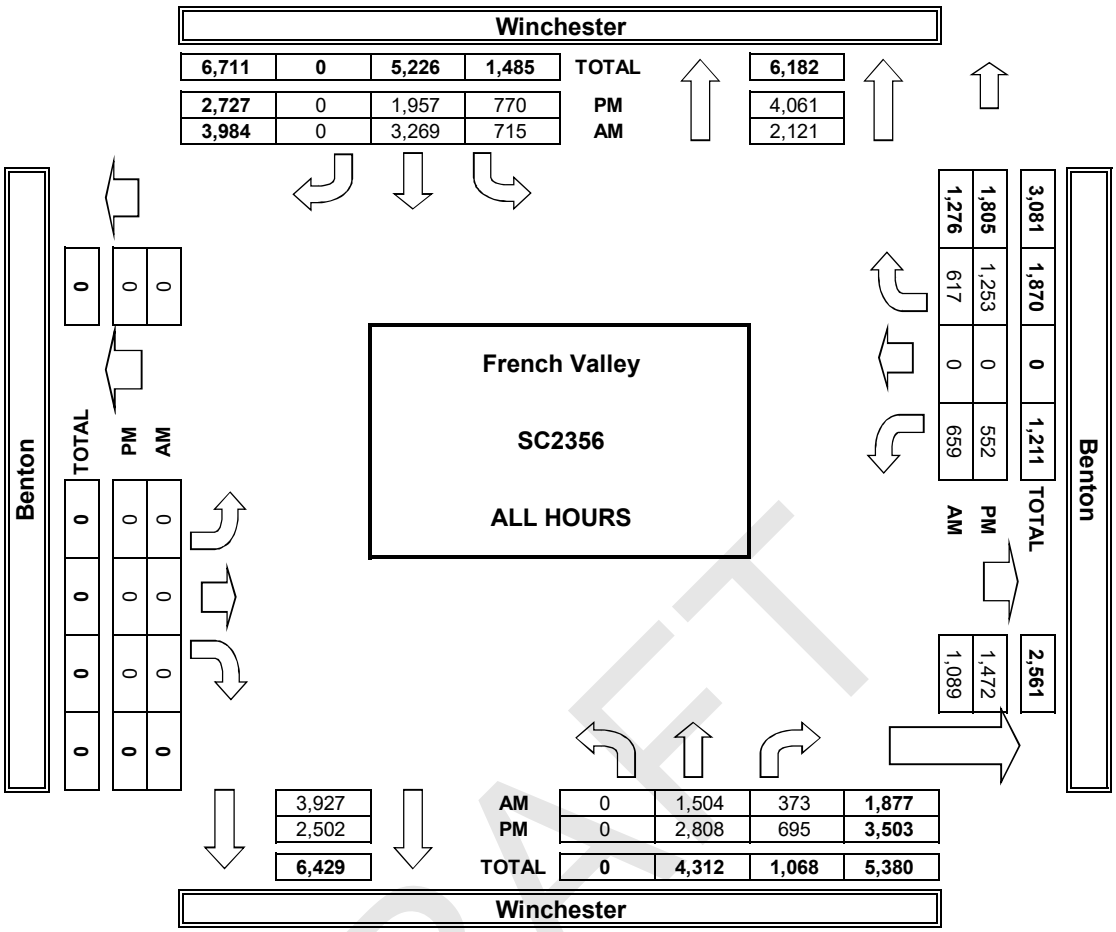
AM / PM / MD / OTHER / OTHER

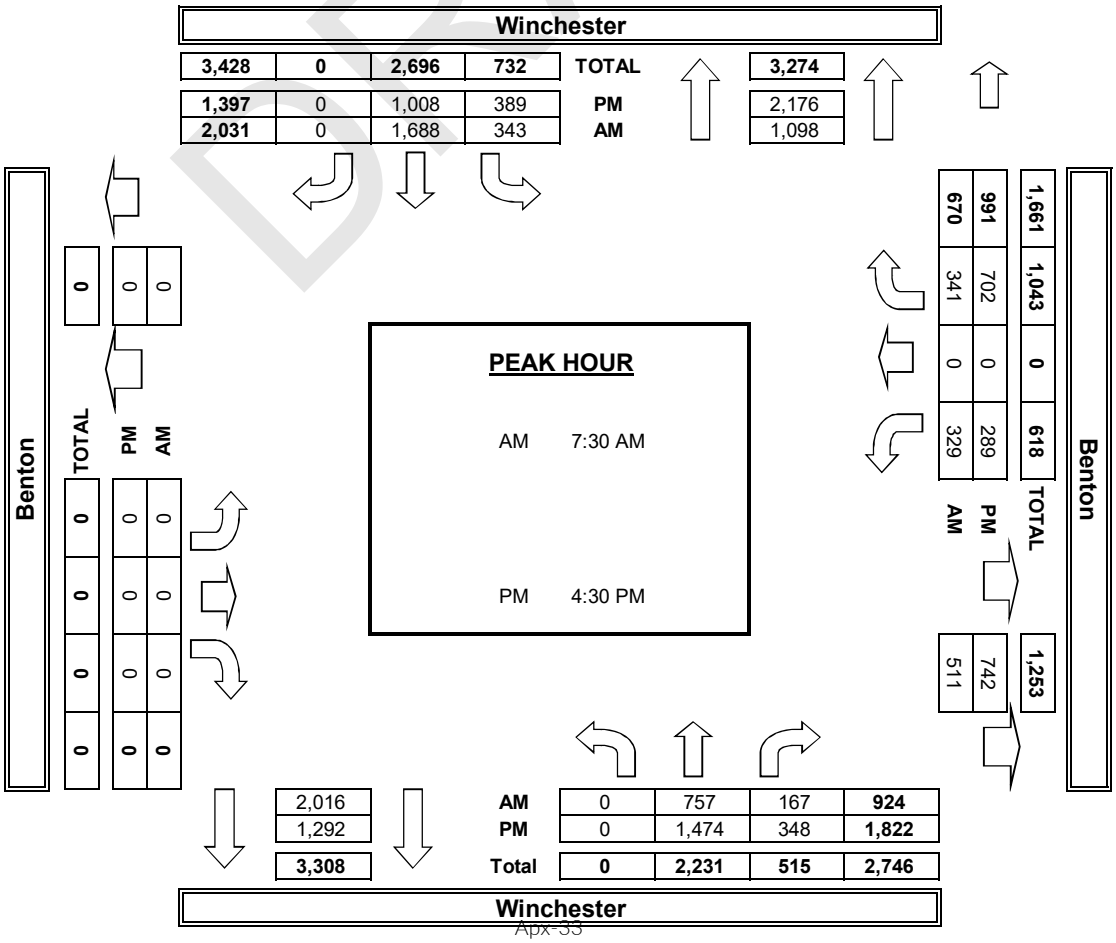
▲ N ◄ W E ► S ▼

		NORTHBOUND Winchester			SOUTHBOUND Winchester			EASTBOUND Benton			WESTBOUND Benton			
	LANES:	NL X	NT 2	NR 1	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 2	WT X	WR 1	TOTAL
AM	7:00 AM	0	215	56	83	375	0	0	0	0	70	0	10	809
	7:15 AM	0	199	47	105	421	0	0	0	0	83	0	75	930
	7:30 AM	0	217	34	75	450	0	0	0	0	104	0	75	955
	7:45 AM	0	152	31	92	437	0	0	0	0	83	0	70	865
	8:00 AM	0	156	49	86	389	0	0	0	0	74	0	106	860
	8:15 AM	0	232	53	90	412	0	0	0	0	68	0	90	945
	8:30 AM	0	176	56	101	401	0	0	0	0	78	0	100	912
	8:45 AM	0	157	47	83	384	0	0	0	0	99	0	91	861
	VOLUMES	0	1,504	373	715	3,269	0	0	0	0	659	0	617	7,137
	APPROACH %	0%	80%	20%	18%	82%	0%	0%	0%	0%	52%	0%	48%	
	APP/DEPART	1,877	/	2,121	3,984	/	3,927	0	/	1,089	1,276	/	0	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	0	757	167	343	1,688	0	0	0	0	329	0	341	3,625
	APPROACH %	0%	82%	18%	17%	83%	0%	0%	0%	0%	49%	0%	51%	
	PEAK HR FACTOR		0.811			0.960			0.000			0.931		0.949
	APP/DEPART	924	/	1,098	2,031	/	2,016	0	/	511	670	/	0	0
PM	4:00 PM	0	345	77	78	237	0	0	0	0	72	0	149	958
	4:15 PM	0	336	92	106	250	0	0	0	0	58	0	135	977
	4:30 PM	0	382	92	86	257	0	0	0	0	60	0	193	1,070
	4:45 PM	0	365	89	99	213	0	0	0	0	63	0	159	988
	5:00 PM	0	344	78	100	255	0	0	0	0	80	0	202	1,059
	5:15 PM	0	383	89	104	283	0	0	0	0	86	0	148	1,093
	5:30 PM	0	347	81	91	238	0	0	0	0	81	0	140	978
	5:45 PM	0	306	97	106	224	0	0	0	0	52	0	127	912
	VOLUMES	0	2,808	695	770	1,957	0	0	0	0	552	0	1,253	8,035
	APPROACH %	0%	80%	20%	28%	72%	0%	0%	0%	0%	31%	0%	69%	
	APP/DEPART	3,503	/	4,061	2,727	/	2,502	0	/	1,472	1,805	/	0	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	1,474	348	389	1,008	0	0	0	0	289	0	702	4,210
	APPROACH %	0%	81%	19%	28%	72%	0%	0%	0%	0%	29%	0%	71%	
	PEAK HR FACTOR		0.961			0.902			0.000			0.879		0.963
	APP/DEPART	1,822	/	2,176	1,397	/	1,292	0	/	742	991	/	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	French Valley	PROJECT #:	SC2356
Wed, Sep 18, 19	NORTH & SOUTH:	Winchester	LOCATION #:	2
	EAST & WEST:	Thompson	CONTROL:	SIGNAL

NOTES:

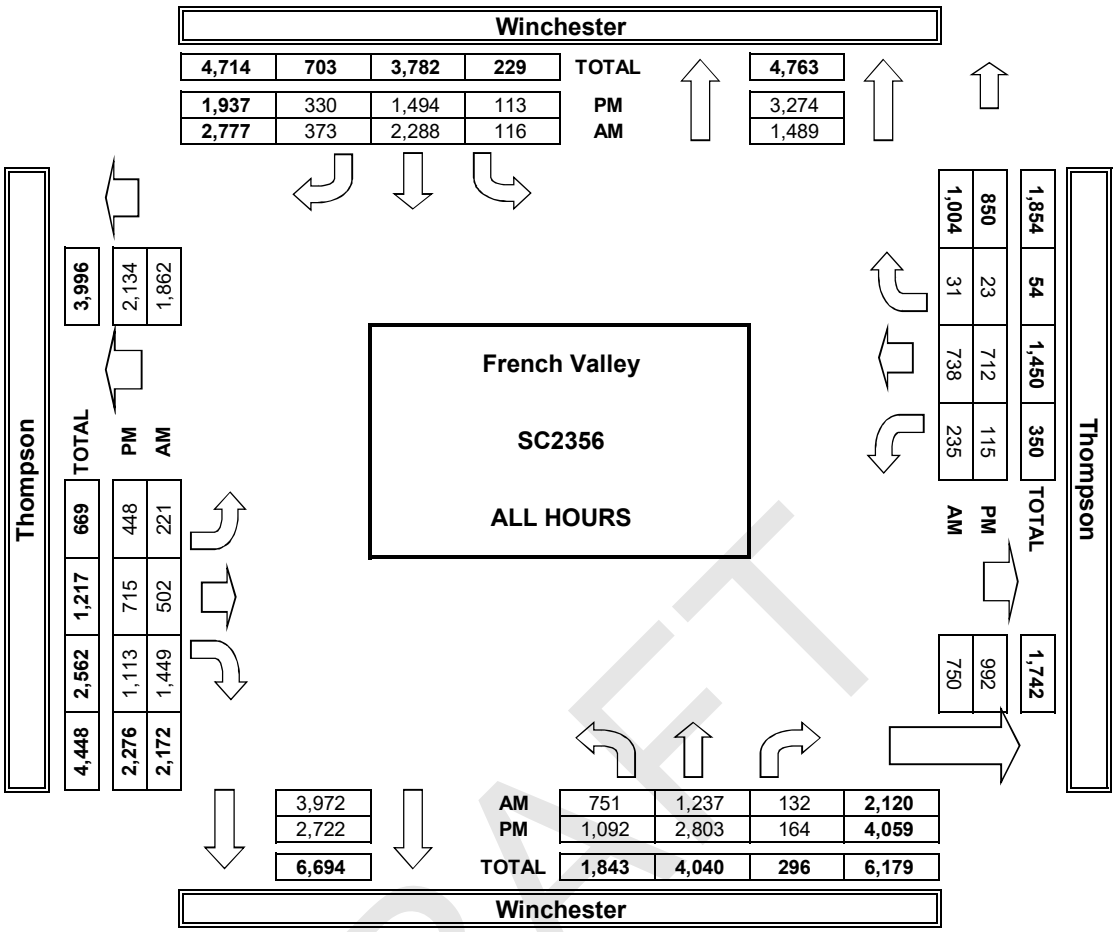
AM / PM / MD / OTHER / OTHER

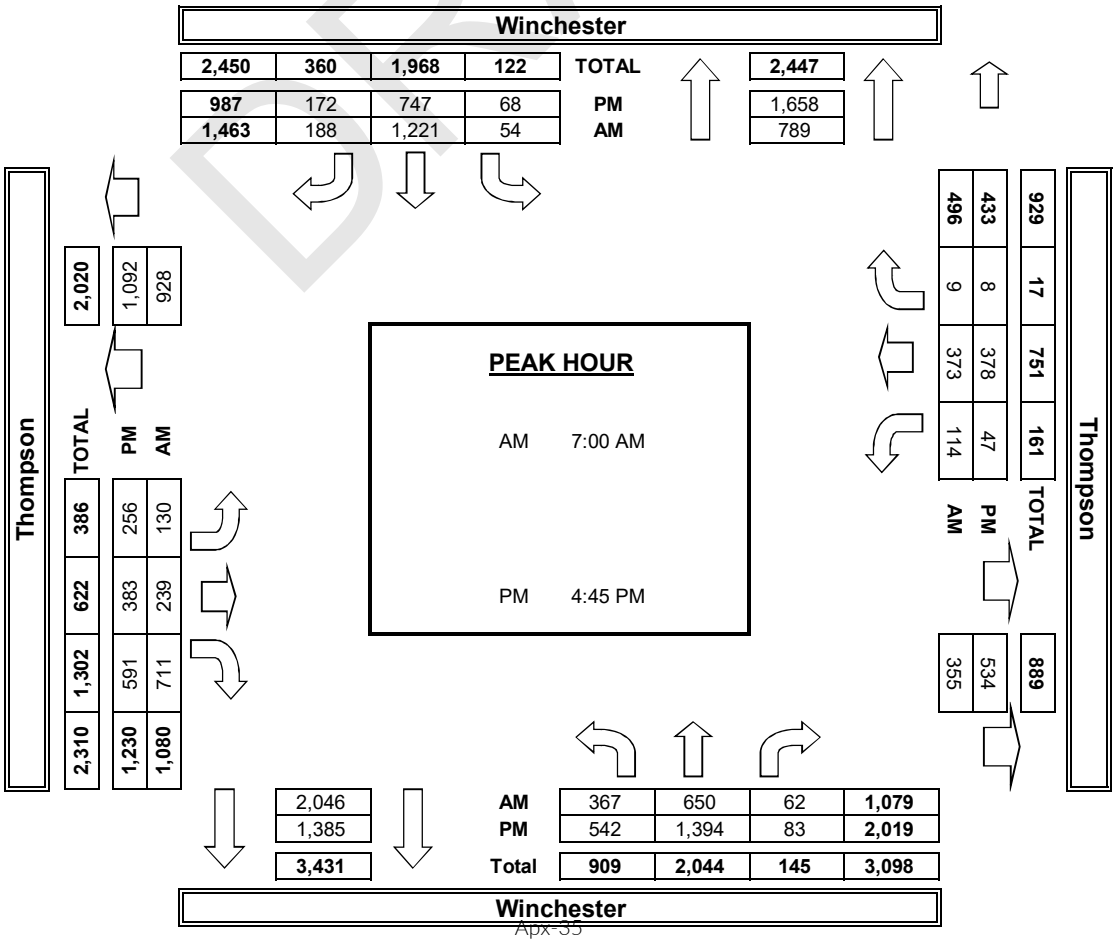
▲ N ◄ W E ► S ▼

		NORTHBOUND Winchester			SOUTHBOUND Winchester			EASTBOUND Thompson			WESTBOUND Thompson			
	LANES:	NL 1	NT 1.5	NR 0.5	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	90	169	12	8	288	48	37	51	130	24	95	2	954
	7:15 AM	85	170	22	13	299	49	25	54	181	24	113	3	1,038
	7:30 AM	109	169	15	18	322	47	28	76	197	25	84	2	1,092
	7:45 AM	83	142	13	15	312	44	40	58	203	41	81	2	1,034
	8:00 AM	88	113	13	23	267	36	27	61	166	39	90	5	928
	8:15 AM	112	160	12	18	263	55	13	70	178	34	86	5	1,006
	8:30 AM	89	184	28	11	292	52	24	57	186	23	86	5	1,037
	8:45 AM	95	130	17	10	245	42	27	75	208	25	103	7	984
	VOLUMES	751	1,237	132	116	2,288	373	221	502	1,449	235	738	31	8,073
	APPROACH %	35%	58%	6%	4%	82%	13%	10%	23%	67%	23%	74%	3%	
	APP/DEPART	2,120	/	1,489	2,777	/	3,972	2,172	/	750	1,004	/	1,862	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	367	650	62	54	1,221	188	130	239	711	114	373	9	4,118
	APPROACH %	34%	60%	6%	4%	83%	13%	12%	22%	66%	23%	75%	2%	
	PEAK HR FACTOR		0.921			0.945			0.897			0.886		0.943
	APP/DEPART	1,079	/	789	1,463	/	2,046	1,080	/	355	496	/	928	0
PM	4:00 PM	133	354	12	8	179	46	46	73	126	15	83	4	1,079
	4:15 PM	140	340	22	13	201	33	36	80	140	16	88	3	1,112
	4:30 PM	145	354	19	18	191	43	45	88	114	18	86	5	1,126
	4:45 PM	148	360	20	18	171	48	51	107	153	16	97	1	1,190
	5:00 PM	145	358	26	15	180	32	57	87	140	12	97	3	1,152
	5:15 PM	129	362	15	14	198	44	70	103	152	13	92	3	1,195
	5:30 PM	120	314	22	21	198	48	78	86	146	6	92	1	1,132
	5:45 PM	132	361	28	6	176	36	65	91	142	19	77	3	1,136
	VOLUMES	1,092	2,803	164	113	1,494	330	448	715	1,113	115	712	23	9,122
	APPROACH %	27%	69%	4%	6%	77%	17%	20%	31%	49%	14%	84%	3%	
	APP/DEPART	4,059	/	3,274	1,937	/	2,722	2,276	/	992	850	/	2,134	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	542	1,394	83	68	747	172	256	383	591	47	378	8	4,669
	APPROACH %	27%	69%	4%	7%	76%	17%	21%	31%	48%	11%	87%	2%	
	PEAK HR FACTOR		0.954			0.924			0.946			0.950		0.977
	APP/DEPART	2,019	/	1,658	987	/	1,385	1,230	/	534	433	/	1,092	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Sep 18, 19	LOCATION:	French Valley	PROJECT #:	SC2356
	NORTH & SOUTH:	Winchester	LOCATION #:	3
	EAST & WEST:	Jean Nicholas	CONTROL:	SIGNAL

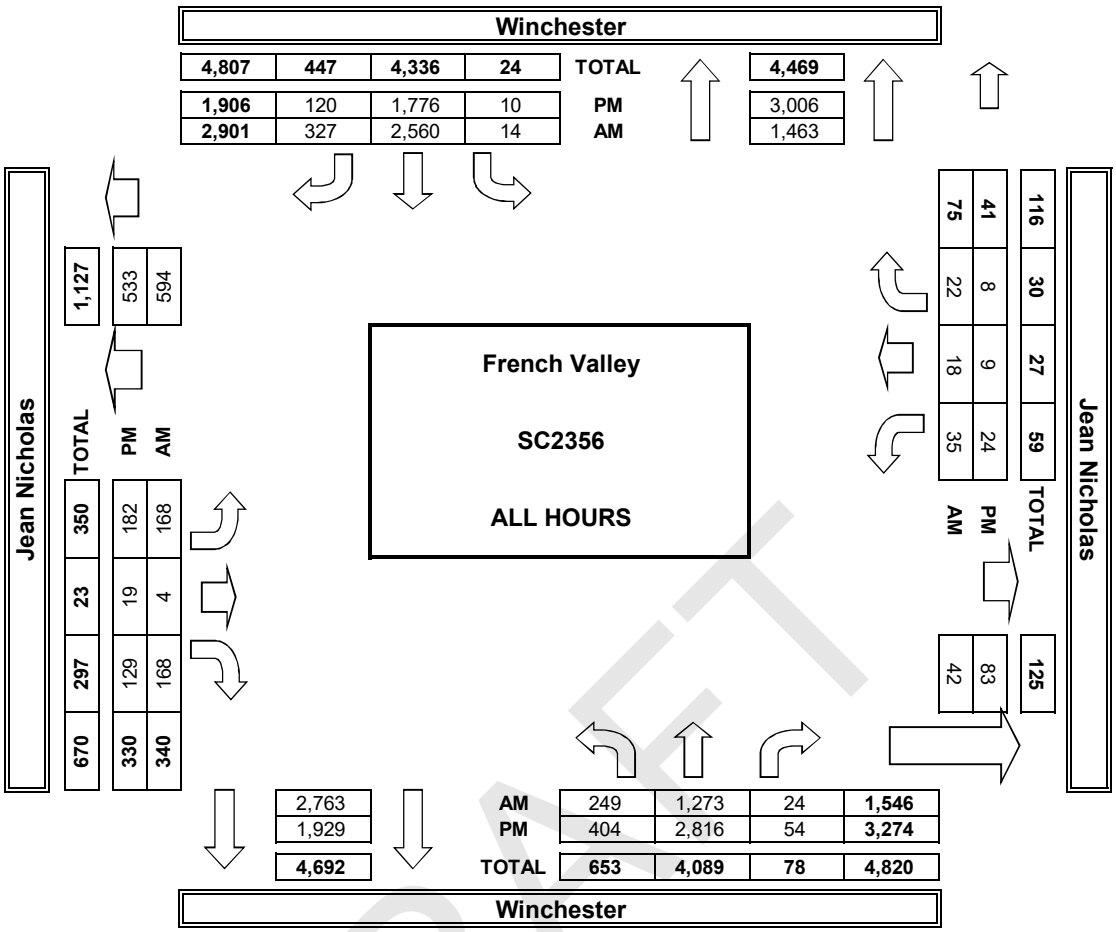
NOTES:

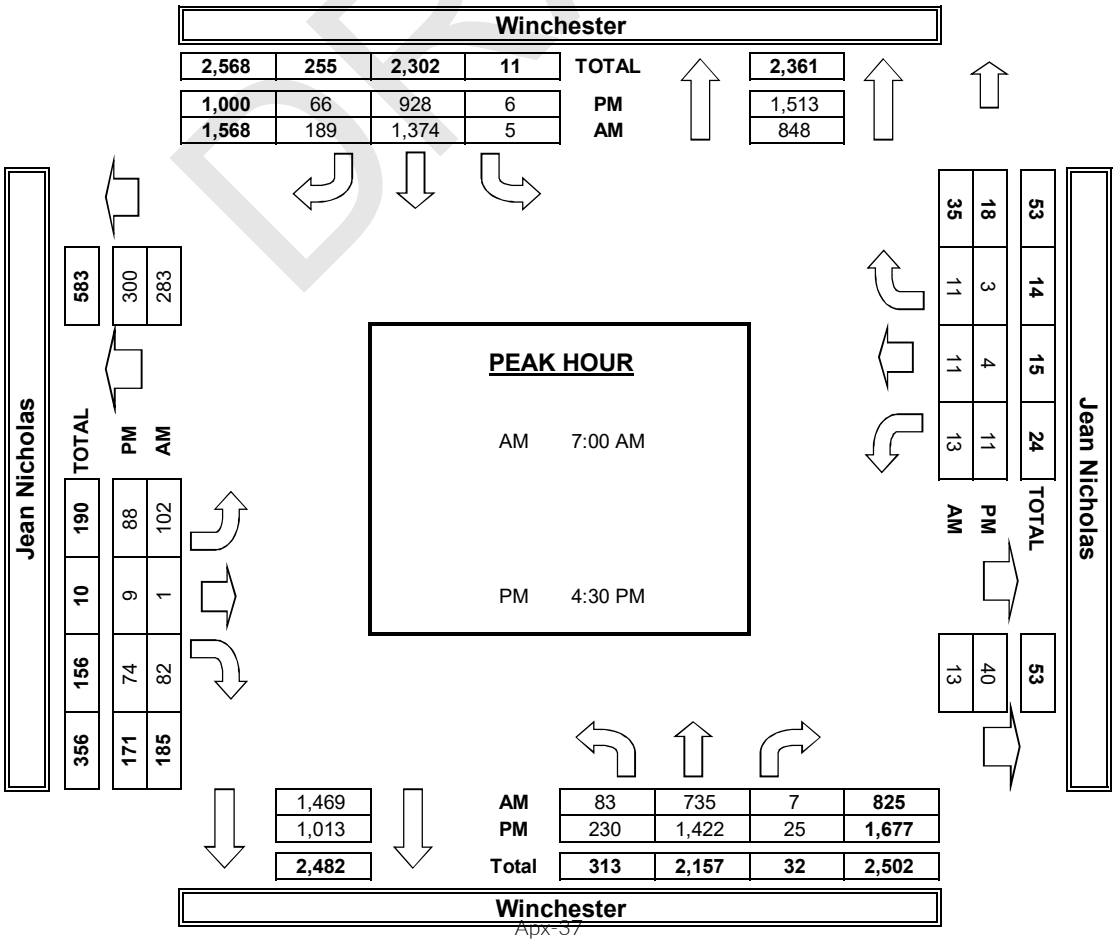
AM PM MD OTHER OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Winchester			SOUTHBOUND Winchester			EASTBOUND Jean Nicholas			WESTBOUND Jean Nicholas			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	14	185	3	1	337	37	22	0	14	4	1	1	619
	7:15 AM	18	206	2	0	356	33	27	1	23	2	3	3	674
	7:30 AM	31	177	1	1	334	57	26	0	20	4	4	4	659
	7:45 AM	20	167	1	3	347	62	27	0	25	3	3	3	661
	8:00 AM	28	111	3	1	323	63	17	0	28	4	2	0	580
	8:15 AM	31	143	3	0	321	23	21	1	11	4	3	2	563
	8:30 AM	60	148	3	2	268	32	18	1	23	6	0	7	568
	8:45 AM	47	136	8	6	274	20	10	1	24	8	2	2	538
	VOLUMES	249	1,273	24	14	2,560	327	168	4	168	35	18	22	4,862
	APPROACH %	16%	82%	2%	0%	88%	11%	49%	1%	49%	47%	24%	29%	
	APP/DEPART	1,546	/	1,463	2,901	/	2,763	340	/	42	75	/	594	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	83	735	7	5	1,374	189	102	1	82	13	11	11	2,613
	APPROACH %	10%	89%	1%	0%	88%	12%	55%	1%	44%	37%	31%	31%	
	PEAK HR FACTOR		0.913			0.951			0.889			0.729		0.969
	APP/DEPART	825	/	848	1,568	/	1,469	185	/	13	35	/	283	0
PM	4:00 PM	40	371	4	1	225	13	22	3	15	2	1	1	698
	4:15 PM	26	324	10	1	210	6	24	2	14	4	2	2	625
	4:30 PM	49	336	7	1	250	15	19	1	19	2	2	1	702
	4:45 PM	57	359	6	0	221	17	17	1	16	5	0	0	699
	5:00 PM	74	365	4	3	231	11	21	3	15	2	0	1	730
	5:15 PM	50	362	8	2	226	23	31	4	24	2	2	1	735
	5:30 PM	51	361	9	1	215	17	20	0	13	5	1	1	694
	5:45 PM	57	338	6	1	198	18	28	5	13	2	1	1	668
	VOLUMES	404	2,816	54	10	1,776	120	182	19	129	24	9	8	5,551
	APPROACH %	12%	86%	2%	1%	93%	6%	55%	6%	39%	59%	22%	20%	
	APP/DEPART	3,274	/	3,006	1,906	/	1,929	330	/	83	41	/	533	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	230	1,422	25	6	928	66	88	9	74	11	4	3	2,866
	APPROACH %	14%	85%	1%	1%	93%	7%	51%	5%	43%	61%	22%	17%	
	PEAK HR FACTOR		0.946			0.940			0.725			0.900		0.975
	APP/DEPART	1,677	/	1,513	1,000	/	1,013	171	/	40	18	/	300	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Sep 18, 19	LOCATION:	French Valley	PROJECT #:	SC2356
	NORTH & SOUTH:	Winchester	LOCATION #:	4
	EAST & WEST:	Pourroy	CONTROL:	SIGNAL

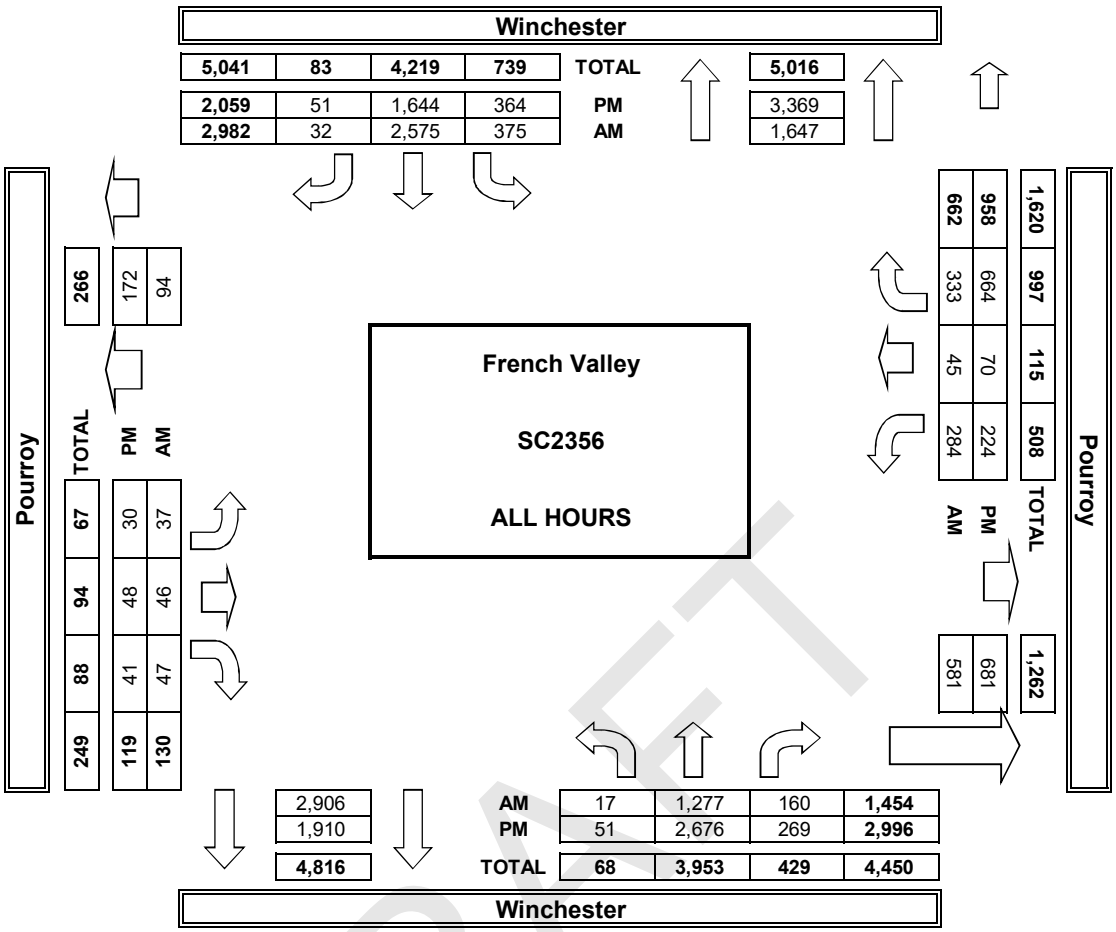
NOTES:

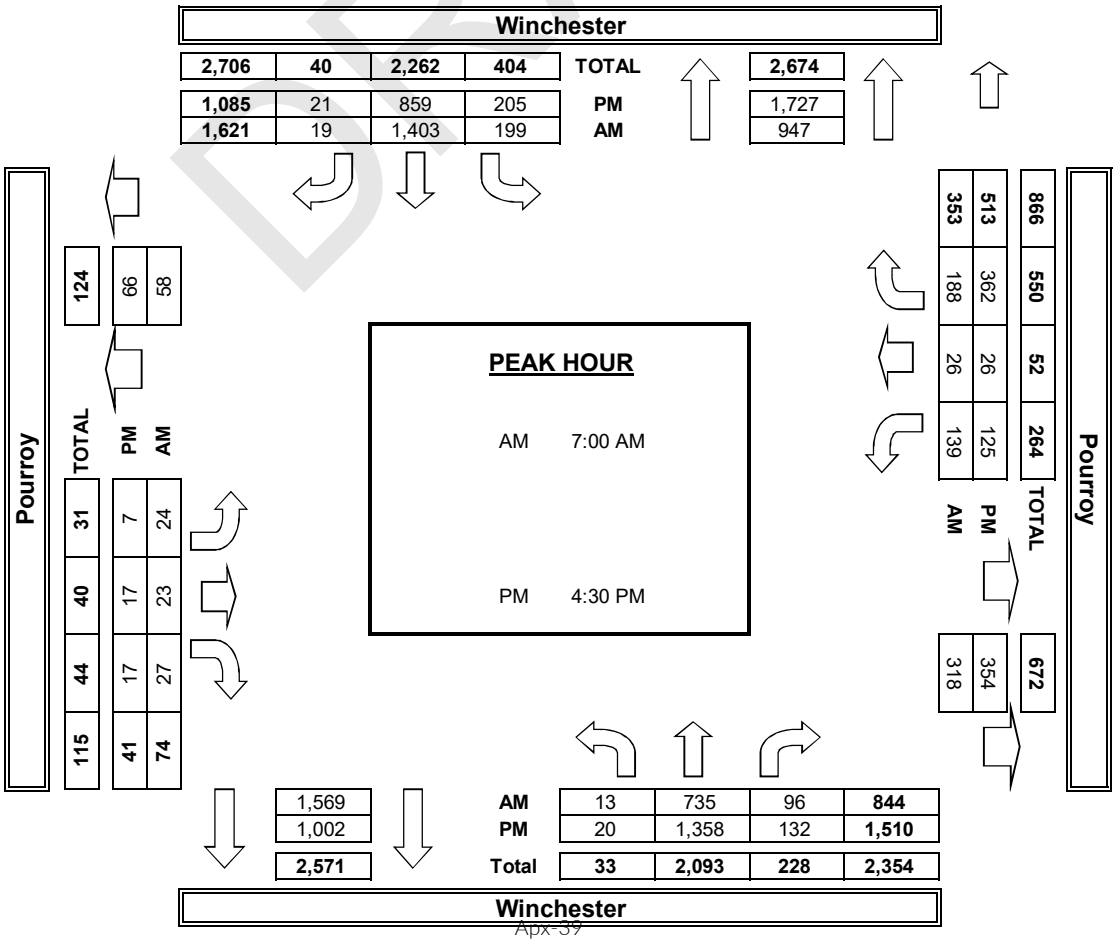
AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Winchester			SOUTHBOUND Winchester			EASTBOUND Pourroy			WESTBOUND Pourroy			
	LANES:	NL 1	NT 2	NR 1	SL 2	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	3	185	18	35	330	3	0	4	0	45	5	33	661
	7:15 AM	6	200	29	48	355	5	3	9	3	32	10	61	761
	7:30 AM	4	176	26	55	350	3	11	4	14	28	7	53	731
	7:45 AM	0	174	23	61	368	8	10	6	10	34	4	41	739
	8:00 AM	1	114	11	42	337	4	8	12	12	39	7	32	619
	8:15 AM	2	145	18	62	321	2	1	7	0	24	2	35	619
	8:30 AM	0	154	19	44	264	6	2	2	4	35	5	29	564
	8:45 AM	1	129	16	28	250	1	2	2	4	47	5	49	534
	VOLUMES	17	1,277	160	375	2,575	32	37	46	47	284	45	333	5,228
	APPROACH %	1%	88%	11%	13%	86%	1%	28%	35%	36%	43%	7%	50%	
	APP/DEPART	1,454	/	1,647	2,982	/	2,906	130	/	581	662	/	94	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	13	735	96	199	1,403	19	24	23	27	139	26	188	2,892
	APPROACH %	2%	87%	11%	12%	87%	1%	32%	31%	36%	39%	7%	53%	
	PEAK HR FACTOR		0.898			0.927			0.638			0.857		0.950
	APP/DEPART	844	/	947	1,621	/	1,569	74	/	318	353	/	58	0
PM	4:00 PM	4	361	29	37	214	7	3	2	5	20	7	81	770
	4:15 PM	17	306	25	38	190	13	2	9	5	22	19	78	724
	4:30 PM	6	328	22	49	232	8	3	5	8	27	12	92	792
	4:45 PM	3	337	34	62	213	6	2	2	2	23	5	92	781
	5:00 PM	4	344	38	49	212	4	1	3	3	31	3	94	786
	5:15 PM	7	349	38	45	202	3	1	7	4	44	6	84	790
	5:30 PM	6	340	33	46	203	6	4	4	1	30	12	65	750
	5:45 PM	4	311	50	38	178	4	14	16	13	27	6	78	739
	VOLUMES	51	2,676	269	364	1,644	51	30	48	41	224	70	664	6,132
	APPROACH %	2%	89%	9%	18%	80%	2%	25%	40%	34%	23%	7%	69%	
	APP/DEPART	2,996	/	3,369	2,059	/	1,910	119	/	681	958	/	172	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	20	1,358	132	205	859	21	7	17	17	125	26	362	3,149
	APPROACH %	1%	90%	9%	19%	79%	2%	17%	41%	41%	24%	5%	71%	
	PEAK HR FACTOR		0.958			0.939			0.641			0.957		0.994
	APP/DEPART	1,510	/	1,727	1,085	/	1,002	41	/	354	513	/	66	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Wed, Sep 18, 19	LOCATION:	French Valley	PROJECT #:	SC2356
	NORTH & SOUTH:	Winchester	LOCATION #:	5
	EAST & WEST:	Abelia	CONTROL:	SIGNAL

NOTES:

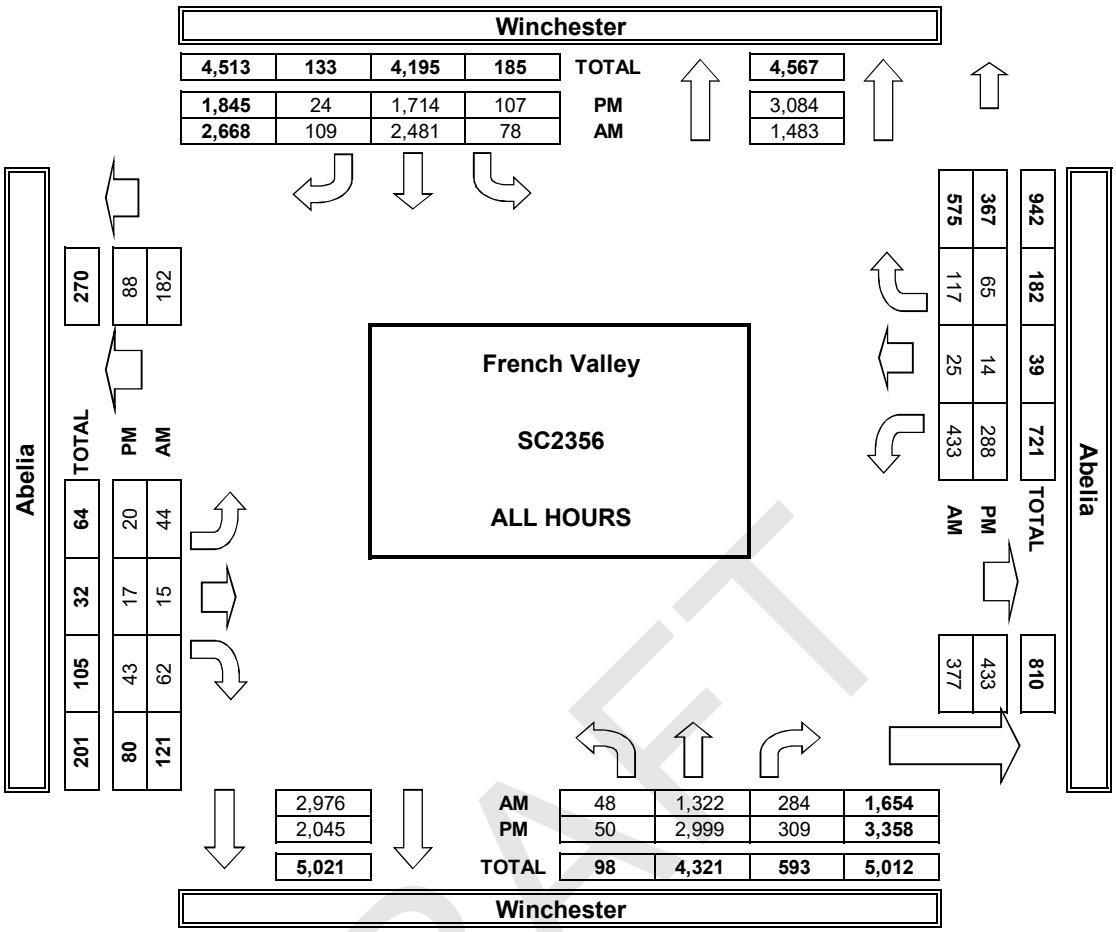
AM / PM / MD / OTHER / OTHER

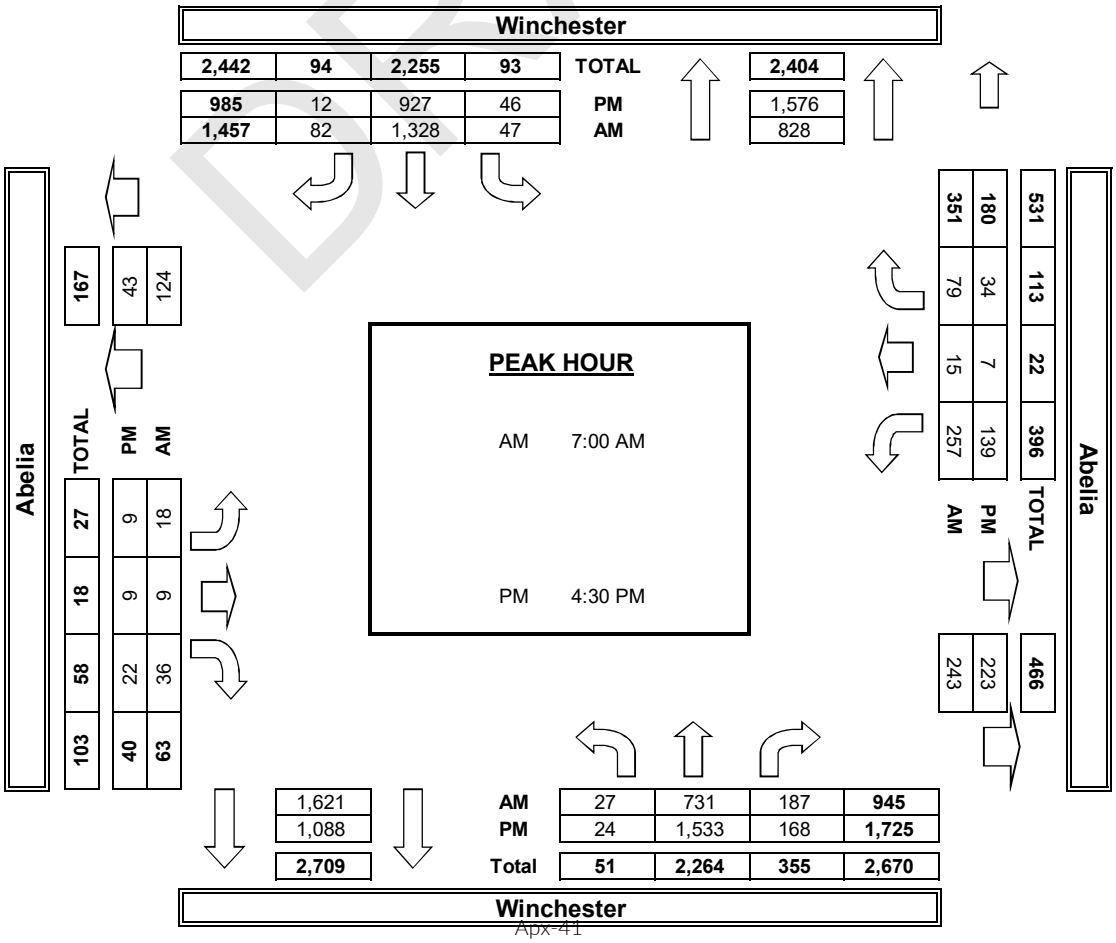
▲ N ◄ W E ► S ▼

		NORTHBOUND Winchester			SOUTHBOUND Winchester			EASTBOUND Abelia			WESTBOUND Abelia			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	4	174	62	10	285	6	6	3	2	83	4	16	655
	7:15 AM	5	192	44	13	335	20	5	3	6	79	5	25	732
	7:30 AM	12	205	33	8	366	30	4	0	9	34	1	14	716
	7:45 AM	6	160	48	16	342	26	3	3	19	61	5	24	713
	8:00 AM	4	133	27	10	314	14	11	1	11	65	4	17	611
	8:15 AM	4	155	24	8	324	5	11	1	7	42	3	10	594
	8:30 AM	3	151	17	7	282	4	3	1	5	28	1	6	508
	8:45 AM	10	152	29	6	233	4	1	3	3	41	2	5	489
	VOLUMES	48	1,322	284	78	2,481	109	44	15	62	433	25	117	5,018
	APPROACH %	3%	80%	17%	3%	93%	4%	36%	12%	51%	75%	4%	20%	
	APP/DEPART	1,654	/	1,483	2,668	/	2,976	121	/	377	575	/	182	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	27	731	187	47	1,328	82	18	9	36	257	15	79	2,816
	APPROACH %	3%	77%	20%	3%	91%	6%	29%	14%	57%	73%	4%	23%	
	PEAK HR FACTOR		0.945			0.902			0.630			0.805		0.962
	APP/DEPART	945	/	828	1,457	/	1,621	63	/	243	351	/	124	0
PM	4:00 PM	4	364	39	17	199	2	2	3	6	52	3	11	702
	4:15 PM	4	369	38	13	199	5	4	1	7	28	3	9	680
	4:30 PM	4	394	44	15	241	5	3	0	5	46	0	12	769
	4:45 PM	6	375	38	11	228	1	1	2	9	31	3	5	710
	5:00 PM	5	381	39	11	246	3	4	4	4	39	1	12	749
	5:15 PM	9	383	47	9	212	3	1	3	4	23	3	5	702
	5:30 PM	7	392	32	14	222	2	4	1	5	42	1	5	727
	5:45 PM	11	341	32	17	167	3	1	3	3	27	0	6	611
	VOLUMES	50	2,999	309	107	1,714	24	20	17	43	288	14	65	5,650
	APPROACH %	1%	89%	9%	6%	93%	1%	25%	21%	54%	78%	4%	18%	
	APP/DEPART	3,358	/	3,084	1,845	/	2,045	80	/	433	367	/	88	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	24	1,533	168	46	927	12	9	9	22	139	7	34	2,930
	APPROACH %	1%	89%	10%	5%	94%	1%	23%	23%	55%	77%	4%	19%	
	PEAK HR FACTOR		0.976			0.943			0.833			0.776		0.953
	APP/DEPART	1,725	/	1,576	985	/	1,088	40	/	223	180	/	43	0

AimTD LLC

TURNING MOVEMENT COUNTS





APPENDIX D

LEVEL OF SERVICE WORKSHEETS

Existing

French Valley Library Facility PRoject

Vistro File: C:\...\AME.vistro
Report File: C:\...\AME.pdf

Scenario 1 Existing AM Peak Hour
9/30/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Winchester Rd (NS) at Benton Rd (EW)	Signalized	HCM 6th Edition	SB Left	0.832	13.9	B
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	NB Left	1.068	55.2	E
3	Wichester Rd (NS) at Jean Nicholas Rd (EW)	Signalized	HCM 6th Edition	SB Left	0.640	13.2	B
4	Winchester Rd (NS) at Whisper Heights (EW)	Signalized	HCM 6th Edition	WB Left	0.744	18.1	B
5	Winchester Rd (NS) at Pouroy Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.747	18.7	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Winchester Rd (NS) at Benton Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.832

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	2	0
Pocket Length [ft]	100.00	100.00	300.00	100.00	225.00	100.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	757	167	343	1688	329	341
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	757	167	343	1688	329	341
Peak Hour Factor	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	199	44	90	445	87	90
Total Analysis Volume [veh/h]	798	176	361	1779	347	359
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal group	2	0	1	6	7	4
Auxiliary Signal Groups						1,4
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	7
Maximum Green [s]	120	0	120	120	120	120
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	21	0	18	39	21	21
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No	No	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	23	23	14	41	12	29
g / C, Green / Cycle	0.38	0.38	0.23	0.67	0.19	0.49
(v / s)_i Volume / Saturation Flow Rate	0.22	0.11	0.20	0.50	0.10	0.23
s, saturation flow rate [veh/h]	3560	1589	1781	3560	3459	1589
c, Capacity [veh/h]	1338	597	413	2401	668	781
d1, Uniform Delay [s]	15.14	13.21	22.30	6.40	21.82	10.07
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.97	1.25	5.89	2.11	0.63	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.29	0.87	0.74	0.52	0.46
d, Delay for Lane Group [s/veh]	17.11	14.46	28.19	8.50	22.45	10.49
Lane Group LOS	B	B	C	A	C	B
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.65	1.47	4.67	3.21	1.97	2.39
50th-Percentile Queue Length [ft/ln]	91.22	36.79	116.81	80.34	49.34	59.80
95th-Percentile Queue Length [veh/ln]	6.57	2.65	8.22	5.78	3.55	4.31
95th-Percentile Queue Length [ft/ln]	164.20	66.23	205.43	144.62	88.82	107.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.11	14.46	28.19	8.50	22.45	10.49
Movement LOS	B	B	C	A	C	B
d_A, Approach Delay [s/veh]	16.63		11.82		16.37	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	13.89					
Intersection LOS	B					
Intersection V/C	0.832					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	0.00	20.01
l_p,int, Pedestrian LOS Score for Intersection	3.386	0.000	2.563
Crosswalk LOS	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
l_b,int, Bicycle LOS Score for Intersection	4.936	5.898	4.132
Bicycle LOS	E	F	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	55.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.068

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	367	650	62	54	1221	188	130	239	711	114	373	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	367	650	62	54	1221	188	130	239	711	114	373	9
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	172	16	14	324	50	34	63	188	30	99	2
Total Analysis Volume [veh/h]	389	689	66	57	1295	199	138	253	754	121	396	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	27	58	0	11	42	0	13	29	29	12	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	23	55	55	6	38	38	9	25	52	8	24
g / C, Green / Cycle	0.21	0.50	0.50	0.05	0.35	0.35	0.08	0.23	0.47	0.07	0.22
(v / s)_i Volume / Saturation Flow Rate	0.22	0.20	0.21	0.03	0.36	0.13	0.08	0.14	0.47	0.07	0.22
s, saturation flow rate [veh/h]	1781	1870	1813	1781	3560	1589	1781	1870	1589	1781	1862
c, Capacity [veh/h]	372	941	912	94	1235	551	146	422	749	130	404
d1, Uniform Delay [s]	43.52	17.08	17.08	51.01	35.94	26.84	50.27	38.13	29.09	50.75	43.10
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	34.34	1.31	1.35	6.20	39.39	1.83	23.67	1.37	16.86	23.48	22.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	0.41	0.41	0.61	1.05	0.36	0.95	0.60	1.01	0.93	1.01
d, Delay for Lane Group [s/veh]	77.86	18.38	18.43	57.21	75.33	28.67	73.95	39.50	45.95	74.23	65.36
Lane Group LOS	F	B	B	E	F	C	E	D	F	E	F
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	13.04	5.73	5.57	1.63	21.84	3.91	4.62	6.03	21.32	4.06	12.98
50th-Percentile Queue Length [ft/ln]	326.02	143.19	139.27	40.75	546.06	97.79	115.59	150.84	533.11	101.55	324.59
95th-Percentile Queue Length [veh/ln]	19.41	9.65	9.44	2.93	30.47	7.04	8.15	10.06	29.04	7.31	18.96
95th-Percentile Queue Length [ft/ln]	485.29	241.32	236.04	73.34	761.82	176.01	203.74	251.55	726.06	182.78	473.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	77.86	18.40	18.43	57.21	75.33	28.67	73.95	39.50	45.95	74.23	65.36	65.36
Movement LOS	F	B	B	E	F	C	E	D	F	E	E	E
d_A, Approach Delay [s/veh]	38.62			68.68			47.90			67.40		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	55.20											
Intersection LOS	E											
Intersection V/C	1.068											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.494	3.174	2.919	0.000
Crosswalk LOS	C	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	982	691	455	436
d_b, Bicycle Delay [s]	14.25	23.56	32.84	33.62
l_b,int, Bicycle LOS Score for Intersection	2.503	2.839	3.449	2.429
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Wichester Rd (NS) at Jean Nicholas Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	575.00	100.00	100.00	160.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	735	7	5	1374	189	102	1	82	13	11	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	735	7	5	1374	189	102	1	82	13	11	11
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	190	2	1	354	49	26	0	21	3	3	3
Total Analysis Volume [veh/h]	86	759	7	5	1418	195	105	1	85	13	11	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	29	0	19	37	0	11	21	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	54	54	1	49	49	6	7	7	2	3	3
g / C, Green / Cycle	0.08	0.68	0.68	0.01	0.61	0.61	0.08	0.09	0.09	0.02	0.03	0.03
(v / s)_i Volume / Saturation Flow Rate	0.05	0.21	0.00	0.00	0.40	0.12	0.06	0.00	0.05	0.01	0.01	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	136	2398	1071	20	2165	967	144	173	147	43	67	57
d1, Uniform Delay [s]	36.03	5.44	4.30	39.44	10.26	7.04	36.10	33.14	34.99	38.57	37.61	37.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.77	0.35	0.01	6.69	1.56	0.47	6.91	0.01	3.58	3.90	1.15	1.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.32	0.01	0.26	0.65	0.20	0.73	0.01	0.58	0.30	0.16	0.19
d, Delay for Lane Group [s/veh]	40.80	5.79	4.31	46.12	11.82	7.51	43.01	33.15	38.57	42.47	38.76	39.29
Lane Group LOS	D	A	A	D	B	A	D	C	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.68	1.66	0.03	0.13	5.96	1.16	2.17	0.02	1.64	0.28	0.22	0.22
50th-Percentile Queue Length [ft/ln]	41.95	41.55	0.65	3.17	149.12	29.07	54.14	0.43	41.07	7.12	5.49	5.61
95th-Percentile Queue Length [veh/ln]	3.02	2.99	0.05	0.23	9.97	2.09	3.90	0.03	2.96	0.51	0.40	0.40
95th-Percentile Queue Length [ft/ln]	75.51	74.78	1.16	5.70	249.25	52.32	97.45	0.78	73.93	12.81	9.89	10.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.80	5.79	4.31	46.12	11.82	7.51	43.01	33.15	38.57	42.47	38.76	39.29
Movement LOS	D	A	A	D	B	A	D	C	D	D	D	D
d_A, Approach Delay [s/veh]	9.31			11.41			40.98			40.30		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	13.22											
Intersection LOS	B											
Intersection V/C	0.640											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	3.152	3.224	2.301	2.307
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	625	825	425	425
d_b, Bicycle Delay [s]	18.91	13.81	24.81	24.81
l_b,int, Bicycle LOS Score for Intersection	2.263	2.894	1.717	1.617
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Winchester Rd (NS) at Whisper Heights (EW)

Control Type:	Signalized	Delay (sec / veh):	18.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.744

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	2	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	435.00	100.00	100.00	150.00	100.00	100.00	175.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	13	735	96	199	1403	19	24	23	27	139	26	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	735	96	199	1403	19	24	23	27	139	26	188
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	193	25	52	369	5	6	6	7	37	7	49
Total Analysis Volume [veh/h]	14	774	101	209	1477	20	25	24	28	146	27	198
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	2	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	120	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	21	11	21	0	11	21	0	12	22	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	10	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	29	40	7	35	35	3	6	6	7	10	10
g / C, Green / Cycle	0.02	0.45	0.62	0.11	0.53	0.53	0.04	0.09	0.09	0.10	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.22	0.06	0.06	0.41	0.01	0.01	0.01	0.02	0.08	0.01	0.12
s, saturation flow rate [veh/h]	1781	3560	1589	3459	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	45	1607	982	366	1893	845	73	172	146	188	293	249
d1, Uniform Delay [s]	31.21	12.55	5.08	27.74	12.22	7.24	30.43	27.23	27.37	28.42	23.53	26.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.77	1.04	0.21	1.40	3.27	0.05	2.79	0.37	0.63	6.75	0.13	5.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.48	0.10	0.57	0.78	0.02	0.34	0.14	0.19	0.78	0.09	0.79
d, Delay for Lane Group [s/veh]	34.98	13.58	5.29	29.14	15.49	7.29	33.22	27.60	28.00	35.16	23.66	32.18
Lane Group LOS	C	B	A	C	B	A	C	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.24	3.14	0.37	1.42	6.43	0.10	0.41	0.33	0.39	2.36	0.33	3.04
50th-Percentile Queue Length [ft/ln]	5.99	78.43	9.18	35.58	160.81	2.54	10.15	8.26	9.81	59.01	8.29	76.01
95th-Percentile Queue Length [veh/ln]	0.43	5.65	0.66	2.56	10.59	0.18	0.73	0.59	0.71	4.25	0.60	5.47
95th-Percentile Queue Length [ft/ln]	10.79	141.18	16.52	64.04	264.80	4.57	18.27	14.87	17.66	106.22	14.92	136.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.98	13.58	5.29	29.14	15.49	7.29	33.22	27.60	28.00	35.16	23.66	32.18
Movement LOS	C	B	A	C	B	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	12.98			17.07			29.57			32.73		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	18.10											
Intersection LOS	B											
Intersection V/C	0.744											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.43	22.43	0.00	22.43
l_p,int, Pedestrian LOS Score for Intersection	3.225	3.311	0.000	2.488
Crosswalk LOS	C	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	523	523	554
d_b, Bicycle Delay [s]	17.72	17.72	17.72	16.99
l_b,int, Bicycle LOS Score for Intersection	2.293	2.967	1.687	2.172
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Winchester Rd (NS) at Pouroy Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	18.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.747

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			65.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	27	731	187	47	1328	82	18	9	36	257	15	79
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	731	187	47	1328	82	18	9	36	257	15	79
Peak Hour Factor	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	190	49	12	345	21	5	2	9	67	4	21
Total Analysis Volume [veh/h]	28	760	194	49	1380	85	19	9	37	267	16	82
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	22	0	11	22	0	11	21	0	16	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	34	34	4	35	35	2	4	4	12	14	14
g / C, Green / Cycle	0.04	0.48	0.48	0.06	0.50	0.50	0.03	0.06	0.06	0.17	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.12	0.03	0.39	0.05	0.01	0.00	0.02	0.15	0.01	0.05
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	77	1699	759	112	1768	790	58	113	96	306	373	317
d1, Uniform Delay [s]	32.63	12.20	10.93	31.70	14.52	9.39	33.23	31.15	31.74	28.33	22.68	23.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.81	0.85	0.81	2.66	3.49	0.27	3.30	0.30	2.54	7.72	0.05	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.45	0.26	0.44	0.78	0.11	0.33	0.08	0.39	0.87	0.04	0.26
d, Delay for Lane Group [s/veh]	35.44	13.05	11.74	34.36	18.01	9.67	36.52	31.45	34.28	36.06	22.73	24.14
Lane Group LOS	D	B	B	C	B	A	D	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.48	3.17	1.53	0.78	6.83	0.54	0.35	0.14	0.63	4.60	0.20	1.08
50th-Percentile Queue Length [ft/ln]	11.91	79.20	38.20	19.44	170.85	13.41	8.66	3.57	15.65	115.08	4.97	26.92
95th-Percentile Queue Length [veh/ln]	0.86	5.70	2.75	1.40	11.12	0.97	0.62	0.26	1.13	8.12	0.36	1.94
95th-Percentile Queue Length [ft/ln]	21.44	142.55	68.76	34.99	278.03	24.15	15.59	6.42	28.17	203.04	8.95	48.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.44	13.05	11.74	34.36	18.01	9.67	36.52	31.45	34.28	36.06	22.73	24.14
Movement LOS	D	B	B	C	B	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.43			18.07			34.54			32.79		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	18.72											
Intersection LOS	B											
Intersection V/C	0.747											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	3.261	3.275	2.343	2.466
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	514	514	486	629
d_b, Bicycle Delay [s]	19.31	19.31	20.06	16.46
l_b,int, Bicycle LOS Score for Intersection	2.370	2.809	1.613	1.861
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

French Valley Library Facility PRoject

Vistro File: C:\...\PME.vistro
Report File: C:\...\PME.pdf

Scenario 1 Existing PM Peak Hour
9/30/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Winchester Rd (NS) at Benton Rd (EW)	Signalized	HCM 6th Edition	SB Left	0.771	29.5	C
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	WB Thru	1.045	53.4	D
3	Wichester Rd (NS) at Jean Nicholas Rd (EW)	Signalized	HCM 6th Edition	SB Left	0.593	13.7	B
4	Winchester Rd (NS) at Whisper Heights (EW)	Signalized	HCM 6th Edition	EB Left	0.833	24.8	C
5	Winchester Rd (NS) at Pouroy Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.709	14.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Winchester Rd (NS) at Benton Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	29.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	2	0
Pocket Length [ft]	100.00	100.00	300.00	100.00	225.00	100.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1474	348	389	1008	289	702
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1474	348	389	1008	289	702
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	383	90	101	262	75	182
Total Analysis Volume [veh/h]	1531	361	404	1047	300	729
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal group	2	0	1	6	7	4
Auxiliary Signal Groups						1,4
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	7
Maximum Green [s]	120	0	120	120	120	120
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	48	0	31	79	21	21
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No	No	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	46	46	25	75	17	46
g / C, Green / Cycle	0.46	0.46	0.25	0.75	0.17	0.46
(v / s)_i Volume / Saturation Flow Rate	0.43	0.23	0.23	0.29	0.09	0.46
s, saturation flow rate [veh/h]	3560	1589	1781	3560	3459	1589
c, Capacity [veh/h]	1627	726	450	2670	589	736
d1, Uniform Delay [s]	25.90	19.10	36.14	4.44	37.74	26.66
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.11	2.42	6.58	0.43	0.68	13.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.50	0.90	0.39	0.51	0.99
d, Delay for Lane Group [s/veh]	38.01	21.52	42.73	4.87	38.43	39.97
Lane Group LOS	D	C	D	A	D	D
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	17.59	5.66	9.58	2.33	3.26	18.04
50th-Percentile Queue Length [ft/ln]	439.79	141.38	239.49	58.36	81.48	450.91
95th-Percentile Queue Length [veh/ln]	24.47	9.55	14.66	4.20	5.87	25.00
95th-Percentile Queue Length [ft/ln]	611.75	238.87	366.38	105.04	146.66	625.04

Movement, Approach, & Intersection Results

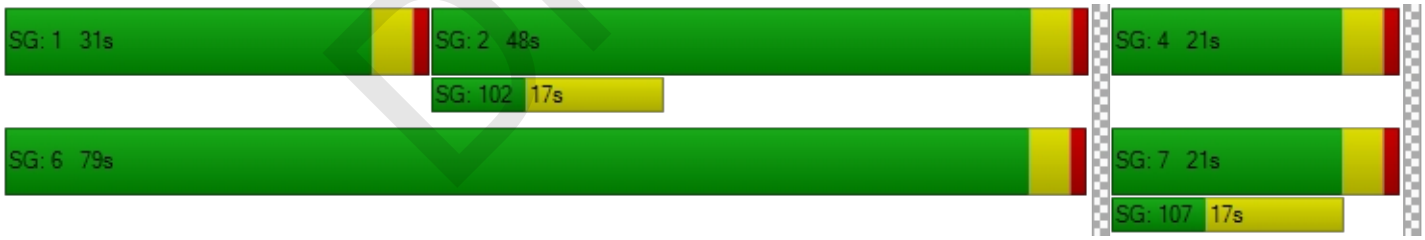
d_M, Delay for Movement [s/veh]	38.01	21.52	42.73	4.87	38.43	39.97
Movement LOS	D	C	D	A	D	D
d_A, Approach Delay [s/veh]	34.87		15.41		39.52	
Approach LOS	C		B		D	
d_I, Intersection Delay [s/veh]	29.51					
Intersection LOS	C					
Intersection V/C	0.771					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.61	0.00	39.61
l_p,int, Pedestrian LOS Score for Intersection	3.463	0.000	2.792
Crosswalk LOS	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	50.00	50.00	50.00
l_b,int, Bicycle LOS Score for Intersection	5.693	5.329	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	53.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.045

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	542	1394	83	68	747	172	256	383	591	47	378	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	542	1394	83	68	747	172	256	383	591	47	378	8
Peak Hour Factor	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	357	21	17	191	44	66	98	151	12	97	2
Total Analysis Volume [veh/h]	555	1427	85	70	765	176	262	392	605	48	387	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	35	50	0	11	26	0	19	33	33	11	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	31	47	47	6	22	22	15	31	66	5	21
g / C, Green / Cycle	0.30	0.45	0.45	0.06	0.21	0.21	0.14	0.29	0.63	0.05	0.20
(v / s)_i Volume / Saturation Flow Rate	0.31	0.40	0.41	0.04	0.21	0.11	0.15	0.21	0.38	0.03	0.21
s, saturation flow rate [veh/h]	1781	1870	1834	1781	3560	1589	1781	1870	1589	1781	1863
c, Capacity [veh/h]	526	837	821	103	750	335	254	545	993	90	371
d1, Uniform Delay [s]	37.00	26.88	27.25	48.49	41.45	36.79	45.00	33.35	11.93	48.67	42.06
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	35.03	14.90	17.19	7.49	38.06	5.80	34.12	1.80	0.61	4.90	41.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.06	0.90	0.92	0.68	1.02	0.53	1.03	0.72	0.61	0.54	1.07
d, Delay for Lane Group [s/veh]	72.04	41.78	44.44	55.99	79.51	42.60	79.12	35.15	12.54	53.57	83.68
Lane Group LOS	F	D	D	E	F	D	F	D	B	D	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	17.45	18.82	19.49	1.92	13.00	4.30	8.78	8.75	7.36	1.31	13.44
50th-Percentile Queue Length [ft/ln]	436.33	470.59	487.21	48.11	324.92	107.60	219.38	218.65	183.97	32.81	336.01
95th-Percentile Queue Length [veh/ln]	25.13	25.94	26.73	3.46	19.12	7.71	13.81	13.60	11.81	2.36	20.11
95th-Percentile Queue Length [ft/ln]	628.34	648.48	668.20	86.59	477.93	192.66	345.32	339.90	295.19	59.07	502.73

Movement, Approach, & Intersection Results

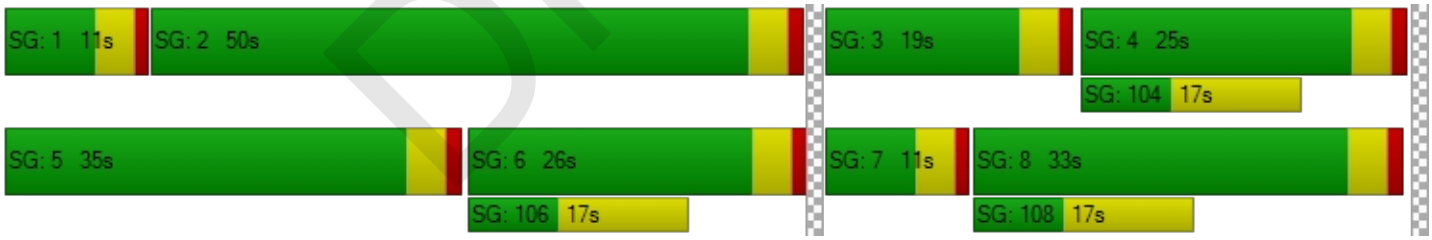
d_M, Delay for Movement [s/veh]	72.04	43.03	44.44	55.99	79.51	42.60	79.12	35.15	12.54	53.57	83.68	83.68
Movement LOS	F	D	D	E	F	D	F	D	B	D	F	F
d_A, Approach Delay [s/veh]	50.88			71.45			33.43			80.42		
Approach LOS	D			E			C			F		
d_I, Intersection Delay [s/veh]	53.37											
Intersection LOS	D											
Intersection V/C	1.045											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.08	42.08	42.08	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.553	3.267	3.007	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	876	419	552	400
d_b, Bicycle Delay [s]	16.58	32.80	27.50	33.60
l_b,int, Bicycle LOS Score for Intersection	3.265	2.394	3.637	2.291
Bicycle LOS	C	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Wichester Rd (NS) at Jean Nicholas Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	575.00	100.00	100.00	160.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	230	1422	25	6	928	66	88	9	74	11	4	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	230	1422	25	6	928	66	88	9	74	11	4	3
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	365	6	2	238	17	23	2	19	3	1	1
Total Analysis Volume [veh/h]	236	1458	26	6	952	68	90	9	76	11	4	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	31	0	12	21	0	11	21	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	51	51	1	40	40	6	6	6	1	1	1
g / C, Green / Cycle	0.16	0.68	0.68	0.01	0.53	0.53	0.08	0.08	0.08	0.02	0.02	0.02
(v / s)_i Volume / Saturation Flow Rate	0.13	0.41	0.02	0.00	0.27	0.04	0.05	0.00	0.05	0.01	0.00	0.00
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	284	2409	1075	21	1883	841	143	147	125	36	35	30
d1, Uniform Delay [s]	30.61	6.66	4.00	36.83	11.39	8.72	33.51	32.09	33.54	36.32	36.30	36.29
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.17	1.14	0.04	6.98	0.97	0.19	4.53	0.17	4.75	4.65	1.45	1.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.61	0.02	0.28	0.51	0.08	0.63	0.06	0.61	0.30	0.12	0.10
d, Delay for Lane Group [s/veh]	36.78	7.80	4.04	43.81	12.37	8.91	38.05	32.26	38.29	40.97	37.75	37.77
Lane Group LOS	D	A	A	D	B	A	D	C	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.17	3.72	0.08	0.14	4.01	0.45	1.66	0.15	1.42	0.23	0.08	0.06
50th-Percentile Queue Length [ft/ln]	104.20	92.89	2.09	3.53	100.16	11.35	41.55	3.72	35.38	5.84	2.05	1.58
95th-Percentile Queue Length [veh/ln]	7.50	6.69	0.15	0.25	7.21	0.82	2.99	0.27	2.55	0.42	0.15	0.11
95th-Percentile Queue Length [ft/ln]	187.55	167.21	3.77	6.36	180.29	20.44	74.78	6.69	63.68	10.51	3.68	2.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.78	7.80	4.04	43.81	12.37	8.91	38.05	32.26	38.29	40.97	37.75	37.77
Movement LOS	D	A	A	D	B	A	D	C	D	D	D	D
d_A, Approach Delay [s/veh]	11.72			12.32			37.85			39.72		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	13.66											
Intersection LOS	B											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	3.265	3.242	2.298	2.307
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	720	453	453	453
d_b, Bicycle Delay [s]	15.36	22.43	22.43	22.43
l_b,int, Bicycle LOS Score for Intersection	2.979	2.406	1.704	1.589
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Winchester Rd (NS) at Whisper Heights (EW)

Control Type:	Signalized	Delay (sec / veh):	24.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.833

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	2	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	435.00	100.00	100.00	150.00	100.00	100.00	175.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	1358	132	205	859	21	7	17	17	125	26	362
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	1358	132	205	859	21	7	17	17	125	26	362
Peak Hour Factor	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	342	33	52	216	5	2	4	4	31	7	91
Total Analysis Volume [veh/h]	20	1366	133	206	864	21	7	17	17	126	26	364
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	2	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	120	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	40	40	11	40	0	12	21	0	13	22	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	10	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	40	51	7	44	44	1	15	15	8	21	21
g / C, Green / Cycle	0.03	0.47	0.60	0.08	0.52	0.52	0.01	0.17	0.17	0.09	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.01	0.38	0.08	0.06	0.24	0.01	0.00	0.01	0.01	0.07	0.01	0.23
s, saturation flow rate [veh/h]	1781	3560	1589	3459	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	57	1658	958	285	1836	820	24	325	277	161	469	399
d1, Uniform Delay [s]	40.36	19.74	7.33	38.15	13.19	10.13	41.62	29.33	29.38	37.93	24.24	31.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.61	4.80	0.30	3.48	0.87	0.06	6.56	0.07	0.09	8.06	0.05	8.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.82	0.14	0.72	0.47	0.03	0.29	0.05	0.06	0.78	0.06	0.91
d, Delay for Lane Group [s/veh]	43.97	24.54	7.64	41.63	14.06	10.18	48.18	29.40	29.47	45.99	24.29	39.40
Lane Group LOS	D	C	A	D	B	B	D	C	C	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.44	10.65	0.86	2.07	4.45	0.17	0.18	0.28	0.28	2.79	0.38	7.60
50th-Percentile Queue Length [ft/ln]	10.98	266.17	21.53	51.85	111.34	4.28	4.56	6.99	7.03	69.86	9.47	190.06
95th-Percentile Queue Length [veh/ln]	0.79	16.00	1.55	3.73	7.91	0.31	0.33	0.50	0.51	5.03	0.68	12.12
95th-Percentile Queue Length [ft/ln]	19.76	399.96	38.76	93.33	197.86	7.70	8.22	12.58	12.65	125.75	17.05	303.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.97	24.54	7.64	41.63	14.06	10.18	48.18	29.40	29.47	45.99	24.29	39.40
Movement LOS	D	C	A	D	B	B	D	C	C	D	C	D
d_A, Approach Delay [s/veh]	23.32			19.19			32.63			40.25		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	24.78											
Intersection LOS	C											
Intersection V/C	0.833											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	0.00	32.21
l_p,int, Pedestrian LOS Score for Intersection	3.235	3.354	0.000	2.551
Crosswalk LOS	C	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	847	400	424
d_b, Bicycle Delay [s]	14.12	14.12	27.20	26.41
l_b,int, Bicycle LOS Score for Intersection	2.813	2.460	1.627	2.411
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Winchester Rd (NS) at Pouroy Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.709

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			65.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	24	1533	168	46	927	12	9	9	22	139	7	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	1533	168	46	927	12	9	9	22	139	7	34
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	402	44	12	243	3	2	2	6	36	2	9
Total Analysis Volume [veh/h]	25	1609	176	48	973	13	9	9	23	146	7	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	40	0	11	40	0	11	21	0	13	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	52	52	5	54	54	1	4	4	9	11	11
g / C, Green / Cycle	0.04	0.61	0.61	0.06	0.63	0.63	0.02	0.04	0.04	0.10	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.01	0.45	0.11	0.03	0.27	0.01	0.01	0.00	0.01	0.08	0.00	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	67	2168	968	101	2236	998	30	83	71	181	242	206
d1, Uniform Delay [s]	40.00	11.89	7.33	38.94	8.11	5.94	41.40	39.08	39.46	37.44	32.39	33.02
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.36	2.34	0.41	3.40	0.62	0.02	5.55	0.57	2.62	8.11	0.05	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.74	0.18	0.47	0.44	0.01	0.30	0.11	0.32	0.81	0.03	0.17
d, Delay for Lane Group [s/veh]	43.35	14.23	7.74	42.33	8.73	5.97	46.95	39.64	42.09	45.55	32.44	33.42
Lane Group LOS	D	B	A	D	A	A	D	D	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.54	8.33	1.14	0.98	3.06	0.06	0.22	0.19	0.50	3.22	0.12	0.65
50th-Percentile Queue Length [ft/ln]	13.45	208.26	28.48	24.38	76.54	1.57	5.60	4.63	12.39	80.51	3.07	16.25
95th-Percentile Queue Length [veh/ln]	0.97	13.06	2.05	1.76	5.51	0.11	0.40	0.33	0.89	5.80	0.22	1.17
95th-Percentile Queue Length [ft/ln]	24.21	326.59	51.26	43.88	137.77	2.82	10.08	8.33	22.31	144.92	5.53	29.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.35	14.23	7.74	42.33	8.73	5.97	46.95	39.64	42.09	45.55	32.44	33.42
Movement LOS	D	B	A	D	A	A	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	14.00			10.26			42.62			42.75		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	14.89											
Intersection LOS	B											
Intersection V/C	0.709											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	3.344	3.396	2.322	2.420
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	847	400	447
d_b, Bicycle Delay [s]	14.12	14.12	27.20	25.62
l_b,int, Bicycle LOS Score for Intersection	3.053	2.413	1.593	1.716
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Existing Plus Project

French Valley Library Facility PRoject

Vistro File: C:\...\AME.vistro
Report File: C:\...\AMEP.pdf

Scenario 2 Existing Plus Project AM Peak Hour
9/30/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Winchester Rd (NS) at Benton Rd (EW)	Signalized	HCM 6th Edition	SB Left	0.833	13.9	B
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	NB Left	1.068	55.6	E
3	Wichester Rd (NS) at Jean Nicholas Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.633	13.7	B
4	Winchester Rd (NS) at Whisper Heights (EW)	Signalized	HCM 6th Edition	WB Left	0.746	18.2	B
5	Winchester Rd (NS) at Pouroy Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.735	18.9	B
6	Project Dwy (NS) at Skyview Ave (EW)	All-way stop	HCM 6th Edition	EB Left	0.041	7.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Winchester Rd (NS) at Benton Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.833

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	2	0
Pocket Length [ft]	100.00	100.00	300.00	100.00	225.00	100.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	757	167	343	1688	329	341
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	1	1	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	759	167	344	1689	329	343
Peak Hour Factor	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	200	44	91	445	87	90
Total Analysis Volume [veh/h]	800	176	362	1780	347	361
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal group	2	0	1	6	7	4
Auxiliary Signal Groups						1,4
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	7
Maximum Green [s]	120	0	120	120	120	120
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	21	0	18	39	21	21
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No	No	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	23	23	14	41	12	30
g / C, Green / Cycle	0.38	0.38	0.23	0.67	0.19	0.49
(v / s)_i Volume / Saturation Flow Rate	0.22	0.11	0.20	0.50	0.10	0.23
s, saturation flow rate [veh/h]	3560	1589	1781	3560	3459	1589
c, Capacity [veh/h]	1334	595	414	2398	671	783
d1, Uniform Delay [s]	15.21	13.26	22.30	6.43	21.78	10.04
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.00	1.26	5.93	2.12	0.62	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.30	0.87	0.74	0.52	0.46
d, Delay for Lane Group [s/veh]	17.21	14.52	28.22	8.56	22.40	10.46
Lane Group LOS	B	B	C	A	C	B
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.67	1.48	4.69	3.24	1.97	2.40
50th-Percentile Queue Length [ft/ln]	91.87	36.91	117.22	81.12	49.27	60.00
95th-Percentile Queue Length [veh/ln]	6.61	2.66	8.24	5.84	3.55	4.32
95th-Percentile Queue Length [ft/ln]	165.37	66.44	206.01	146.02	88.68	108.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.21	14.52	28.22	8.56	22.40	10.46
Movement LOS	B	B	C	A	C	B
d_A, Approach Delay [s/veh]	16.72		11.88		16.31	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	13.94					
Intersection LOS	B					
Intersection V/C	0.833					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	0.00	20.01
I_p,int, Pedestrian LOS Score for Intersection	3.387	0.000	2.564
Crosswalk LOS	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
I_b,int, Bicycle LOS Score for Intersection	4.938	5.900	4.132
Bicycle LOS	E	F	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	55.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.068

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	367	650	62	54	1221	188	130	239	711	114	373	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	1	2	1	2	0	0	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	367	654	62	55	1223	189	132	239	711	114	373	11
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	173	16	15	324	50	35	63	188	30	99	3
Total Analysis Volume [veh/h]	389	694	66	58	1297	200	140	253	754	121	396	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	27	58	0	11	42	0	13	29	29	12	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	23	55	55	6	38	38	9	25	52	8	24
g / C, Green / Cycle	0.21	0.50	0.50	0.05	0.35	0.35	0.08	0.23	0.47	0.07	0.22
(v / s)_i Volume / Saturation Flow Rate	0.22	0.21	0.21	0.03	0.36	0.13	0.08	0.14	0.47	0.07	0.22
s, saturation flow rate [veh/h]	1781	1870	1814	1781	3560	1589	1781	1870	1589	1781	1860
c, Capacity [veh/h]	372	940	912	94	1235	551	146	422	749	130	403
d1, Uniform Delay [s]	43.52	17.13	17.13	51.01	35.94	26.85	50.34	38.13	29.09	50.75	43.10
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	34.34	1.32	1.37	6.33	39.92	1.85	26.07	1.37	16.86	23.48	23.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	0.41	0.41	0.61	1.05	0.36	0.96	0.60	1.01	0.93	1.01
d, Delay for Lane Group [s/veh]	77.86	18.45	18.50	57.34	75.86	28.70	76.40	39.50	45.95	74.23	66.86
Lane Group LOS	F	B	B	E	F	C	E	D	F	E	F
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	13.04	5.78	5.62	1.66	21.93	3.93	4.78	6.03	21.32	4.06	13.14
50th-Percentile Queue Length [ft/ln]	326.02	144.52	140.60	41.51	548.31	98.36	119.45	150.84	533.11	101.55	328.52
95th-Percentile Queue Length [veh/ln]	19.41	9.72	9.51	2.99	30.61	7.08	8.36	10.06	29.04	7.31	19.21
95th-Percentile Queue Length [ft/ln]	485.29	243.10	237.83	74.71	765.33	177.05	209.07	251.55	726.06	182.78	480.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	77.86	18.47	18.50	57.34	75.86	28.70	76.40	39.50	45.95	74.23	66.86	66.86
Movement LOS	F	B	B	E	F	C	E	D	F	E	E	E
d_A, Approach Delay [s/veh]	38.58			69.10			48.24			68.54		
Approach LOS	D			E			D			E		
d_I, Intersection Delay [s/veh]	55.57											
Intersection LOS	E											
Intersection V/C	1.068											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.497	3.178	2.920	0.000
Crosswalk LOS	C	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	982	691	455	436
d_b, Bicycle Delay [s]	14.25	23.56	32.84	33.62
l_b,int, Bicycle LOS Score for Intersection	2.508	2.842	3.452	2.432
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Wichester Rd (NS) at Jean Nicholas Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.633

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	575.00	100.00	100.00	160.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	735	7	5	1374	189	102	1	82	13	11	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	8	9	0	0	0	3	0	4	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	735	15	14	1374	189	102	4	82	17	11	14
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	190	4	4	354	49	26	1	21	4	3	4
Total Analysis Volume [veh/h]	86	759	15	14	1418	195	105	4	85	18	11	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	32	42	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	57	57	2	53	53	7	7	7	2	3	3
g / C, Green / Cycle	0.07	0.67	0.67	0.02	0.63	0.63	0.08	0.09	0.09	0.03	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.05	0.21	0.01	0.01	0.40	0.12	0.06	0.00	0.05	0.01	0.01	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	129	2393	1068	43	2222	992	139	161	137	53	71	60
d1, Uniform Delay [s]	38.51	5.82	4.62	40.88	10.01	6.87	38.48	35.65	37.58	40.52	39.68	39.79
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.80	0.35	0.02	4.27	1.42	0.44	8.06	0.06	4.52	3.77	1.01	1.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.32	0.01	0.32	0.64	0.20	0.76	0.02	0.62	0.34	0.16	0.23
d, Delay for Lane Group [s/veh]	44.32	6.17	4.65	45.15	11.43	7.31	46.54	35.71	42.10	44.30	40.69	41.75
Lane Group LOS	D	A	A	D	B	A	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.83	1.90	0.06	0.32	6.13	1.20	2.35	0.08	1.79	0.41	0.23	0.30
50th-Percentile Queue Length [ft/ln]	45.67	47.44	1.58	8.00	153.36	29.92	58.68	1.88	44.83	10.19	5.81	7.59
95th-Percentile Queue Length [veh/ln]	3.29	3.42	0.11	0.58	10.20	2.15	4.22	0.14	3.23	0.73	0.42	0.55
95th-Percentile Queue Length [ft/ln]	82.21	85.39	2.84	14.40	254.90	53.86	105.62	3.38	80.69	18.35	10.45	13.67

Movement, Approach, & Intersection Results

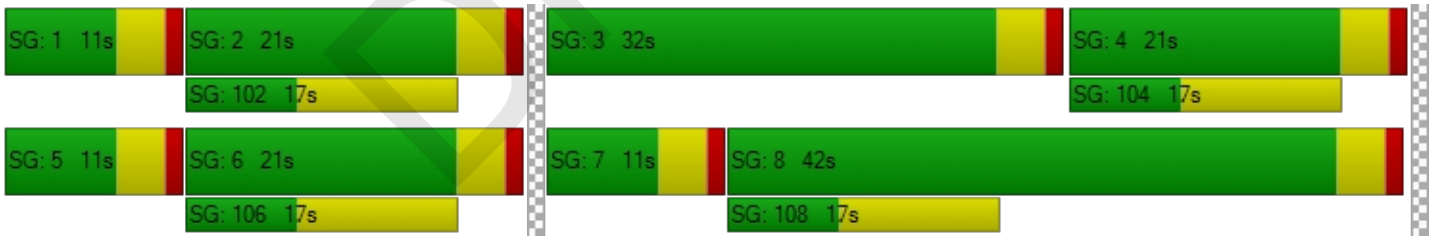
d_M, Delay for Movement [s/veh]	44.32	6.17	4.65	45.15	11.43	7.31	46.54	35.71	42.10	44.30	40.69	41.75
Movement LOS	D	A	A	D	B	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	9.96			11.22			44.37			42.54		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	13.68											
Intersection LOS	B											
Intersection V/C	0.633											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	3.159	3.230	2.305	2.319
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	400	894	400
d_b, Bicycle Delay [s]	27.20	27.20	12.99	27.20
l_b,int, Bicycle LOS Score for Intersection	2.269	2.902	1.720	1.631
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Rd (NS) at Whisper Heights (EW)

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	2	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	435.00	100.00	100.00	150.00	100.00	100.00	175.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	13	735	96	199	1403	19	24	23	27	139	26	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	1	0	4	0	0	0	2	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	736	97	199	1407	19	24	23	29	142	26	188
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	194	26	52	370	5	6	6	8	37	7	49
Total Analysis Volume [veh/h]	15	775	102	209	1481	20	25	24	31	149	27	198
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	2	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	120	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	21	11	21	0	11	21	0	12	22	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	10	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	29	40	7	35	35	3	6	6	7	10	10
g / C, Green / Cycle	0.03	0.45	0.62	0.11	0.53	0.53	0.04	0.09	0.09	0.11	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.22	0.06	0.06	0.42	0.01	0.01	0.01	0.02	0.08	0.01	0.12
s, saturation flow rate [veh/h]	1781	3560	1589	3459	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	48	1607	985	366	1888	843	73	168	143	191	293	249
d1, Uniform Delay [s]	31.13	12.55	5.03	27.74	12.33	7.29	30.43	27.35	27.53	28.35	23.53	26.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.62	1.04	0.21	1.40	3.36	0.05	2.79	0.38	0.75	6.72	0.13	5.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.48	0.10	0.57	0.78	0.02	0.34	0.14	0.22	0.78	0.09	0.79
d, Delay for Lane Group [s/veh]	34.75	13.59	5.24	29.14	15.68	7.34	33.22	27.73	28.28	35.07	23.66	32.18
Lane Group LOS	C	B	A	C	B	A	C	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.25	3.14	0.37	1.42	6.51	0.10	0.41	0.33	0.44	2.40	0.33	3.04
50th-Percentile Queue Length [ft/ln]	6.35	78.57	9.18	35.58	162.85	2.55	10.15	8.29	10.94	60.12	8.29	76.01
95th-Percentile Queue Length [veh/ln]	0.46	5.66	0.66	2.56	10.70	0.18	0.73	0.60	0.79	4.33	0.60	5.47
95th-Percentile Queue Length [ft/ln]	11.43	141.42	16.52	64.04	267.49	4.60	18.27	14.92	19.70	108.21	14.92	136.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	34.75	13.59	5.24	29.14	15.68	7.34	33.22	27.73	28.28	35.07	23.66	32.18
Movement LOS	C	B	A	C	B	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	12.99			17.23			29.66			32.72		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	18.21											
Intersection LOS	B											
Intersection V/C	0.746											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.43	22.43	0.00	22.43
l_p,int, Pedestrian LOS Score for Intersection	3.228	3.313	0.000	2.489
Crosswalk LOS	C	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	523	523	554
d_b, Bicycle Delay [s]	17.72	17.72	17.72	16.99
l_b,int, Bicycle LOS Score for Intersection	2.296	2.970	1.692	2.177
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Winchester Rd (NS) at Pouroy Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	18.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			65.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	27	731	187	47	1328	82	18	9	36	257	15	79
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	0	1	0	0	0	0	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	731	188	47	1329	82	18	9	36	260	15	79
Peak Hour Factor	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	190	49	12	345	21	5	2	9	68	4	21
Total Analysis Volume [veh/h]	28	760	195	49	1381	85	19	9	37	270	16	82
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	26	0	11	26	0	11	21	0	17	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	37	37	5	39	39	2	4	4	13	15	15
g / C, Green / Cycle	0.04	0.50	0.50	0.06	0.51	0.51	0.03	0.06	0.06	0.17	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.02	0.21	0.12	0.03	0.39	0.05	0.01	0.00	0.02	0.15	0.01	0.05
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	76	1759	785	109	1825	815	57	109	93	309	375	318
d1, Uniform Delay [s]	35.02	12.24	10.97	34.09	14.60	9.44	35.63	33.49	34.12	30.27	24.26	25.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.96	0.78	0.76	2.90	2.99	0.26	3.43	0.32	2.73	7.66	0.05	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.43	0.25	0.45	0.76	0.10	0.34	0.08	0.40	0.87	0.04	0.26
d, Delay for Lane Group [s/veh]	37.98	13.01	11.72	36.99	17.58	9.70	39.05	33.81	36.86	37.93	24.30	25.78
Lane Group LOS	D	B	B	D	B	A	D	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.52	3.34	1.61	0.85	7.16	0.57	0.37	0.16	0.68	5.01	0.22	1.17
50th-Percentile Queue Length [ft/ln]	12.92	83.42	40.32	21.24	178.91	14.19	9.34	3.88	17.00	125.27	5.41	29.29
95th-Percentile Queue Length [veh/ln]	0.93	6.01	2.90	1.53	11.54	1.02	0.67	0.28	1.22	8.68	0.39	2.11
95th-Percentile Queue Length [ft/ln]	23.25	150.16	72.57	38.23	288.59	25.54	16.81	6.98	30.60	217.05	9.74	52.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.98	13.01	11.72	36.99	17.58	9.70	39.05	33.81	36.86	37.93	24.30	25.78
Movement LOS	D	B	B	D	B	A	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	13.47			17.77			37.08			34.63		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	18.87											
Intersection LOS	B											
Intersection V/C	0.735											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	3.266	3.279	2.347	2.471
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	587	587	453	613
d_b, Bicycle Delay [s]	18.73	18.73	22.43	18.03
l_b,int, Bicycle LOS Score for Intersection	2.371	2.809	1.613	1.863
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Skyview Ave (EW)

Control Type:	All-way stop	Delay (sec / veh):	7.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	13	35	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	20	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	7	20	13	35	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	5	3	9	0
Total Analysis Volume [veh/h]	0	7	21	14	37	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	1030	857	788	788
Degree of Utilization, x	0.01	0.04	0.02	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	0.13	0.07	0.07
95th-Percentile Queue Length [ft]	0.51	3.19	1.80	1.80
Approach Delay [s/veh]	6.52	7.38	7.38	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	7.30			
Intersection LOS	A			

French Valley Library Facility PRoject

Vistro File: C:\...\PME.vistro
Report File: C:\...\PMEP.pdf

Scenario 2 Existing Plus Project PM Peak Hour
9/30/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Winchester Rd (NS) at Benton Rd (EW)	Signalized	HCM 6th Edition	SB Left	0.781	30.6	C
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	NB Left	1.050	57.4	E
3	Wichester Rd (NS) at Jean Nicholas Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.663	18.5	B
4	Winchester Rd (NS) at Whisper Heights (EW)	Signalized	HCM 6th Edition	EB Left	0.840	25.3	C
5	Winchester Rd (NS) at Pouroy Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.721	15.6	B
6	Project Dwy (NS) at Skyview Ave (EW)	All-way stop	HCM 6th Edition	EB Left	0.181	7.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Winchester Rd (NS) at Benton Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.781

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	2	0
Pocket Length [ft]	100.00	100.00	300.00	100.00	225.00	100.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1474	348	389	1008	289	702
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	11	11	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1484	348	400	1019	289	712
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	385	90	104	265	75	185
Total Analysis Volume [veh/h]	1541	361	415	1058	300	739
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal group	2	0	1	6	7	4
Auxiliary Signal Groups						1,4
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	7
Maximum Green [s]	120	0	120	120	120	120
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	49	0	30	79	21	21
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No	No	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	46	46	25	75	17	46
g / C, Green / Cycle	0.46	0.46	0.25	0.75	0.17	0.46
(v / s)_i Volume / Saturation Flow Rate	0.43	0.23	0.23	0.30	0.09	0.46
s, saturation flow rate [veh/h]	3560	1589	1781	3560	3459	1589
c, Capacity [veh/h]	1621	724	453	2669	590	739
d1, Uniform Delay [s]	26.22	19.25	36.33	4.47	37.77	26.83
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.35	2.45	7.74	0.44	0.68	15.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.50	0.92	0.40	0.51	1.00
d, Delay for Lane Group [s/veh]	39.58	21.69	44.08	4.91	38.45	42.22
Lane Group LOS	D	C	D	A	D	F
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	18.10	5.68	10.03	2.37	3.26	18.82
50th-Percentile Queue Length [ft/ln]	452.44	142.03	250.73	59.37	81.52	470.60
95th-Percentile Queue Length [veh/ln]	25.07	9.59	15.22	4.27	5.87	25.94
95th-Percentile Queue Length [ft/ln]	626.85	239.76	380.57	106.87	146.73	648.51

Movement, Approach, & Intersection Results

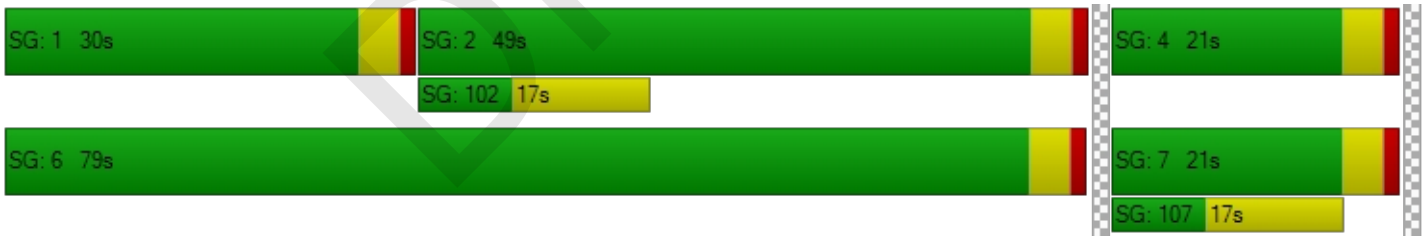
d_M, Delay for Movement [s/veh]	39.58	21.69	44.08	4.91	38.45	42.22
Movement LOS	D	C	D	A	D	F
d_A, Approach Delay [s/veh]	36.18		15.95		41.13	
Approach LOS	D		B		D	
d_I, Intersection Delay [s/veh]	30.59					
Intersection LOS	C					
Intersection V/C	0.781					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.61	0.00	39.61
l_p,int, Pedestrian LOS Score for Intersection	3.470	0.000	2.800
Crosswalk LOS	C	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	50.00	50.00	50.00
l_b,int, Bicycle LOS Score for Intersection	5.702	5.348	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	57.4
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.050

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	542	1394	83	68	747	172	256	383	591	47	378	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	0	11	22	11	10	0	0	0	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	542	1414	83	79	769	183	266	383	591	47	378	18
Peak Hour Factor	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	362	21	20	197	47	68	98	151	12	97	5
Total Analysis Volume [veh/h]	555	1447	85	81	787	187	272	392	605	48	387	18
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	37	55	0	11	29	0	21	34	34	15	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	33	51	51	7	25	25	17	35	72	5	24
g / C, Green / Cycle	0.29	0.45	0.45	0.06	0.22	0.22	0.15	0.31	0.63	0.05	0.21
(v / s)_i Volume / Saturation Flow Rate	0.31	0.41	0.42	0.05	0.22	0.12	0.15	0.21	0.38	0.03	0.22
s, saturation flow rate [veh/h]	1781	1870	1834	1781	3560	1589	1781	1870	1589	1781	1855
c, Capacity [veh/h]	511	837	821	103	777	347	263	576	1001	85	386
d1, Uniform Delay [s]	41.00	29.72	30.13	53.50	44.95	39.82	49.00	34.85	12.74	53.59	45.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	46.67	16.26	18.81	12.52	35.41	5.89	34.70	1.43	0.59	5.75	36.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.09	0.92	0.93	0.79	1.01	0.54	1.03	0.68	0.60	0.56	1.05
d, Delay for Lane Group [s/veh]	87.67	45.98	48.94	66.02	80.36	45.72	83.70	36.28	13.33	59.34	81.55
Lane Group LOS	F	D	D	E	F	D	F	D	B	E	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	20.07	21.48	22.23	2.57	14.25	5.01	9.85	9.42	8.23	1.46	14.43
50th-Percentile Queue Length [ft/ln]	501.73	536.93	555.74	64.26	356.16	125.28	246.17	235.48	205.66	36.52	360.70
95th-Percentile Queue Length [veh/ln]	28.84	29.08	29.96	4.63	20.58	8.68	15.22	14.45	12.93	2.63	21.22
95th-Percentile Queue Length [ft/ln]	720.89	726.94	749.04	115.67	514.50	217.07	380.49	361.31	323.25	65.73	530.40

Movement, Approach, & Intersection Results

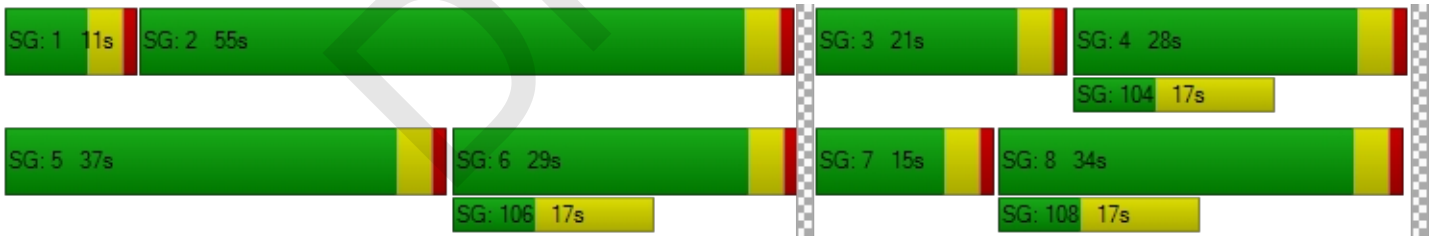
d_M, Delay for Movement [s/veh]	87.67	47.37	48.94	66.02	80.36	45.72	83.70	36.28	13.33	59.34	81.55	81.55
Movement LOS	F	D	D	E	F	D	F	D	B	E	F	F
d_A, Approach Delay [s/veh]	58.15			73.12			35.50			79.20		
Approach LOS	E			E			D			E		
d_I, Intersection Delay [s/veh]	57.45											
Intersection LOS	E											
Intersection V/C	1.050											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.572	3.296	3.020	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	887	435	522	417
d_b, Bicycle Delay [s]	17.81	35.22	31.41	36.00
l_b,int, Bicycle LOS Score for Intersection	3.281	2.430	3.653	2.307
Bicycle LOS	C	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Wichester Rd (NS) at Jean Nicholas Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	575.00	100.00	100.00	160.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	230	1422	25	6	928	66	88	9	74	11	4	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	40	45	0	0	0	15	0	44	14	48
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	230	1422	65	51	928	66	88	24	74	55	18	51
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	59	365	17	13	238	17	23	6	19	14	5	13
Total Analysis Volume [veh/h]	236	1458	67	52	952	68	90	25	76	56	18	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	31	0	12	21	0	11	21	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	43	43	5	36	36	6	7	7	5	5	5
g / C, Green / Cycle	0.16	0.57	0.57	0.06	0.48	0.48	0.08	0.09	0.09	0.06	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.13	0.41	0.04	0.03	0.27	0.04	0.05	0.01	0.05	0.03	0.01	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	284	2035	909	112	1691	755	143	162	138	117	135	115
d1, Uniform Delay [s]	30.61	11.68	7.20	34.00	14.14	10.82	33.51	31.78	32.93	33.90	32.67	33.45
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.17	2.20	0.16	2.94	1.36	0.24	4.53	0.43	3.39	3.03	0.44	2.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.72	0.07	0.46	0.56	0.09	0.63	0.15	0.55	0.48	0.13	0.45
d, Delay for Lane Group [s/veh]	36.78	13.88	7.36	36.94	15.50	11.06	38.05	32.21	36.32	36.92	33.11	36.21
Lane Group LOS	D	B	A	D	B	B	D	C	D	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.17	6.66	0.38	0.92	4.80	0.54	1.66	0.41	1.37	1.02	0.30	0.94
50th-Percentile Queue Length [ft/ln]	104.20	166.46	9.55	23.10	120.07	13.49	41.55	10.30	34.16	25.50	7.59	23.43
95th-Percentile Queue Length [veh/ln]	7.50	10.89	0.69	1.66	8.40	0.97	2.99	0.74	2.46	1.84	0.55	1.69
95th-Percentile Queue Length [ft/ln]	187.55	272.25	17.18	41.59	209.92	24.28	74.78	18.54	61.48	45.90	13.66	42.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.78	13.88	7.36	36.94	15.50	11.06	38.05	32.21	36.32	36.92	33.11	36.21
Movement LOS	D	B	A	D	B	B	D	C	D	D	C	D
d_A, Approach Delay [s/veh]	16.70			16.26			36.59			36.08		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.53											
Intersection LOS	B											
Intersection V/C	0.663											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	3.290	3.266	2.309	2.369
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	720	453	453	453
d_b, Bicycle Delay [s]	15.36	22.43	22.43	22.43
l_b,int, Bicycle LOS Score for Intersection	3.012	2.444	1.717	1.768
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Winchester Rd (NS) at Whisper Heights (EW)

Control Type:	Signalized	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.840

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	2	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	435.00	100.00	100.00	150.00	100.00	100.00	175.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	1358	132	205	859	21	7	17	17	125	26	362
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	21	16	0	20	0	0	0	10	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	1379	148	205	879	21	7	17	27	140	26	362
Peak Hour Factor	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	347	37	52	221	5	2	4	7	35	7	91
Total Analysis Volume [veh/h]	31	1387	149	206	884	21	7	17	27	141	26	364
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	2	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	120	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	40	40	11	40	0	12	21	0	13	22	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	10	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	40	52	7	43	43	1	14	14	8	21	21
g / C, Green / Cycle	0.04	0.47	0.61	0.08	0.50	0.50	0.01	0.17	0.17	0.10	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.02	0.39	0.09	0.06	0.25	0.01	0.00	0.01	0.02	0.08	0.01	0.23
s, saturation flow rate [veh/h]	1781	3560	1589	3459	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	78	1658	972	285	1794	801	24	309	263	177	469	399
d1, Uniform Delay [s]	39.63	19.93	7.09	38.15	13.95	10.62	41.62	29.96	30.20	37.55	24.24	31.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.23	5.20	0.33	3.48	0.97	0.06	6.56	0.07	0.17	8.03	0.05	8.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.84	0.15	0.72	0.49	0.03	0.29	0.06	0.10	0.80	0.06	0.91
d, Delay for Lane Group [s/veh]	42.86	25.13	7.43	41.63	14.92	10.68	48.18	30.03	30.37	45.58	24.29	39.40
Lane Group LOS	D	C	A	D	B	B	D	C	C	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.66	10.98	0.94	2.07	4.77	0.18	0.18	0.28	0.46	3.11	0.38	7.60
50th-Percentile Queue Length [ft/ln]	16.42	274.50	23.51	51.85	119.20	4.43	4.56	7.09	11.40	77.77	9.47	190.06
95th-Percentile Queue Length [veh/ln]	1.18	16.41	1.69	3.73	8.35	0.32	0.33	0.51	0.82	5.60	0.68	12.12
95th-Percentile Queue Length [ft/ln]	29.55	410.35	42.32	93.33	208.72	7.98	8.22	12.75	20.52	139.99	17.05	303.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.86	25.13	7.43	41.63	14.92	10.68	48.18	30.03	30.37	45.58	24.29	39.40
Movement LOS	D	C	A	D	B	B	D	C	C	D	C	D
d_A, Approach Delay [s/veh]	23.80			19.79			32.70			40.30		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	25.26											
Intersection LOS	C											
Intersection V/C	0.840											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	0.00	32.21
l_p,int, Pedestrian LOS Score for Intersection	3.259	3.363	0.000	2.561
Crosswalk LOS	C	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	847	400	424
d_b, Bicycle Delay [s]	14.12	14.12	27.20	26.41
l_b,int, Bicycle LOS Score for Intersection	2.852	2.476	1.644	2.436
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Winchester Rd (NS) at Pouroy Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			65.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	24	1533	168	46	927	12	9	9	22	139	7	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	16	0	5	0	0	0	0	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	1538	184	46	932	12	9	9	22	154	7	34
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	403	48	12	244	3	2	2	6	40	2	9
Total Analysis Volume [veh/h]	25	1614	193	48	978	13	9	9	23	162	7	36
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	28	0	11	28	0	25	32	0	14	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	51	51	5	53	53	1	4	4	9	12	12
g / C, Green / Cycle	0.04	0.60	0.60	0.06	0.62	0.62	0.02	0.04	0.04	0.11	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.01	0.45	0.12	0.03	0.27	0.01	0.01	0.00	0.01	0.09	0.00	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	67	2133	952	101	2201	983	30	83	71	199	261	222
d1, Uniform Delay [s]	40.00	12.52	7.79	38.94	8.56	6.26	41.40	39.07	39.45	36.99	31.67	32.28
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.36	2.56	0.48	3.40	0.65	0.02	5.55	0.56	2.61	7.90	0.04	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.76	0.20	0.47	0.44	0.01	0.30	0.11	0.32	0.82	0.03	0.16
d, Delay for Lane Group [s/veh]	43.35	15.09	8.27	42.33	9.21	6.29	46.95	39.63	42.06	44.89	31.71	32.62
Lane Group LOS	D	B	A	D	A	A	D	D	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.54	8.77	1.32	0.98	3.24	0.07	0.22	0.19	0.50	3.55	0.12	0.64
50th-Percentile Queue Length [ft/ln]	13.45	219.20	32.97	24.38	81.11	1.65	5.60	4.63	12.39	88.65	3.02	15.99
95th-Percentile Queue Length [veh/ln]	0.97	13.62	2.37	1.76	5.84	0.12	0.40	0.33	0.89	6.38	0.22	1.15
95th-Percentile Queue Length [ft/ln]	24.21	340.60	59.34	43.88	146.00	2.97	10.08	8.33	22.30	159.57	5.44	28.77

Movement, Approach, & Intersection Results

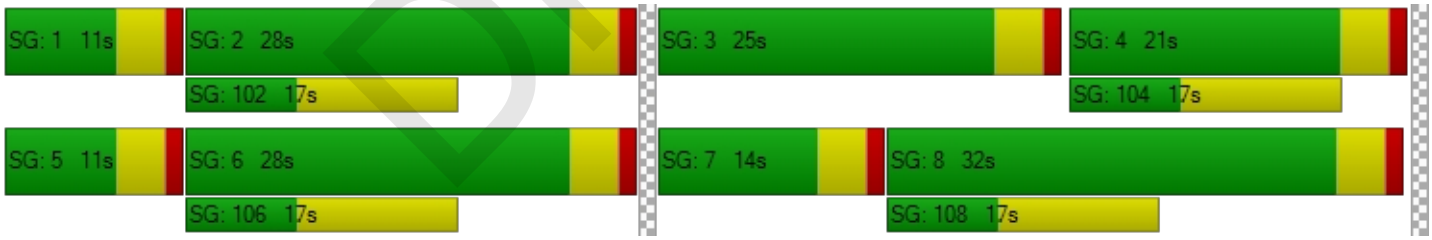
d_M, Delay for Movement [s/veh]	43.35	15.09	8.27	42.33	9.21	6.29	46.95	39.63	42.06	44.89	31.71	32.62
Movement LOS	D	B	A	D	A	A	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	14.76			10.71			42.60			42.29		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	15.58											
Intersection LOS	B											
Intersection V/C	0.721											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	3.355	3.399	2.322	2.429
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	565	565	659	400
d_b, Bicycle Delay [s]	21.89	21.89	19.11	27.20
l_b,int, Bicycle LOS Score for Intersection	3.071	2.417	1.593	1.729
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Skyview Ave (EW)

Control Type:	All-way stop	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.181

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	40	18	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	106	100	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	106	100	40	18	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	28	26	11	5	0
Total Analysis Volume [veh/h]	0	112	105	42	19	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	968	813	739	739
Degree of Utilization, x	0.12	0.18	0.01	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.39	0.66	0.04	0.04
95th-Percentile Queue Length [ft]	9.78	16.43	0.98	0.98
Approach Delay [s/veh]	7.21	8.41	7.64	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	7.87			
Intersection LOS	A			

French Valley Library Facility PRoject

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Scenario 3 Existing Plus Project AM Peak Hour - With Improvements

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10/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	NB Left	0.772	52.2	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	52.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.772

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	367	650	62	54	1221	188	130	239	711	114	373	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	1	2	1	2	0	0	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	367	654	62	55	1223	189	132	239	711	114	373	11
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	97	173	16	15	324	50	35	63	188	30	99	3
Total Analysis Volume [veh/h]	389	694	66	58	1297	200	140	253	754	121	396	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	29	63	0	11	45	0	11	28	28	13	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	25	60	60	6	41	41	7	24	53	9	26
g / C, Green / Cycle	0.22	0.52	0.52	0.05	0.36	0.36	0.06	0.21	0.46	0.08	0.23
(v / s)_i Volume / Saturation Flow Rate	0.22	0.21	0.21	0.03	0.36	0.13	0.04	0.14	0.47	0.07	0.22
s, saturation flow rate [veh/h]	1781	1870	1814	1781	3560	1589	3459	1870	1589	1781	1860
c, Capacity [veh/h]	387	979	950	92	1274	569	208	388	730	140	419
d1, Uniform Delay [s]	45.02	16.44	16.44	53.49	36.94	27.14	52.94	41.80	31.09	52.42	44.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	22.39	1.19	1.23	7.00	29.83	1.71	3.72	1.86	24.59	14.62	14.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.39	0.39	0.63	1.02	0.35	0.67	0.65	1.03	0.87	0.97
d, Delay for Lane Group [s/veh]	67.41	17.63	17.67	60.49	66.77	28.84	56.66	43.66	55.68	67.05	59.17
Lane Group LOS	F	B	B	E	F	C	E	D	F	E	E
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	12.79	5.77	5.61	1.75	21.66	4.05	2.04	6.56	23.48	3.93	12.80
50th-Percentile Queue Length [ft/ln]	319.75	144.27	140.34	43.86	541.52	101.21	50.95	164.04	587.05	98.17	320.07
95th-Percentile Queue Length [veh/ln]	18.70	9.71	9.50	3.16	29.66	7.29	3.67	10.76	32.20	7.07	18.67
95th-Percentile Queue Length [ft/ln]	467.60	242.77	237.48	78.94	741.58	182.18	91.72	269.06	804.93	176.71	466.77

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	67.41	17.65	17.67	60.49	66.77	28.84	56.66	43.66	55.68	67.05	59.17	59.17
Movement LOS	F	B	B	E	F	C	E	D	F	E	E	E
d_A, Approach Delay [s/veh]	34.50			61.66			53.15			60.97		
Approach LOS	C			E			D			E		
d_I, Intersection Delay [s/veh]	52.22											
Intersection LOS	D											
Intersection V/C	0.772											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.499	3.180	2.935	0.000
Crosswalk LOS	C	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1026	713	417	452
d_b, Bicycle Delay [s]	13.63	23.81	36.00	34.44
l_b,int, Bicycle LOS Score for Intersection	2.508	2.842	3.452	2.432
Bicycle LOS	B	C	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Scenario 3 Existing Plus Project PM Peak Hour - With Improvements

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10/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	WB Thru	0.979	43.3	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	43.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.979

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	542	1394	83	68	747	172	256	383	591	47	378	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	0	11	22	11	10	0	0	0	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	542	1414	83	79	769	183	266	383	591	47	378	18
Peak Hour Factor	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	139	362	21	20	197	47	68	98	151	12	97	5
Total Analysis Volume [veh/h]	555	1447	85	81	787	187	272	392	605	48	387	18
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	36	47	0	18	29	0	13	29	29	11	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	32	51	51	6	25	25	9	27	63	5	23
g / C, Green / Cycle	0.30	0.48	0.48	0.06	0.24	0.24	0.09	0.25	0.60	0.05	0.22
(v / s)_i Volume / Saturation Flow Rate	0.31	0.41	0.42	0.05	0.22	0.12	0.08	0.21	0.38	0.03	0.22
s, saturation flow rate [veh/h]	1781	1870	1834	1781	3560	1589	3459	1870	1589	1781	1855
c, Capacity [veh/h]	543	905	887	108	853	381	297	473	947	90	404
d1, Uniform Delay [s]	36.51	23.70	24.03	48.56	38.98	34.41	47.64	37.07	13.85	48.67	41.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	23.95	9.64	10.88	10.03	16.94	4.47	11.16	3.79	0.72	4.88	21.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.02	0.85	0.86	0.75	0.92	0.49	0.92	0.83	0.64	0.54	1.00
d, Delay for Lane Group [s/veh]	60.45	33.34	34.91	58.59	55.92	38.89	58.80	40.86	14.57	53.55	62.67
Lane Group LOS	F	C	C	E	E	D	E	D	B	D	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	16.30	16.77	17.22	2.28	11.19	4.33	3.87	9.53	8.20	1.31	12.35
50th-Percentile Queue Length [ft/ln]	407.56	419.16	430.59	57.12	279.77	108.16	96.75	238.15	205.07	32.81	308.67
95th-Percentile Queue Length [veh/ln]	23.25	23.48	24.03	4.11	16.68	7.74	6.97	14.59	12.90	2.36	18.14
95th-Percentile Queue Length [ft/ln]	581.33	587.05	600.75	102.81	416.93	193.44	174.15	364.70	322.49	59.06	453.54

Movement, Approach, & Intersection Results

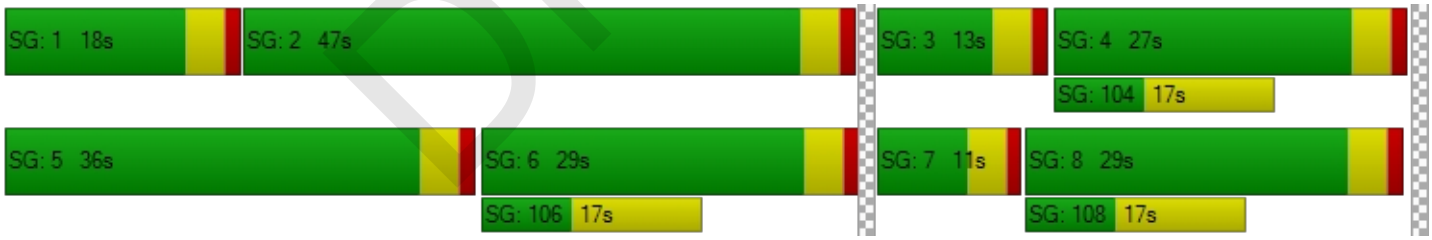
d_M, Delay for Movement [s/veh]	60.45	34.08	34.91	58.59	55.92	38.89	58.80	40.86	14.57	53.55	62.67	62.67
Movement LOS	F	C	C	E	E	D	E	D	B	D	E	E
d_A, Approach Delay [s/veh]	41.13			53.10			32.17			61.71		
Approach LOS	D			D			C			E		
d_I, Intersection Delay [s/veh]	43.30											
Intersection LOS	D											
Intersection V/C	0.979											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.08	42.08	42.08	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.568	3.292	3.009	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	819	476	476	438
d_b, Bicycle Delay [s]	18.30	30.48	30.48	32.02
l_b,int, Bicycle LOS Score for Intersection	3.281	2.430	3.653	2.307
Bicycle LOS	C	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Existing Plus Ambient Plus Project

French Valley Library Facility PRoject

Vistro File: C:\...\AME.vistro

Scenario 4 Existing Plus Ambient Growth Plus Project AM Peak Hour

Report File: C:\...\AMEAP.pdf

9/30/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Winchester Rd (NS) at Benton Rd (EW)	Signalized	HCM 6th Edition	SB Left	0.866	14.8	B
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	SB Thru	0.791	64.5	E
3	Wichester Rd (NS) at Jean Nicholas Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.658	14.1	B
4	Winchester Rd (NS) at Whisper Heights (EW)	Signalized	HCM 6th Edition	NB Left	0.759	19.2	B
5	Winchester Rd (NS) at Pouroy Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.764	19.9	B
6	Project Dwy (NS) at Skyview Ave (EW)	All-way stop	HCM 6th Edition	EB Left	0.042	7.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Winchester Rd (NS) at Benton Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.866

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	2	0
Pocket Length [ft]	100.00	100.00	300.00	100.00	225.00	100.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	757	167	343	1688	329	341
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	1	1	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	789	174	358	1757	342	357
Peak Hour Factor	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	208	46	94	463	90	94
Total Analysis Volume [veh/h]	831	183	377	1851	360	376
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal group	2	0	1	6	7	4
Auxiliary Signal Groups						1,4
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	7
Maximum Green [s]	120	0	120	120	120	120
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	21	0	18	39	21	21
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No	No	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	22	22	14	40	12	30
g / C, Green / Cycle	0.37	0.37	0.23	0.67	0.20	0.50
(v / s)_i Volume / Saturation Flow Rate	0.23	0.12	0.21	0.52	0.10	0.24
s, saturation flow rate [veh/h]	3560	1589	1781	3560	3459	1589
c, Capacity [veh/h]	1306	583	417	2375	692	795
d1, Uniform Delay [s]	15.76	13.66	22.45	6.96	21.53	9.86
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.37	1.40	7.57	2.61	0.61	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.31	0.91	0.78	0.52	0.47
d, Delay for Lane Group [s/veh]	18.14	15.06	30.02	9.56	22.14	10.30
Lane Group LOS	B	B	C	A	C	B
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	3.98	1.58	5.08	3.81	2.03	2.46
50th-Percentile Queue Length [ft/ln]	99.42	39.51	126.92	95.13	50.77	61.56
95th-Percentile Queue Length [veh/ln]	7.16	2.85	8.77	6.85	3.66	4.43
95th-Percentile Queue Length [ft/ln]	178.95	71.13	219.30	171.23	91.39	110.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.14	15.06	30.02	9.56	22.14	10.30
Movement LOS	B	B	C	A	C	B
d_A, Approach Delay [s/veh]	17.58		13.03		16.09	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	14.75					
Intersection LOS	B					
Intersection V/C	0.866					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	0.00	20.01
l_p,int, Pedestrian LOS Score for Intersection	3.430	0.000	2.582
Crosswalk LOS	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	30.00	30.00	30.00
l_b,int, Bicycle LOS Score for Intersection	4.969	5.971	4.132
Bicycle LOS	E	F	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	64.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.791

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	367	650	62	54	1221	188	130	239	711	114	373	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	1	2	1	2	0	0	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	382	680	64	57	1272	197	137	249	739	119	388	11
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	101	180	17	15	337	52	36	66	196	32	103	3
Total Analysis Volume [veh/h]	405	721	68	60	1349	209	145	264	784	126	411	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	30	65	0	11	46	0	14	31	31	13	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	26	62	62	6	42	42	10	27	57	9	26
g / C, Green / Cycle	0.22	0.52	0.52	0.05	0.35	0.35	0.08	0.22	0.47	0.08	0.22
(v / s)_i Volume / Saturation Flow Rate	0.23	0.21	0.21	0.03	0.38	0.13	0.08	0.14	0.49	0.07	0.23
s, saturation flow rate [veh/h]	1781	1870	1814	1781	3560	1589	1781	1870	1589	1781	1861
c, Capacity [veh/h]	386	967	938	90	1251	558	149	418	753	134	401
d1, Uniform Delay [s]	47.02	17.79	17.80	55.99	38.94	29.09	54.90	42.12	31.59	55.26	47.10
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	35.64	1.31	1.35	8.16	49.51	1.92	28.95	1.58	27.40	24.45	37.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.05	0.41	0.41	0.67	1.08	0.37	0.98	0.63	1.04	0.94	1.06
d, Delay for Lane Group [s/veh]	82.66	19.10	19.15	64.15	88.45	31.00	83.85	43.69	58.99	79.71	84.44
Lane Group LOS	F	B	B	E	F	C	F	D	F	E	F
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	14.71	6.51	6.33	1.92	25.59	4.54	5.46	7.04	25.70	4.61	15.69
50th-Percentile Queue Length [ft/ln]	367.63	162.64	158.35	48.00	639.76	113.47	136.40	175.93	642.61	115.16	392.17
95th-Percentile Queue Length [veh/ln]	21.56	10.69	10.46	3.46	35.67	8.03	9.29	11.39	35.09	8.13	22.85
95th-Percentile Queue Length [ft/ln]	538.99	267.21	261.53	86.40	891.69	200.82	232.17	284.69	877.36	203.15	571.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	82.66	19.12	19.15	64.15	88.45	31.00	83.85	43.69	58.99	79.71	84.44	84.44
Movement LOS	F	B	B	E	F	C	F	D	F	E	F	F
d_A, Approach Delay [s/veh]	40.67			80.13			58.63			83.36		
Approach LOS	D			F			E			F		
d_I, Intersection Delay [s/veh]	64.54											
Intersection LOS	E											
Intersection V/C	0.791											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.548	3.210	2.956	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1017	700	450	433
d_b, Bicycle Delay [s]	14.50	25.35	36.04	36.82
l_b,int, Bicycle LOS Score for Intersection	2.545	2.894	3.528	2.465
Bicycle LOS	B	C	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Wichester Rd (NS) at Jean Nicholas Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.658

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	575.00	100.00	100.00	160.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	735	7	5	1374	189	102	1	82	13	11	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	8	9	0	0	0	3	0	4	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	764	15	14	1429	197	106	4	85	18	11	14
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	197	4	4	369	51	27	1	22	5	3	4
Total Analysis Volume [veh/h]	89	788	15	14	1475	203	109	4	88	19	11	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	32	41	0	12	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	57	57	2	53	53	7	7	7	3	3	3
g / C, Green / Cycle	0.07	0.67	0.67	0.02	0.62	0.62	0.08	0.09	0.09	0.03	0.04	0.04
(v / s)_i Volume / Saturation Flow Rate	0.05	0.22	0.01	0.01	0.41	0.13	0.06	0.00	0.06	0.01	0.01	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	130	2384	1064	43	2209	986	144	164	139	55	71	60
d1, Uniform Delay [s]	38.52	5.98	4.70	40.88	10.47	7.03	38.34	35.54	37.54	40.44	39.68	39.79
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.17	0.37	0.02	4.27	1.62	0.47	7.89	0.06	4.66	3.69	1.01	1.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.33	0.01	0.32	0.67	0.21	0.76	0.02	0.63	0.35	0.16	0.23
d, Delay for Lane Group [s/veh]	44.69	6.35	4.72	45.15	12.09	7.51	46.24	35.59	42.19	44.13	40.69	41.75
Lane Group LOS	D	A	A	D	B	A	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.90	2.02	0.06	0.32	6.69	1.27	2.43	0.07	1.86	0.43	0.23	0.30
50th-Percentile Queue Length [ft/ln]	47.50	50.62	1.60	8.00	167.19	31.84	60.66	1.87	46.47	10.70	5.81	7.59
95th-Percentile Queue Length [veh/ln]	3.42	3.64	0.12	0.58	10.93	2.29	4.37	0.13	3.35	0.77	0.42	0.55
95th-Percentile Queue Length [ft/ln]	85.50	91.12	2.88	14.40	273.22	57.31	109.18	3.37	83.64	19.26	10.45	13.67

Movement, Approach, & Intersection Results

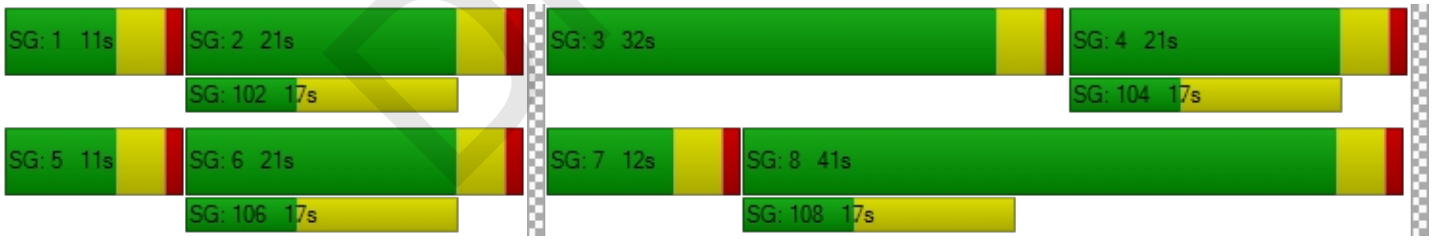
d_M, Delay for Movement [s/veh]	44.69	6.35	4.72	45.15	12.09	7.51	46.24	35.59	42.19	44.13	40.69	41.75
Movement LOS	D	A	A	D	B	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.15			11.82			44.25			42.51		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	14.07											
Intersection LOS	B											
Intersection V/C	0.658											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	3.186	3.255	2.312	2.319
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	400	871	400
d_b, Bicycle Delay [s]	27.20	27.20	13.55	27.20
l_b,int, Bicycle LOS Score for Intersection	2.296	2.956	1.725	1.632
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Winchester Rd (NS) at Whisper Heights (EW)

Control Type:	Signalized	Delay (sec / veh):	19.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.759

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	2	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	435.00	100.00	100.00	150.00	100.00	100.00	175.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	13	735	96	199	1403	19	24	23	27	139	26	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	1	0	4	0	0	0	2	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	765	101	207	1463	20	25	24	30	148	27	196
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	201	27	54	385	5	7	6	8	39	7	52
Total Analysis Volume [veh/h]	16	805	106	218	1540	21	26	25	32	156	28	206
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	2	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	120	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	21	11	21	0	11	21	0	17	27	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	10	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	33	45	7	38	38	3	6	6	8	11	11
g / C, Green / Cycle	0.03	0.47	0.64	0.10	0.54	0.54	0.04	0.09	0.09	0.11	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.01	0.23	0.07	0.06	0.43	0.01	0.01	0.01	0.02	0.09	0.01	0.13
s, saturation flow rate [veh/h]	1781	3560	1589	3459	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	50	1676	1020	343	1929	861	73	165	140	203	301	256
d1, Uniform Delay [s]	33.46	12.71	4.83	30.40	12.99	7.47	32.75	29.58	29.79	30.19	25.08	28.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.61	0.99	0.20	1.95	3.56	0.05	2.88	0.42	0.82	5.98	0.13	5.87
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.48	0.10	0.64	0.80	0.02	0.35	0.15	0.23	0.77	0.09	0.80
d, Delay for Lane Group [s/veh]	37.07	13.70	5.03	32.36	16.55	7.52	35.63	30.01	30.61	36.17	25.21	34.25
Lane Group LOS	D	B	A	C	B	A	D	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.29	3.48	0.39	1.67	7.56	0.12	0.46	0.38	0.50	2.68	0.37	3.44
50th-Percentile Queue Length [ft/ln]	7.28	87.12	9.80	41.67	188.94	2.90	11.44	9.48	12.39	67.02	9.36	86.09
95th-Percentile Queue Length [veh/ln]	0.52	6.27	0.71	3.00	12.07	0.21	0.82	0.68	0.89	4.83	0.67	6.20
95th-Percentile Queue Length [ft/ln]	13.10	156.82	17.65	75.00	301.65	5.22	20.60	17.06	22.31	120.63	16.85	154.96

Movement, Approach, & Intersection Results

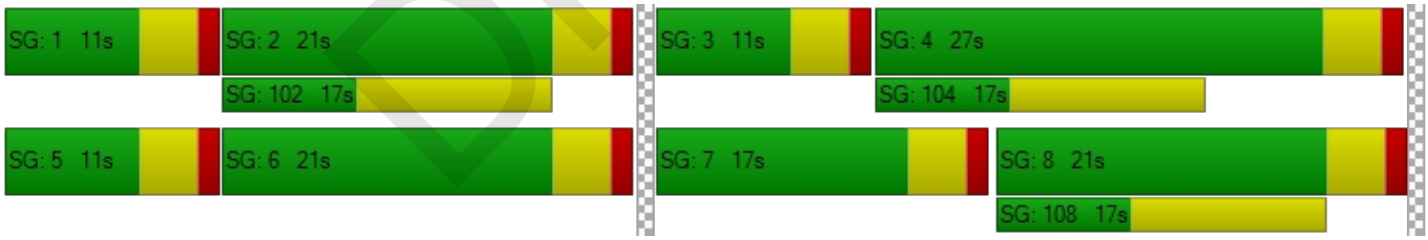
d_M, Delay for Movement [s/veh]	37.07	13.70	5.03	32.36	16.55	7.52	35.63	30.01	30.61	36.17	25.21	34.25
Movement LOS	D	B	A	C	B	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.11			18.38			32.00			34.37		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	19.16											
Intersection LOS	B											
Intersection V/C	0.759											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	0.00	24.86
I_p,int, Pedestrian LOS Score for Intersection	3.258	3.341	0.000	2.502
Crosswalk LOS	C	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	486	657
d_b, Bicycle Delay [s]	20.06	20.06	20.06	15.78
I_b,int, Bicycle LOS Score for Intersection	2.324	3.027	1.697	2.203
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Winchester Rd (NS) at Pouroy Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	19.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.764

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			65.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	27	731	187	47	1328	82	18	9	36	257	15	79
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	0	1	0	0	0	0	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	760	195	49	1382	85	19	9	37	270	16	82
Peak Hour Factor	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	198	51	13	359	22	5	2	10	70	4	21
Total Analysis Volume [veh/h]	29	790	203	51	1437	88	20	9	38	281	17	85
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	25	0	11	25	0	11	21	0	18	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	3	36	36	5	38	38	2	4	4	14	16	16
g / C, Green / Cycle	0.04	0.49	0.49	0.06	0.50	0.50	0.03	0.06	0.06	0.18	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.02	0.22	0.13	0.03	0.40	0.06	0.01	0.00	0.02	0.16	0.01	0.05
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	78	1723	769	111	1789	799	59	111	94	324	389	330
d1, Uniform Delay [s]	34.96	12.88	11.49	34.03	15.60	9.85	35.55	33.44	34.09	29.89	23.81	24.93
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.94	0.88	0.84	2.93	3.93	0.28	3.35	0.31	2.76	7.08	0.05	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.46	0.26	0.46	0.80	0.11	0.34	0.08	0.40	0.87	0.04	0.26
d, Delay for Lane Group [s/veh]	37.89	13.76	12.32	36.96	19.53	10.13	38.90	33.75	36.86	36.97	23.86	25.33
Lane Group LOS	D	B	B	D	B	B	D	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.53	3.62	1.74	0.88	8.05	0.61	0.39	0.15	0.70	5.15	0.23	1.20
50th-Percentile Queue Length [ft/ln]	13.34	90.52	43.55	22.08	201.18	15.22	9.77	3.87	17.45	128.67	5.69	30.05
95th-Percentile Queue Length [veh/ln]	0.96	6.52	3.14	1.59	12.70	1.10	0.70	0.28	1.26	8.87	0.41	2.16
95th-Percentile Queue Length [ft/ln]	24.01	162.94	78.39	39.74	317.49	27.39	17.59	6.97	31.41	221.69	10.24	54.10

Movement, Approach, & Intersection Results

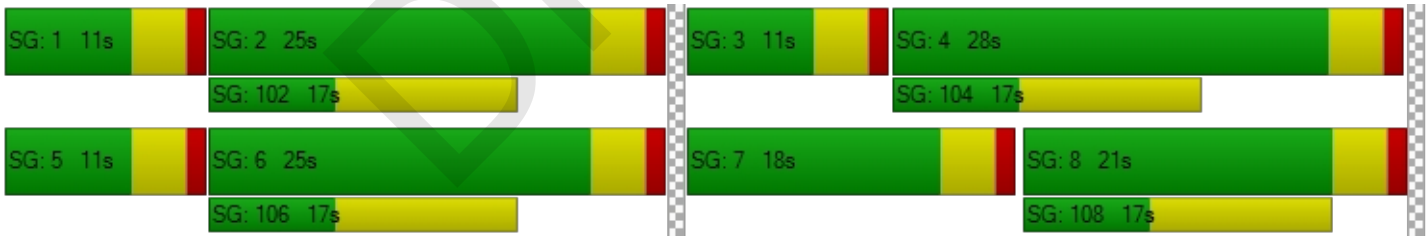
d_M, Delay for Movement [s/veh]	37.89	13.76	12.32	36.96	19.53	10.13	38.90	33.75	36.86	36.97	23.86	25.33
Movement LOS	D	B	B	D	B	B	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	14.16			19.57			37.05			33.81		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	19.93											
Intersection LOS	B											
Intersection V/C	0.764											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	3.293	3.313	2.349	2.479
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	560	560	453	640
d_b, Bicycle Delay [s]	19.44	19.44	22.43	17.34
l_b,int, Bicycle LOS Score for Intersection	2.403	2.860	1.615	1.876
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Skyview Ave (EW)

Control Type:	All-way stop	Delay (sec / veh):	7.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	13	35	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	20	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	7	20	14	36	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	5	4	9	0
Total Analysis Volume [veh/h]	0	7	21	15	38	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	1029	857	788	788
Degree of Utilization, x	0.01	0.04	0.02	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	0.13	0.07	0.07
95th-Percentile Queue Length [ft]	0.51	3.29	1.85	1.85
Approach Delay [s/veh]	6.52	7.39	7.38	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	7.31			
Intersection LOS	A			

French Valley Library Facility PRoject

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Scenario 4 Existing Plus Ambient Growth Plus Project PM Peak Hour

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9/30/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Winchester Rd (NS) at Benton Rd (EW)	Signalized	HCM 6th Edition	WB Right	0.827	35.6	D
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	NB Left	1.083	65.3	E
3	Wichester Rd (NS) at Jean Nicholas Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.676	19.1	B
4	Winchester Rd (NS) at Whisper Heights (EW)	Signalized	HCM 6th Edition	EB Left	0.862	26.8	C
5	Winchester Rd (NS) at Pouroy Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.732	16.4	B
6	Project Dwy (NS) at Skyview Ave (EW)	All-way stop	HCM 6th Edition	EB Left	0.183	7.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Winchester Rd (NS) at Benton Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.827

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	2	0
Pocket Length [ft]	100.00	100.00	300.00	100.00	225.00	100.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1474	348	389	1008	289	702
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	11	11	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1543	362	416	1059	301	740
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	401	94	108	275	78	192
Total Analysis Volume [veh/h]	1602	376	432	1100	313	768
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal group	2	0	1	6	7	4
Auxiliary Signal Groups						1,4
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	7
Maximum Green [s]	120	0	120	120	120	120
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	49	0	35	84	21	21
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No	No	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	48	48	28	80	17	49
g / C, Green / Cycle	0.45	0.45	0.27	0.76	0.16	0.47
(v / s)_i Volume / Saturation Flow Rate	0.45	0.24	0.24	0.31	0.09	0.48
s, saturation flow rate [veh/h]	3560	1589	1781	3560	3459	1589
c, Capacity [veh/h]	1613	720	482	2712	561	749
d1, Uniform Delay [s]	28.60	20.61	36.91	4.32	40.57	27.81
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.91	2.70	6.14	0.45	0.87	22.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.99	0.52	0.90	0.41	0.56	1.03
d, Delay for Lane Group [s/veh]	49.51	23.31	43.05	4.77	41.44	50.18
Lane Group LOS	D	C	D	A	D	F
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	22.06	6.42	10.67	2.50	3.66	21.48
50th-Percentile Queue Length [ft/ln]	551.46	160.41	266.85	62.57	91.56	536.91
95th-Percentile Queue Length [veh/ln]	29.76	10.57	16.03	4.51	6.59	29.65
95th-Percentile Queue Length [ft/ln]	744.02	264.27	400.81	112.63	164.82	741.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.51	23.31	43.05	4.77	41.44	50.18
Movement LOS	D	C	D	A	D	F
d_A, Approach Delay [s/veh]	44.53		15.56		47.65	
Approach LOS	D		B		D	
d_I, Intersection Delay [s/veh]	35.60					
Intersection LOS	D					
Intersection V/C	0.827					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.08	0.00	42.08
l_p,int, Pedestrian LOS Score for Intersection	3.519	0.000	2.829
Crosswalk LOS	D	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	52.50	52.50	52.50
l_b,int, Bicycle LOS Score for Intersection	5.764	5.396	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	65.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.083

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	542	1394	83	68	747	172	256	383	591	47	378	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	0	11	22	11	10	0	0	0	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	564	1470	86	82	799	190	276	398	615	49	393	18
Peak Hour Factor	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	144	376	22	21	204	49	71	102	157	13	101	5
Total Analysis Volume [veh/h]	577	1505	88	84	818	194	282	407	629	50	402	18
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	39	58	0	11	30	0	22	21	21	30	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	35	54	54	7	26	26	18	37	76	6	25
g / C, Green / Cycle	0.29	0.45	0.45	0.06	0.22	0.22	0.15	0.31	0.64	0.05	0.21
(v / s)_i Volume / Saturation Flow Rate	0.32	0.43	0.43	0.05	0.23	0.12	0.16	0.22	0.40	0.03	0.23
s, saturation flow rate [veh/h]	1781	1870	1834	1781	3560	1589	1781	1870	1589	1781	1856
c, Capacity [veh/h]	519	843	827	104	775	346	267	580	1009	84	385
d1, Uniform Delay [s]	42.50	31.51	31.97	55.84	46.94	41.83	51.00	36.51	13.23	56.03	47.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	56.50	20.12	23.48	13.64	48.02	6.43	41.63	1.56	0.63	6.49	50.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.11	0.94	0.96	0.81	1.06	0.56	1.06	0.70	0.62	0.59	1.09
d, Delay for Lane Group [s/veh]	99.00	51.63	55.46	69.47	94.97	48.27	92.63	38.07	13.86	62.52	98.40
Lane Group LOS	F	D	E	E	F	D	F	D	B	E	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	22.52	24.55	25.52	2.81	16.10	5.50	10.87	10.35	9.11	1.60	16.53
50th-Percentile Queue Length [ft/ln]	562.95	613.77	638.09	70.16	402.50	137.40	271.84	258.84	227.85	40.06	413.14
95th-Percentile Queue Length [veh/ln]	32.31	32.68	33.81	5.05	23.37	9.34	16.70	15.63	14.06	2.88	24.30
95th-Percentile Queue Length [ft/ln]	807.86	816.92	845.22	126.29	584.32	233.52	417.38	390.76	351.62	72.10	607.55

Movement, Approach, & Intersection Results

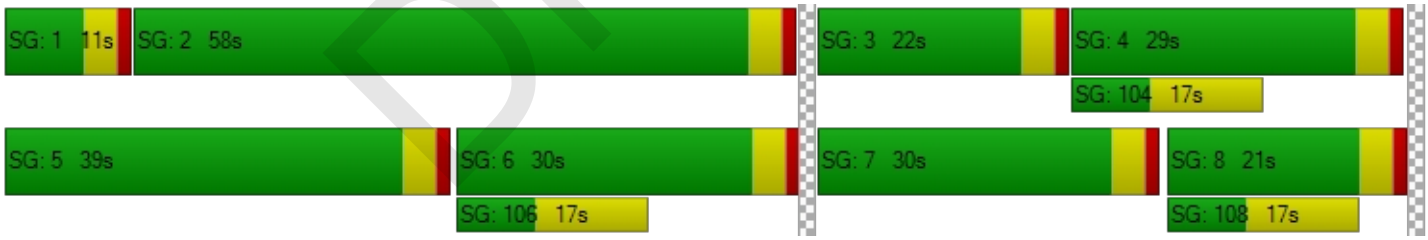
d_M, Delay for Movement [s/veh]	99.00	53.43	55.46	69.47	94.97	48.27	92.63	38.07	13.86	62.52	98.40	98.40
Movement LOS	F	D	E	E	F	D	F	D	B	E	F	F
d_A, Approach Delay [s/veh]	65.63			84.75			38.19			94.58		
Approach LOS	E			F			D			F		
d_I, Intersection Delay [s/veh]	65.31											
Intersection LOS	E											
Intersection V/C	1.083											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.625	3.331	3.056	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	433	283	417
d_b, Bicycle Delay [s]	18.15	36.82	44.20	37.60
l_b,int, Bicycle LOS Score for Intersection	3.350	2.464	3.734	2.335
Bicycle LOS	C	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Wichester Rd (NS) at Jean Nicholas Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	19.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.676

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	575.00	100.00	100.00	160.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	230	1422	25	6	928	66	88	9	74	11	4	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	40	45	0	0	0	15	0	44	14	48
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	239	1479	66	51	965	69	92	24	77	55	18	51
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	61	379	17	13	247	18	24	6	20	14	5	13
Total Analysis Volume [veh/h]	245	1517	68	52	990	71	94	25	79	56	18	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	37	0	11	26	0	11	21	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	48	48	5	39	39	6	7	7	5	6	6
g / C, Green / Cycle	0.16	0.59	0.59	0.06	0.49	0.49	0.08	0.08	0.08	0.06	0.07	0.07
(v / s)_i Volume / Saturation Flow Rate	0.14	0.43	0.04	0.03	0.28	0.04	0.05	0.01	0.05	0.03	0.01	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	290	2108	941	109	1745	779	138	157	133	113	130	111
d1, Uniform Delay [s]	32.58	11.63	6.97	36.41	14.44	10.91	36.02	34.12	35.42	36.31	35.05	35.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.62	2.16	0.15	3.22	1.34	0.23	5.75	0.47	4.16	3.33	0.48	3.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.72	0.07	0.48	0.57	0.09	0.68	0.16	0.59	0.50	0.14	0.47
d, Delay for Lane Group [s/veh]	39.20	13.78	7.12	39.63	15.78	11.14	41.77	34.59	39.58	39.64	35.52	38.95
Lane Group LOS	D	B	A	D	B	B	D	C	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.69	7.28	0.40	1.00	5.33	0.59	1.90	0.45	1.55	1.10	0.33	1.02
50th-Percentile Queue Length [ft/ln]	117.19	182.06	9.91	25.04	133.15	14.80	47.62	11.17	38.81	27.60	8.22	25.40
95th-Percentile Queue Length [veh/ln]	8.24	11.71	0.71	1.80	9.11	1.07	3.43	0.80	2.79	1.99	0.59	1.83
95th-Percentile Queue Length [ft/ln]	205.96	292.70	17.84	45.07	227.77	26.65	85.71	20.11	69.87	49.68	14.80	45.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.20	13.78	7.12	39.63	15.78	11.14	41.77	34.59	39.58	39.64	35.52	38.95
Movement LOS	D	B	A	D	B	B	D	C	D	D	D	D
d_A, Approach Delay [s/veh]	16.94			16.60			39.99			38.77		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.06											
Intersection LOS	B											
Intersection V/C	0.676											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	3.327	3.296	2.319	2.372
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	825	550	425	425
d_b, Bicycle Delay [s]	13.81	21.03	24.81	24.81
l_b,int, Bicycle LOS Score for Intersection	3.069	2.478	1.723	1.768
Bicycle LOS	C	B	A	A

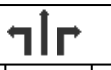
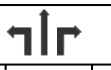
Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Winchester Rd (NS) at Whisper Heights (EW)

Control Type:	Signalized	Delay (sec / veh):	26.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.862

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	2	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	435.00	100.00	100.00	150.00	100.00	100.00	175.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	1358	132	205	859	21	7	17	17	125	26	362
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	21	16	0	20	0	0	0	10	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	1433	153	213	913	22	7	18	28	145	27	376
Peak Hour Factor	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	360	38	54	230	6	2	5	7	36	7	95
Total Analysis Volume [veh/h]	32	1442	154	214	919	22	7	18	28	146	27	378
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	2	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	120	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	44	44	11	24	0	13	21	0	14	22	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	10	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	43	56	7	46	46	1	15	15	9	23	23
g / C, Green / Cycle	0.04	0.47	0.62	0.08	0.51	0.51	0.01	0.17	0.17	0.10	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.02	0.41	0.10	0.06	0.26	0.01	0.00	0.01	0.02	0.08	0.01	0.24
s, saturation flow rate [veh/h]	1781	3560	1589	3459	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	77	1687	985	270	1810	808	23	317	269	180	482	409
d1, Uniform Delay [s]	41.98	20.96	7.22	40.82	14.67	11.04	44.07	31.39	31.65	39.64	25.19	32.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.51	5.77	0.34	5.24	1.02	0.06	7.21	0.07	0.17	8.36	0.05	9.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.85	0.16	0.79	0.51	0.03	0.30	0.06	0.10	0.81	0.06	0.92
d, Delay for Lane Group [s/veh]	45.49	26.72	7.56	46.06	15.69	11.10	51.28	31.46	31.81	48.00	25.24	41.62
Lane Group LOS	D	C	A	D	B	B	D	C	C	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.72	12.43	1.03	2.37	5.38	0.20	0.19	0.32	0.50	3.43	0.42	8.47
50th-Percentile Queue Length [ft/ln]	18.11	310.73	25.79	59.21	134.51	4.96	4.87	7.98	12.57	85.71	10.43	211.65
95th-Percentile Queue Length [veh/ln]	1.30	18.21	1.86	4.26	9.18	0.36	0.35	0.57	0.91	6.17	0.75	13.24
95th-Percentile Queue Length [ft/ln]	32.59	455.28	46.42	106.58	229.61	8.93	8.76	14.36	22.63	154.27	18.78	330.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.49	26.72	7.56	46.06	15.69	11.10	51.28	31.46	31.81	48.00	25.24	41.62
Movement LOS	D	C	A	D	B	B	D	C	C	D	C	D
d_A, Approach Delay [s/veh]	25.28			21.23			34.27			42.51		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	26.84											
Intersection LOS	C											
Intersection V/C	0.862											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	0.00	34.67
l_p,int, Pedestrian LOS Score for Intersection	3.288	3.391	0.000	2.573
Crosswalk LOS	C	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	889	444	378	400
d_b, Bicycle Delay [s]	13.89	27.22	29.61	28.80
l_b,int, Bicycle LOS Score for Intersection	2.903	2.512	1.647	2.469
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Winchester Rd (NS) at Pouroy Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.732

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			65.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	24	1533	168	46	927	12	9	9	22	139	7	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	16	0	5	0	0	0	0	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	1599	191	48	969	12	9	9	23	160	7	35
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	419	50	13	254	3	2	2	6	42	2	9
Total Analysis Volume [veh/h]	26	1678	200	50	1017	13	9	9	24	168	7	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	48	0	11	48	0	11	21	0	15	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	59	59	5	61	61	2	4	4	11	13	13
g / C, Green / Cycle	0.04	0.62	0.62	0.05	0.64	0.64	0.02	0.04	0.04	0.11	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.01	0.47	0.13	0.03	0.29	0.01	0.01	0.00	0.02	0.09	0.00	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	67	2208	986	98	2270	1013	29	81	69	202	263	223
d1, Uniform Delay [s]	44.74	12.99	7.85	43.74	8.75	6.31	46.28	43.75	44.21	41.32	35.30	36.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.65	2.52	0.46	4.08	0.64	0.02	5.80	0.59	2.95	8.61	0.04	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.76	0.20	0.51	0.45	0.01	0.31	0.11	0.35	0.83	0.03	0.17
d, Delay for Lane Group [s/veh]	48.39	15.51	8.32	47.83	9.40	6.33	52.08	44.35	47.16	49.94	35.34	36.35
Lane Group LOS	D	B	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.63	10.27	1.50	1.17	3.81	0.07	0.25	0.21	0.59	4.17	0.14	0.75
50th-Percentile Queue Length [ft/ln]	15.82	256.75	37.41	29.14	95.26	1.82	6.25	5.24	14.64	104.22	3.44	18.67
95th-Percentile Queue Length [veh/ln]	1.14	15.53	2.69	2.10	6.86	0.13	0.45	0.38	1.05	7.50	0.25	1.34
95th-Percentile Queue Length [ft/ln]	28.48	388.14	67.33	52.45	171.48	3.28	11.25	9.44	26.36	187.59	6.19	33.61

Movement, Approach, & Intersection Results

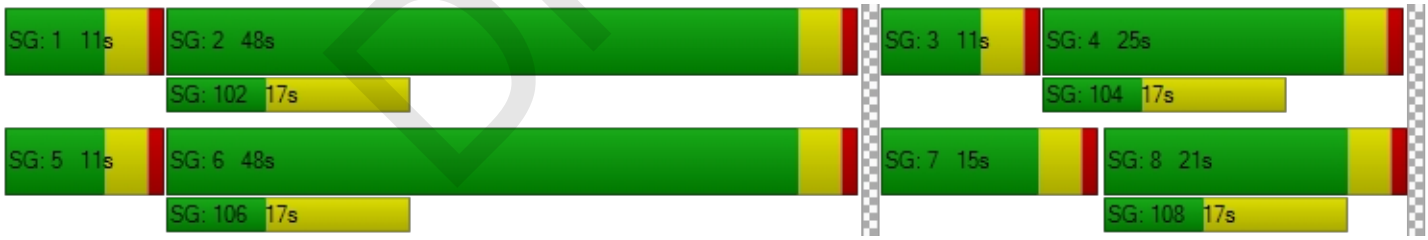
d_M, Delay for Movement [s/veh]	48.39	15.51	8.32	47.83	9.40	6.33	52.08	44.35	47.16	49.94	35.34	36.35
Movement LOS	D	B	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	15.20			11.14			47.61			47.08		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	16.35											
Intersection LOS	B											
Intersection V/C	0.732											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	37.14	37.14
l_p,int, Pedestrian LOS Score for Intersection	3.391	3.442	2.328	2.440
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	926	926	358	442
d_b, Bicycle Delay [s]	13.69	13.69	32.02	28.82
l_b,int, Bicycle LOS Score for Intersection	3.130	2.451	1.594	1.735
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Skyview Ave (EW)

Control Type:	All-way stop	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.183

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	40	18	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	106	100	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	106	100	42	19	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	28	26	11	5	0
Total Analysis Volume [veh/h]	0	112	105	44	20	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	966	813	739	739
Degree of Utilization, x	0.12	0.18	0.01	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.39	0.67	0.04	0.04
95th-Percentile Queue Length [ft]	9.80	16.70	1.03	1.03
Approach Delay [s/veh]	7.21	8.42	7.64	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	7.89			
Intersection LOS	A			

French Valley Library Facility PRoject

Vistro File: C:\...\AME.vistro

Scenario 5 Existing Plus Ambient Growth Plus Project AM Peak Hour - With Improvements

Report File: C:\...\AMEAPI.pdf

10/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	EB Right	0.791	54.3	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	54.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.791

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	367	650	62	54	1221	188	130	239	711	114	373	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	1	2	1	2	0	0	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	382	680	64	57	1272	197	137	249	739	119	388	11
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	101	180	17	15	337	52	36	66	196	32	103	3
Total Analysis Volume [veh/h]	405	721	68	60	1349	209	145	264	784	126	411	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	19	44	0	11	36	0	17	29	29	11	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	15	43	43	6	34	34	7	23	42	7	23
g / C, Green / Cycle	0.16	0.45	0.45	0.06	0.36	0.36	0.07	0.24	0.44	0.07	0.25
(v / s)_i Volume / Saturation Flow Rate	0.12	0.21	0.21	0.03	0.38	0.13	0.04	0.14	0.49	0.07	0.23
s, saturation flow rate [veh/h]	3459	1870	1814	1781	3560	1589	3459	1870	1589	1781	1861
c, Capacity [veh/h]	547	851	826	106	1270	567	251	455	705	132	455
d1, Uniform Delay [s]	38.21	17.97	17.98	43.58	30.63	22.69	42.72	31.75	26.50	43.91	35.16
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.00	1.86	1.92	4.70	43.67	1.84	2.08	1.18	55.71	26.80	8.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.47	0.47	0.57	1.06	0.37	0.58	0.58	1.11	0.95	0.93
d, Delay for Lane Group [s/veh]	40.21	19.83	19.90	48.27	74.30	24.53	44.80	32.93	82.21	70.71	44.00
Lane Group LOS	D	B	B	D	F	C	D	C	F	E	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.33	5.72	5.58	1.43	20.52	3.42	1.66	5.19	24.98	3.82	10.08
50th-Percentile Queue Length [ft/ln]	108.27	143.10	139.43	35.80	512.98	85.42	41.43	129.81	624.47	95.41	251.95
95th-Percentile Queue Length [veh/ln]	7.74	9.65	9.45	2.58	29.11	6.15	2.98	8.93	35.78	6.87	15.28
95th-Percentile Queue Length [ft/ln]	193.60	241.20	236.26	64.43	727.69	153.76	74.57	223.24	894.56	171.74	382.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.21	19.86	19.90	48.27	74.30	24.53	44.80	32.93	82.21	70.71	44.00	44.00
Movement LOS	D	B	B	D	F	C	D	C	F	E	D	D
d_A, Approach Delay [s/veh]	26.77			66.90			66.76			50.13		
Approach LOS	C			E			E			D		
d_I, Intersection Delay [s/veh]	54.32											
Intersection LOS	D											
Intersection V/C	0.791											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.14	37.14	37.14	0.00
I_p,int, Pedestrian LOS Score for Intersection	3.484	3.199	2.996	0.000
Crosswalk LOS	C	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	842	674	526	400
d_b, Bicycle Delay [s]	15.92	20.89	25.79	30.40
I_b,int, Bicycle LOS Score for Intersection	2.545	2.894	3.528	2.465
Bicycle LOS	B	C	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

French Valley Library Facility PRoject

Vistro File: C:\...\PME.vistro

Scenario 5 Existing Plus Ambient Growth Plus Project PM Peak Hour - With Improvements

Report File: C:\...\PMEAPI.pdf

10/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	SB Left	0.969	41.2	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.969

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	542	1394	83	68	747	172	256	383	591	47	378	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	20	0	11	22	11	10	0	0	0	0	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	564	1470	86	82	799	190	276	398	615	49	393	18
Peak Hour Factor	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	144	376	22	21	204	49	71	102	157	13	101	5
Total Analysis Volume [veh/h]	577	1505	88	84	818	194	282	407	629	50	402	18
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	25	11	0	48	34	0	13	21	21	20	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	21	45	45	6	30	30	9	28	53	5	24
g / C, Green / Cycle	0.21	0.45	0.45	0.06	0.30	0.30	0.09	0.28	0.53	0.05	0.24
(v / s)_i Volume / Saturation Flow Rate	0.17	0.43	0.43	0.05	0.23	0.12	0.08	0.22	0.40	0.03	0.23
s, saturation flow rate [veh/h]	3459	1870	1834	1781	3560	1589	3459	1870	1589	1781	1856
c, Capacity [veh/h]	726	838	822	113	1074	479	311	516	836	94	442
d1, Uniform Delay [s]	37.46	26.52	26.91	46.05	31.67	27.79	45.09	33.53	18.61	46.18	37.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.02	21.10	24.65	9.30	5.12	2.53	9.74	2.74	1.40	4.63	11.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.95	0.97	0.74	0.76	0.40	0.91	0.79	0.75	0.53	0.95
d, Delay for Lane Group [s/veh]	39.49	47.62	51.56	55.35	36.79	30.31	54.82	36.27	20.01	50.81	48.57
Lane Group LOS	D	D	D	E	D	C	D	D	C	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	6.41	20.63	21.58	2.23	8.94	3.74	3.75	8.99	10.30	1.29	10.90
50th-Percentile Queue Length [ft/ln]	160.29	515.73	539.39	55.78	223.55	93.51	93.87	224.85	257.60	32.28	272.50
95th-Percentile Queue Length [veh/ln]	10.56	28.08	29.19	4.02	13.85	6.73	6.76	13.91	15.57	2.32	16.31
95th-Percentile Queue Length [ft/ln]	264.10	701.95	729.84	100.40	346.15	168.31	168.97	347.80	389.21	58.11	407.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.49	49.48	51.56	55.35	36.79	30.31	54.82	36.27	20.01	50.81	48.57	48.57
Movement LOS	D	D	D	E	D	C	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	46.90			37.06			32.48			48.81		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	41.19											
Intersection LOS	D											
Intersection V/C	0.969											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.61	39.61	39.61	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.550	3.322	3.065	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	140	600	340	480
d_b, Bicycle Delay [s]	43.25	24.50	34.45	28.88
l_b,int, Bicycle LOS Score for Intersection	3.350	2.464	3.734	2.335
Bicycle LOS	C	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Existing Plus Ambient Plus Project Plus Cumulative

French Valley Library Facility PRoject

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Scenario 6 Existing Plus Ambient Growth Plus Project Plus Cumulative AM Peak Hour

Report File: C:\...\AMEAPC.pdf

9/30/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Winchester Rd (NS) at Benton Rd (EW)	Signalized	HCM 6th Edition	SB Left	0.881	15.6	B
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	WB Thru	1.137	77.3	E
3	Wichester Rd (NS) at Jean Nicholas Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.735	16.0	B
4	Winchester Rd (NS) at Whisper Heights (EW)	Signalized	HCM 6th Edition	WB Left	0.785	22.8	C
5	Winchester Rd (NS) at Pouroy Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.767	20.9	C
6	Project Dwy (NS) at Skyview Ave (EW)	All-way stop	HCM 6th Edition	EB Left	0.042	7.3	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Winchester Rd (NS) at Benton Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.881

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	2	0
Pocket Length [ft]	100.00	100.00	300.00	100.00	225.00	100.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	757	167	343	1688	329	341
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	37	15	17	83	21	14
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	824	189	374	1839	363	369
Peak Hour Factor	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	217	50	99	484	96	97
Total Analysis Volume [veh/h]	868	199	394	1938	383	389
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal group	2	0	1	6	7	4
Auxiliary Signal Groups						1,4
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	7
Maximum Green [s]	120	0	120	120	120	120
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	21	0	23	44	21	21
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No	No	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	24	24	17	44	13	33
g / C, Green / Cycle	0.36	0.36	0.26	0.68	0.20	0.51
(v / s)_i Volume / Saturation Flow Rate	0.24	0.13	0.22	0.54	0.11	0.24
s, saturation flow rate [veh/h]	3560	1589	1781	3560	3459	1589
c, Capacity [veh/h]	1291	577	457	2424	680	818
d1, Uniform Delay [s]	17.50	15.12	23.12	7.29	23.65	10.17
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.80	1.64	4.93	2.87	0.74	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.67	0.35	0.86	0.80	0.56	0.48
d, Delay for Lane Group [s/veh]	20.30	16.76	28.05	10.16	24.39	10.60
Lane Group LOS	C	B	C	B	C	B
Critical Lane Group	No	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	4.80	1.97	5.40	4.69	2.43	2.79
50th-Percentile Queue Length [ft/ln]	120.02	49.14	134.92	117.30	60.75	69.72
95th-Percentile Queue Length [veh/ln]	8.39	3.54	9.21	8.24	4.37	5.02
95th-Percentile Queue Length [ft/ln]	209.85	88.45	230.17	206.12	109.34	125.49

Movement, Approach, & Intersection Results

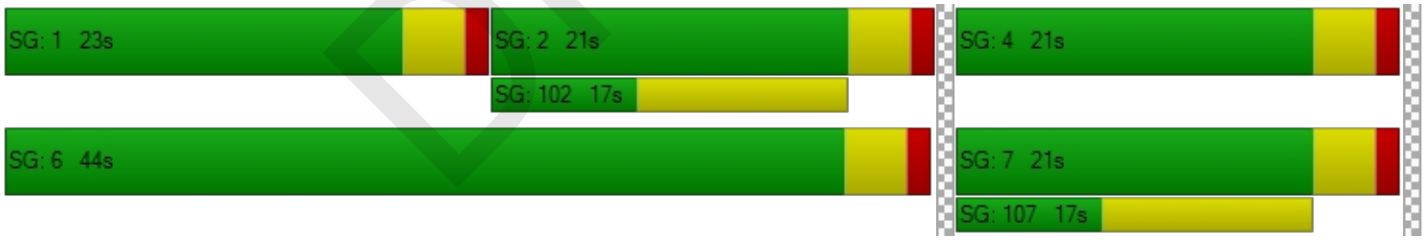
d_M, Delay for Movement [s/veh]	20.30	16.76	28.05	10.16	24.39	10.60
Movement LOS	C	B	C	B	C	B
d_A, Approach Delay [s/veh]	19.64		13.18		17.44	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	15.62					
Intersection LOS	B					
Intersection V/C	0.881					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.43	0.00	22.43
I_p,int, Pedestrian LOS Score for Intersection	3.493	0.000	2.612
Crosswalk LOS	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	32.50	32.50	32.50
I_b,int, Bicycle LOS Score for Intersection	5.013	6.056	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	77.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.137

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	367	650	62	54	1221	188	130	239	711	114	373	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	37	8	61	81	13	5	23	9	10	23	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	388	713	72	117	1351	209	140	272	748	129	411	18
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	103	189	19	31	358	55	37	72	198	34	109	5
Total Analysis Volume [veh/h]	411	756	76	124	1433	222	148	288	793	137	436	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	28	27	0	46	45	0	13	29	29	13	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	115	115	115	115	115	115	115	115	115	115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	24	55	55	10	41	41	9	25	53	9	25
g / C, Green / Cycle	0.21	0.48	0.48	0.09	0.36	0.36	0.08	0.22	0.46	0.08	0.22
(v / s)_i Volume / Saturation Flow Rate	0.23	0.23	0.23	0.07	0.40	0.14	0.08	0.15	0.50	0.08	0.25
s, saturation flow rate [veh/h]	1781	1870	1811	1781	3560	1589	1781	1870	1589	1781	1856
c, Capacity [veh/h]	372	898	869	154	1274	569	140	404	730	140	401
d1, Uniform Delay [s]	45.52	20.09	20.10	51.59	36.94	27.57	53.02	41.79	31.09	52.93	45.10
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	56.75	1.77	1.83	9.39	66.85	2.01	52.60	2.35	44.42	31.25	67.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.11	0.47	0.47	0.80	1.12	0.39	1.06	0.71	1.09	0.98	1.13
d, Delay for Lane Group [s/veh]	102.26	21.86	21.94	60.98	103.79	29.58	105.62	44.14	75.51	84.18	112.94
Lane Group LOS	F	C	C	E	F	C	F	D	F	F	F
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	15.85	7.32	7.12	3.76	28.21	4.58	5.96	7.57	27.51	5.05	18.54
50th-Percentile Queue Length [ft/ln]	396.17	182.91	178.04	93.91	705.32	114.49	148.94	189.26	687.63	126.32	463.45
95th-Percentile Queue Length [veh/ln]	23.59	11.75	11.50	6.76	39.92	8.09	10.16	12.08	38.37	8.74	27.38
95th-Percentile Queue Length [ft/ln]	589.80	293.81	287.45	169.04	998.03	202.23	253.97	302.06	959.31	218.48	684.58

Movement, Approach, & Intersection Results

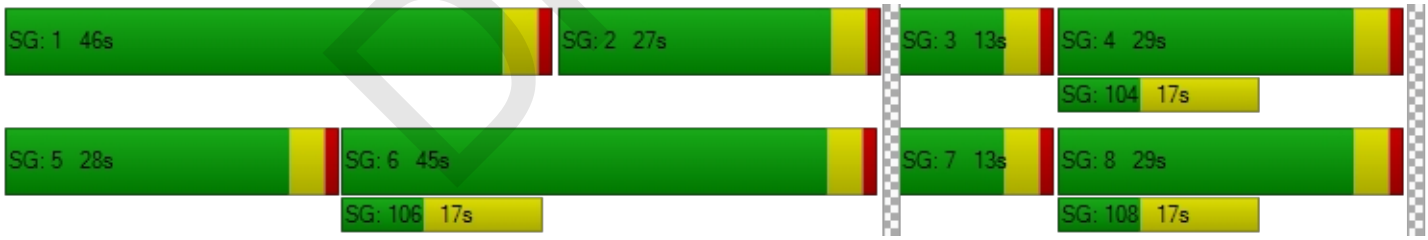
d_M, Delay for Movement [s/veh]	102.26	21.89	21.94	60.98	103.79	29.58	105.62	44.14	75.51	84.18	112.94	112.94
Movement LOS	F	C	C	E	F	C	F	D	F	F	F	F
d_A, Approach Delay [s/veh]	48.47			91.55			71.79			106.29		
Approach LOS	D			F			E			F		
d_I, Intersection Delay [s/veh]	77.28											
Intersection LOS	E											
Intersection V/C	1.137											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	47.03	47.03	47.03	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.601	3.270	2.983	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	713	435	435
d_b, Bicycle Delay [s]	36.80	23.81	35.22	35.22
l_b,int, Bicycle LOS Score for Intersection	2.585	3.027	3.587	2.536
Bicycle LOS	B	C	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: Wichester Rd (NS) at Jean Nicholas Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.735

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	575.00	100.00	100.00	160.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	83	735	7	5	1374	189	102	1	82	13	11	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	30	8	9	75	18	5	3	41	4	0	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	794	15	14	1504	215	111	4	126	18	11	14
Peak Hour Factor	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690	0.9690
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	205	4	4	388	55	29	1	33	5	3	4
Total Analysis Volume [veh/h]	106	819	15	14	1552	222	115	4	130	19	11	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	22	0	11	21	0	26	36	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	51	51	2	47	47	7	8	8	2	4	4
g / C, Green / Cycle	0.08	0.64	0.64	0.02	0.59	0.59	0.08	0.10	0.10	0.03	0.05	0.05
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.01	0.01	0.44	0.14	0.06	0.00	0.08	0.01	0.01	0.01
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	143	2278	1017	44	2080	928	152	196	167	56	96	81
d1, Uniform Delay [s]	36.07	6.76	5.25	38.46	12.30	8.06	35.89	32.20	35.00	38.03	36.32	36.43
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.35	0.44	0.03	4.14	2.49	0.61	7.56	0.04	7.68	3.56	0.53	0.99
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.36	0.01	0.32	0.75	0.24	0.76	0.02	0.78	0.34	0.12	0.17
d, Delay for Lane Group [s/veh]	43.42	7.20	5.28	42.61	14.79	8.67	43.44	32.24	42.68	41.59	36.85	37.42
Lane Group LOS	D	A	A	D	B	A	D	C	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.15	2.25	0.07	0.30	7.87	1.50	2.38	0.07	2.67	0.40	0.21	0.27
50th-Percentile Queue Length [ft/ln]	53.66	56.13	1.69	7.50	196.80	37.46	59.61	1.70	66.83	10.02	5.21	6.76
95th-Percentile Queue Length [veh/ln]	3.86	4.04	0.12	0.54	12.47	2.70	4.29	0.12	4.81	0.72	0.38	0.49
95th-Percentile Queue Length [ft/ln]	96.58	101.04	3.03	13.50	311.84	67.43	107.30	3.05	120.29	18.04	9.38	12.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.42	7.20	5.28	42.61	14.79	8.67	43.44	32.24	42.68	41.59	36.85	37.42
Movement LOS	D	A	A	D	B	A	D	C	D	D	D	D
d_A, Approach Delay [s/veh]	11.25			14.25			42.86			39.08		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	16.04											
Intersection LOS	B											
Intersection V/C	0.735											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	3.233	3.286	2.339	2.316
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	425	800	425
d_b, Bicycle Delay [s]	24.03	24.81	14.40	24.81
l_b,int, Bicycle LOS Score for Intersection	2.335	3.035	1.765	1.632
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Winchester Rd (NS) at Whisper Heights (EW)

Control Type:	Signalized	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	2	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	435.00	100.00	100.00	150.00	100.00	100.00	175.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	13	735	96	199	1403	19	24	23	27	139	26	188
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	20	1	2	58	7	21	0	38	6	0	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	784	101	209	1517	27	46	24	66	151	27	202
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	206	27	55	399	7	12	6	17	40	7	53
Total Analysis Volume [veh/h]	33	825	106	220	1597	28	48	25	69	159	28	213
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	2	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	120	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	21	11	21	0	11	21	0	27	37	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	10	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	39	53	7	43	43	5	8	8	9	13	13
g / C, Green / Cycle	0.05	0.49	0.66	0.09	0.53	0.53	0.06	0.10	0.10	0.12	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.02	0.23	0.07	0.06	0.45	0.02	0.03	0.01	0.04	0.09	0.01	0.13
s, saturation flow rate [veh/h]	1781	3560	1589	3459	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	83	1750	1046	303	1895	846	104	196	167	207	305	259
d1, Uniform Delay [s]	37.13	13.50	5.03	35.66	15.91	8.93	36.52	32.55	33.57	34.38	28.53	32.45
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.03	0.91	0.19	3.34	4.77	0.07	3.13	0.29	1.63	5.84	0.13	6.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.47	0.10	0.73	0.84	0.03	0.46	0.13	0.41	0.77	0.09	0.82
d, Delay for Lane Group [s/veh]	40.16	14.41	5.22	39.00	20.68	9.00	39.65	32.84	35.20	40.21	28.66	38.89
Lane Group LOS	D	B	A	D	C	A	D	C	D	D	C	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.65	4.12	0.46	2.05	10.45	0.20	0.95	0.43	1.26	3.15	0.44	4.17
50th-Percentile Queue Length [ft/ln]	16.21	103.03	11.57	51.35	261.23	4.95	23.72	10.76	31.39	78.73	10.99	104.30
95th-Percentile Queue Length [veh/ln]	1.17	7.42	0.83	3.70	15.75	0.36	1.71	0.77	2.26	5.67	0.79	7.51
95th-Percentile Queue Length [ft/ln]	29.19	185.46	20.82	92.42	393.77	8.91	42.70	19.36	56.50	141.72	19.78	187.74

Movement, Approach, & Intersection Results

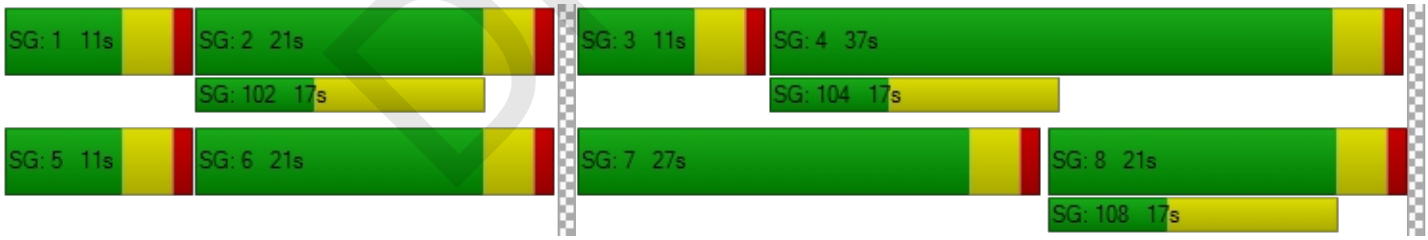
d_M, Delay for Movement [s/veh]	40.16	14.41	5.22	39.00	20.68	9.00	39.65	32.84	35.20	40.21	28.66	38.89
Movement LOS	D	B	A	D	C	A	D	C	D	D	C	D
d_A, Approach Delay [s/veh]	14.28			22.69			36.29			38.70		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	22.76											
Intersection LOS	C											
Intersection V/C	0.785											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	0.00	29.76
l_p,int, Pedestrian LOS Score for Intersection	3.299	3.374	0.000	2.513
Crosswalk LOS	C	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	425	425	825
d_b, Bicycle Delay [s]	24.81	24.81	24.81	13.81
l_b,int, Bicycle LOS Score for Intersection	2.355	3.082	1.794	2.220
Bicycle LOS	B	C	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: Winchester Rd (NS) at Pouroy Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	20.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.767

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			65.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	27	731	187	47	1328	82	18	9	36	257	15	79
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	43	4	1	52	0	0	0	0	15	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	28	803	198	50	1433	85	19	9	37	282	16	84
Peak Hour Factor	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	209	51	13	372	22	5	2	10	73	4	22
Total Analysis Volume [veh/h]	29	835	206	52	1490	88	20	9	38	293	17	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	33	0	11	33	0	11	21	0	20	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	44	44	5	45	45	3	5	5	16	18	18
g / C, Green / Cycle	0.04	0.51	0.51	0.06	0.53	0.53	0.03	0.06	0.06	0.18	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.02	0.23	0.13	0.03	0.42	0.06	0.01	0.00	0.02	0.16	0.01	0.05
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	75	1821	813	106	1882	840	57	105	89	330	392	333
d1, Uniform Delay [s]	39.75	13.29	11.69	38.83	16.27	10.02	40.36	38.15	38.89	33.82	26.87	28.17
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.26	0.83	0.75	3.51	3.50	0.25	3.61	0.35	3.22	7.97	0.05	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.46	0.25	0.49	0.79	0.10	0.35	0.09	0.43	0.89	0.04	0.26
d, Delay for Lane Group [s/veh]	43.00	14.12	12.44	42.34	19.77	10.27	43.97	38.50	42.11	41.79	26.92	28.58
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.62	4.30	1.94	1.06	9.42	0.68	0.45	0.18	0.81	6.24	0.26	1.43
50th-Percentile Queue Length [ft/ln]	15.43	107.57	48.62	26.38	235.39	16.91	11.21	4.49	20.24	155.94	6.61	35.77
95th-Percentile Queue Length [veh/ln]	1.11	7.70	3.50	1.90	14.45	1.22	0.81	0.32	1.46	10.33	0.48	2.58
95th-Percentile Queue Length [ft/ln]	27.77	192.62	87.52	47.48	361.19	30.44	20.17	8.09	36.44	258.33	11.90	64.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.00	14.12	12.44	42.34	19.77	10.27	43.97	38.50	42.11	41.79	26.92	28.58
Movement LOS	D	B	B	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	14.58			19.98			42.18			38.26		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.92											
Intersection LOS	C											
Intersection V/C	0.767											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	3.329	3.355	2.355	2.491
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	682	682	400	612
d_b, Bicycle Delay [s]	18.45	18.45	27.20	20.48
l_b,int, Bicycle LOS Score for Intersection	2.442	2.904	1.615	1.887
Bicycle LOS	B	C	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Skyview Ave (EW)

Control Type:	All-way stop	Delay (sec / veh):	7.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	13	35	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	20	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	7	20	14	36	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	5	4	9	0
Total Analysis Volume [veh/h]	0	7	21	15	38	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	1029	857	788	788
Degree of Utilization, x	0.01	0.04	0.02	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.02	0.13	0.07	0.07
95th-Percentile Queue Length [ft]	0.51	3.29	1.85	1.85
Approach Delay [s/veh]	6.52	7.39	7.38	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	7.31			
Intersection LOS	A			

French Valley Library Facility PRoject

Vistro File: C:\...\PME.vistro

Scenario 6 Existing Plus Ambient Growth Plus Project Plus Cumulative PM Peak Hour

Report File: C:\...\PMEAPC.pdf

9/30/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Winchester Rd (NS) at Benton Rd (EW)	Signalized	HCM 6th Edition	WB Right	0.876	42.4	D
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	EB Left	1.151	97.7	F
3	Wichester Rd (NS) at Jean Nicholas Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.752	22.0	C
4	Winchester Rd (NS) at Whisper Heights (EW)	Signalized	HCM 6th Edition	NB Left	0.880	31.4	C
5	Winchester Rd (NS) at Pouroy Rd (EW)	Signalized	HCM 6th Edition	EB Left	0.756	17.2	B
6	Project Dwy (NS) at Skyview Ave (EW)	All-way stop	HCM 6th Edition	EB Left	0.183	7.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Winchester Rd (NS) at Benton Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	42.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.876

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	2	0
Pocket Length [ft]	100.00	100.00	300.00	100.00	225.00	100.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1474	348	389	1008	289	702
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	114	29	24	85	25	23
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1647	391	429	1133	326	753
Peak Hour Factor	0.9630	0.9630	0.9630	0.9630	0.9630	0.9630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	428	102	111	294	85	195
Total Analysis Volume [veh/h]	1710	406	445	1177	339	782
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Split	Overlap
Signal group	2	0	1	6	7	4
Auxiliary Signal Groups						1,4
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	7	0	7	7	7	7
Maximum Green [s]	120	0	120	120	120	120
Amber [s]	3.0	0.0	3.0	3.0	3.0	3.0
All red [s]	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]	62	0	36	98	22	22
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]	7	0	0	7	7	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall	No		No	No	No	No
Maximum Recall	No		No	No	No	No
Pedestrian Recall	No		No	No	No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Cycle Length [s]	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	58	58	32	94	18	54
g / C, Green / Cycle	0.49	0.49	0.26	0.78	0.15	0.45
(v / s)_i Volume / Saturation Flow Rate	0.48	0.26	0.25	0.33	0.10	0.49
s, saturation flow rate [veh/h]	3560	1589	1781	3560	3459	1589
c, Capacity [veh/h]	1725	770	472	2788	521	714
d1, Uniform Delay [s]	30.75	21.46	43.27	4.23	48.10	33.13
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.72	2.58	9.75	0.47	1.38	48.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.99	0.53	0.94	0.42	0.65	1.10
d, Delay for Lane Group [s/veh]	50.47	24.04	53.02	4.70	49.48	81.72
Lane Group LOS	D	C	D	A	D	F
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	26.38	7.73	13.45	3.01	4.76	28.86
50th-Percentile Queue Length [ft/ln]	659.48	193.21	336.16	75.22	118.96	721.44
95th-Percentile Queue Length [veh/ln]	34.80	12.29	19.46	5.42	8.34	40.27
95th-Percentile Queue Length [ft/ln]	870.06	307.19	486.51	135.40	208.39	1006.86

Movement, Approach, & Intersection Results

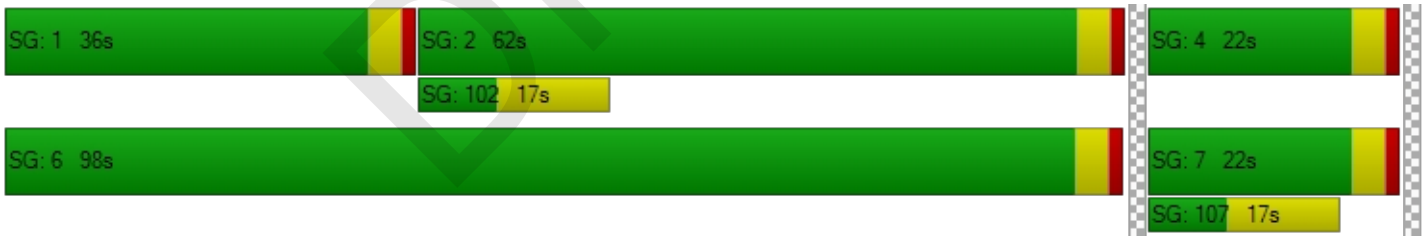
d_M, Delay for Movement [s/veh]	50.47	24.04	53.02	4.70	49.48	81.72
Movement LOS	D	C	D	A	D	F
d_A, Approach Delay [s/veh]	45.40		17.96		71.97	
Approach LOS	D		B		E	
d_I, Intersection Delay [s/veh]	42.37					
Intersection LOS	D					
Intersection V/C	0.876					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	0.00	49.50
l_p,int, Pedestrian LOS Score for Intersection	3.612	0.000	2.866
Crosswalk LOS	D	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	60.00	60.00	60.00
l_b,int, Bicycle LOS Score for Intersection	5.878	5.471	4.132
Bicycle LOS	F	F	D

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	97.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.151

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	542	1394	83	68	747	172	256	383	591	47	378	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	108	20	113	85	24	19	43	7	17	39	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	573	1558	106	184	862	203	285	441	622	66	432	32
Peak Hour Factor	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	147	399	27	47	221	52	73	113	159	17	111	8
Total Analysis Volume [veh/h]	586	1595	108	188	882	208	292	451	637	68	442	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	38	52	0	16	30	0	21	39	39	13	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	34	48	48	12	26	26	17	38	76	6	27
g / C, Green / Cycle	0.28	0.40	0.40	0.10	0.22	0.22	0.14	0.31	0.63	0.05	0.22
(v / s)_i Volume / Saturation Flow Rate	0.33	0.46	0.47	0.11	0.25	0.13	0.16	0.24	0.40	0.04	0.26
s, saturation flow rate [veh/h]	1781	1870	1829	1781	3560	1589	1781	1870	1589	1781	1847
c, Capacity [veh/h]	505	751	735	178	777	347	252	585	1000	93	413
d1, Uniform Delay [s]	43.00	35.91	35.91	54.00	46.91	42.19	51.50	37.35	13.75	56.03	46.60
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	77.78	76.28	86.46	47.01	76.23	7.46	80.71	2.19	0.68	10.38	74.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.16	1.13	1.16	1.06	1.13	0.60	1.16	0.77	0.64	0.73	1.15
d, Delay for Lane Group [s/veh]	120.79	112.19	122.37	101.01	123.14	49.65	132.21	39.54	14.43	66.40	121.09
Lane Group LOS	F	F	F	F	F	D	F	D	B	E	F
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	24.89	35.93	37.22	7.47	19.20	6.00	13.02	11.84	9.50	2.25	20.39
50th-Percentile Queue Length [ft/ln]	622.29	898.32	930.55	186.70	479.89	149.98	325.50	295.94	237.56	56.25	509.71
95th-Percentile Queue Length [veh/ln]	36.13	49.98	52.30	12.20	28.23	10.02	20.18	17.48	14.56	4.05	29.99
95th-Percentile Queue Length [ft/ln]	903.33	1249.54	1307.53	304.93	705.87	250.40	504.58	437.01	363.95	101.25	749.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	120.79	116.94	122.37	101.01	123.14	49.65	132.21	39.54	14.43	66.40	121.09	121.09
Movement LOS	F	F	F	F	F	D	F	D	B	E	F	F
d_A, Approach Delay [s/veh]	118.18			107.92			47.56			114.25		
Approach LOS	F			F			D			F		
d_I, Intersection Delay [s/veh]	97.65											
Intersection LOS	F											
Intersection V/C	1.151											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.699	3.419	3.101	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	433	583	450
d_b, Bicycle Delay [s]	21.60	36.82	30.10	36.04
l_b,int, Bicycle LOS Score for Intersection	3.448	2.614	3.837	2.456
Bicycle LOS	C	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Wichester Rd (NS) at Jean Nicholas Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	22.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.752

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	575.00	100.00	100.00	160.00	100.00	100.00	150.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	230	1422	25	6	928	66	88	9	74	11	4	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	46	91	40	45	72	12	20	15	45	44	14	48
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	285	1570	66	51	1037	81	112	24	122	55	18	51
Peak Hour Factor	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750	0.9750
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	73	403	17	13	266	21	29	6	31	14	5	13
Total Analysis Volume [veh/h]	292	1610	68	52	1064	83	115	25	125	56	18	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	20	32	0	11	23	0	11	21	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	42	42	5	32	32	6	8	8	5	6	6
g / C, Green / Cycle	0.19	0.56	0.56	0.06	0.43	0.43	0.09	0.10	0.10	0.06	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.16	0.45	0.04	0.03	0.30	0.05	0.06	0.01	0.08	0.03	0.01	0.03
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	337	1978	883	112	1528	682	153	193	164	117	155	132
d1, Uniform Delay [s]	29.56	13.56	7.76	34.00	17.47	12.92	33.59	30.66	32.84	33.90	31.94	32.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.70	3.81	0.17	2.95	2.65	0.37	7.25	0.30	7.17	3.03	0.33	1.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.81	0.08	0.46	0.70	0.12	0.75	0.13	0.76	0.48	0.12	0.40
d, Delay for Lane Group [s/veh]	36.26	17.37	7.93	36.95	20.12	13.29	40.84	30.96	40.01	36.92	32.27	34.62
Lane Group LOS	D	B	A	D	C	B	D	C	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.14	8.72	0.41	0.92	6.52	0.76	2.22	0.40	2.38	1.02	0.30	0.91
50th-Percentile Queue Length [ft/ln]	128.40	217.96	10.31	23.11	162.97	18.92	55.38	10.00	59.57	25.50	7.44	22.70
95th-Percentile Queue Length [veh/ln]	8.85	13.56	0.74	1.66	10.71	1.36	3.99	0.72	4.29	1.84	0.54	1.63
95th-Percentile Queue Length [ft/ln]	221.32	339.02	18.57	41.59	267.65	34.05	99.69	18.01	107.23	45.90	13.38	40.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.26	17.37	7.93	36.95	20.12	13.29	40.84	30.96	40.01	36.92	32.27	34.62
Movement LOS	D	B	A	D	C	B	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	19.84			20.37			39.52			35.31		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	22.03											
Intersection LOS	C											
Intersection V/C	0.752											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	27.31	27.31	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	3.401	3.344	2.362	2.369
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	747	507	453	453
d_b, Bicycle Delay [s]	14.73	20.91	22.43	22.43
l_b,int, Bicycle LOS Score for Intersection	3.185	2.549	1.778	1.768
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Winchester Rd (NS) at Whisper Heights (EW)

Control Type:	Signalized	Delay (sec / veh):	31.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.880

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	2	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	435.00	100.00	100.00	150.00	100.00	100.00	175.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name												
Base Volume Input [veh/h]	20	1358	132	205	859	21	7	17	17	125	26	362
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	56	87	16	7	65	24	14	0	44	20	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	1499	153	220	958	46	21	18	62	150	27	380
Peak Hour Factor	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940	0.9940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	377	38	55	241	12	5	5	16	38	7	96
Total Analysis Volume [veh/h]	77	1508	154	221	964	46	21	18	62	151	27	382
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	2	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	120	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	31	51	51	12	32	0	11	21	0	16	26	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	7	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	10	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No	No	No	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	47	62	8	49	49	3	18	18	10	26	26
g / C, Green / Cycle	0.06	0.47	0.62	0.08	0.49	0.49	0.03	0.18	0.18	0.10	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.04	0.42	0.10	0.06	0.27	0.03	0.01	0.01	0.04	0.08	0.01	0.24
s, saturation flow rate [veh/h]	1781	3560	1589	3459	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	110	1688	981	277	1752	782	55	342	291	184	477	405
d1, Uniform Delay [s]	46.00	24.00	8.12	45.21	17.69	13.28	47.51	33.72	34.75	43.96	28.17	36.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.75	7.71	0.34	5.25	1.25	0.14	4.24	0.06	0.36	8.82	0.05	11.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.70	0.89	0.16	0.80	0.55	0.06	0.38	0.05	0.21	0.82	0.06	0.94
d, Delay for Lane Group [s/veh]	53.75	31.72	8.46	50.47	18.93	13.43	51.75	33.78	35.11	52.78	28.22	47.61
Lane Group LOS	D	C	A	D	B	B	D	C	D	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.01	15.68	1.22	2.74	6.98	0.51	0.56	0.35	1.26	3.97	0.48	9.85
50th-Percentile Queue Length [ft/ln]	50.28	392.09	30.61	68.61	174.53	12.75	14.03	8.84	31.57	99.33	11.88	246.28
95th-Percentile Queue Length [veh/ln]	3.62	22.18	2.20	4.94	11.31	0.92	1.01	0.64	2.27	7.15	0.86	15.00
95th-Percentile Queue Length [ft/ln]	90.50	554.46	55.10	123.50	282.87	22.94	25.26	15.91	56.82	178.79	21.39	374.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.75	31.72	8.46	50.47	18.93	13.43	51.75	33.78	35.11	52.78	28.22	47.61
Movement LOS	D	C	A	D	B	B	D	C	D	D	C	D
d_A, Approach Delay [s/veh]	30.63			24.39			38.33			48.06		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.42											
Intersection LOS	C											
Intersection V/C	0.880											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.61	39.61	0.00	39.61
l_p,int, Pedestrian LOS Score for Intersection	3.343	3.432	0.000	2.583
Crosswalk LOS	C	C	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	940	560	340	440
d_b, Bicycle Delay [s]	14.05	25.92	34.45	30.42
l_b,int, Bicycle LOS Score for Intersection	2.994	2.575	1.726	2.484
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Winchester Rd (NS) at Pouroy Rd (EW)

Control Type:	Signalized	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.756

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	250.00	100.00	100.00	250.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	55.00			65.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	24	1533	168	46	927	12	9	9	22	139	7	34
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	77	28	2	74	0	0	0	0	22	0	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	1671	203	50	1038	12	9	9	23	167	7	36
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	438	53	13	272	3	2	2	6	44	2	9
Total Analysis Volume [veh/h]	26	1753	213	52	1089	13	9	9	24	175	7	38
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	0	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	52	0	11	52	0	11	21	0	16	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	63	63	5	65	65	2	4	4	12	14	14
g / C, Green / Cycle	0.04	0.63	0.63	0.05	0.65	0.65	0.02	0.04	0.04	0.12	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.01	0.49	0.13	0.03	0.31	0.01	0.01	0.00	0.02	0.10	0.00	0.02
s, saturation flow rate [veh/h]	1781	3560	1589	1781	3560	1589	1781	1870	1589	1781	1870	1589
c, Capacity [veh/h]	66	2231	996	97	2293	1024	29	80	68	208	267	227
d1, Uniform Delay [s]	47.15	13.75	8.06	46.15	9.14	6.40	48.72	46.14	46.62	43.35	36.93	37.70
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.81	2.87	0.49	4.57	0.71	0.02	5.92	0.62	3.11	8.91	0.04	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.79	0.21	0.54	0.47	0.01	0.31	0.11	0.35	0.84	0.03	0.17
d, Delay for Lane Group [s/veh]	50.97	16.62	8.55	50.72	9.85	6.42	54.65	46.75	49.73	52.26	36.97	38.04
Lane Group LOS	D	B	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.67	11.82	1.69	1.29	4.45	0.08	0.26	0.22	0.62	4.59	0.15	0.81
50th-Percentile Queue Length [ft/ln]	16.76	295.50	42.32	32.30	111.32	1.93	6.57	5.56	15.51	114.78	3.63	20.27
95th-Percentile Queue Length [veh/ln]	1.21	17.46	3.05	2.33	7.91	0.14	0.47	0.40	1.12	8.11	0.26	1.46
95th-Percentile Queue Length [ft/ln]	30.17	436.46	76.18	58.14	197.83	3.47	11.83	10.00	27.92	202.63	6.54	36.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.97	16.62	8.55	50.72	9.85	6.42	54.65	46.75	49.73	52.26	36.97	38.04
Movement LOS	D	B	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	16.21			11.65			50.14			49.32		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	17.22											
Intersection LOS	B											
Intersection V/C	0.756											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.61	39.61	39.61	39.61
l_p,int, Pedestrian LOS Score for Intersection	3.436	3.498	2.330	2.449
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	960	960	340	440
d_b, Bicycle Delay [s]	13.52	13.52	34.45	30.42
l_b,int, Bicycle LOS Score for Intersection	3.203	2.512	1.594	1.741
Bicycle LOS	C	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 6: Project Dwy (NS) at Skyview Ave (EW)

Control Type:	All-way stop	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.183

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	40	18	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	106	100	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	106	100	42	19	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	28	26	11	5	0
Total Analysis Volume [veh/h]	0	112	105	44	20	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	966	813	739	739
Degree of Utilization, x	0.12	0.18	0.01	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.39	0.67	0.04	0.04
95th-Percentile Queue Length [ft]	9.80	16.70	1.03	1.03
Approach Delay [s/veh]	7.21	8.42	7.64	
Approach LOS	A	A	A	
Intersection Delay [s/veh]	7.89			
Intersection LOS	A			

French Valley Library Facility PRoject

Vistro File: C:\...\AME.vistro

Scenario 7 Existing Plus Ambient Growth Plus Project Plus Cumulative AM Peak Hour - With Improvements

Report File: C:\...\AMEAPCI.pdf

10/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	EB Right	0.680	39.1	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	39.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.680

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	367	650	62	54	1221	188	130	239	711	114	373	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	37	8	61	81	13	5	23	9	10	23	9
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	388	713	72	117	1351	209	140	272	748	129	411	18
Peak Hour Factor	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430	0.9430
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	103	189	19	31	358	55	37	72	198	34	109	5
Total Analysis Volume [veh/h]	411	756	76	124	1433	222	148	288	793	137	436	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	17	30	0	12	25	0	16	27	27	11	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	13	29	29	7	23	23	7	21	38	7	21
g / C, Green / Cycle	0.16	0.36	0.36	0.09	0.29	0.29	0.08	0.26	0.48	0.09	0.27
(v / s)_i Volume / Saturation Flow Rate	0.12	0.21	0.05	0.07	0.28	0.14	0.04	0.15	0.50	0.08	0.25
s, saturation flow rate [veh/h]	3459	3560	1589	1781	5094	1589	3459	1870	1589	1781	1856
c, Capacity [veh/h]	563	1284	573	158	1461	456	294	492	756	157	494
d1, Uniform Delay [s]	31.90	20.81	17.22	35.78	28.38	23.71	35.07	25.75	21.03	36.14	28.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.84	1.99	0.48	8.18	19.42	3.69	1.33	1.11	30.10	13.88	7.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.59	0.13	0.78	0.98	0.49	0.50	0.59	1.05	0.87	0.92
d, Delay for Lane Group [s/veh]	33.74	22.80	17.70	43.95	47.80	27.40	36.41	26.86	51.13	50.02	36.24
Lane Group LOS	C	C	B	D	D	C	D	C	F	D	D
Critical Lane Group	No	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	3.55	5.25	0.89	2.53	10.51	3.53	1.35	4.52	17.98	3.09	8.73
50th-Percentile Queue Length [ft/ln]	88.79	131.29	22.27	63.19	262.72	88.19	33.83	112.90	449.62	77.19	218.24
95th-Percentile Queue Length [veh/ln]	6.39	9.01	1.60	4.55	15.83	6.35	2.44	8.00	25.83	5.56	13.58
95th-Percentile Queue Length [ft/ln]	159.82	225.25	40.09	113.74	395.63	158.73	60.90	200.03	645.68	138.95	339.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.74	22.80	17.70	43.95	47.80	27.40	36.41	26.86	51.13	50.02	36.24	36.24
Movement LOS	C	C	B	D	D	C	D	C	F	D	D	D
d_A, Approach Delay [s/veh]	26.11			44.99			43.67			39.43		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	39.13											
Intersection LOS	D											
Intersection V/C	0.680											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.525	3.277	3.006	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	525	575	450
d_b, Bicycle Delay [s]	18.23	21.76	20.31	24.03
l_b,int, Bicycle LOS Score for Intersection	2.585	2.538	3.587	2.536
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

French Valley Library Facility PRoject

Vistro File: C:\...\PME.vistro

Scenario 7 Existing Plus Ambient Growth Plus Project Plus Cumulative PM Peak Hour - With Improvmeents

Report File: C:\...\PMEAPCI.pdf

10/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Winchester Rd (NS) at Max Gilliss Blvd (EW)	Signalized	HCM 6th Edition	EB Left	1.047	53.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Winchester Rd (NS) at Max Gilliss Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	53.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.047

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	430.00	100.00	100.00	625.00	100.00	100.00	200.00	100.00	100.00	145.00	100.00	100.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			No		

Volumes

Name												
Base Volume Input [veh/h]	542	1394	83	68	747	172	256	383	591	47	378	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	108	20	113	85	24	19	43	7	17	39	24
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	573	1558	106	184	862	203	285	441	622	66	432	32
Peak Hour Factor	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770	0.9770
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	147	399	27	47	221	52	73	113	159	17	111	8
Total Analysis Volume [veh/h]	586	1595	108	188	882	208	292	451	637	68	442	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	8	7	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	7	7	7	0
Maximum Green [s]	120	120	0	120	120	0	120	120	120	120	120	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	31	50	0	16	35	0	13	29	29	15	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	10	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No	No	No	No	
Maximum Recall	No	No		No	No		No	No	No	No	No	
Pedestrian Recall	No	No		No	No		No	No	No	No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	27	46	46	12	31	31	9	30	61	6	27
g / C, Green / Cycle	0.25	0.42	0.42	0.11	0.28	0.28	0.08	0.27	0.55	0.06	0.24
(v / s)_i Volume / Saturation Flow Rate	0.17	0.45	0.07	0.11	0.17	0.13	0.08	0.24	0.40	0.04	0.26
s, saturation flow rate [veh/h]	3459	3560	1589	1781	5094	1589	3459	1870	1589	1781	1847
c, Capacity [veh/h]	849	1494	667	194	1443	450	283	505	877	99	451
d1, Uniform Delay [s]	37.72	31.93	19.88	48.81	34.17	32.50	50.51	38.63	18.44	50.99	41.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.02	43.67	0.52	23.07	1.94	3.38	33.27	5.74	1.17	8.05	35.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	1.07	0.16	0.97	0.61	0.46	1.03	0.89	0.73	0.68	1.05
d, Delay for Lane Group [s/veh]	38.73	75.60	20.40	71.88	36.10	35.89	83.78	44.37	19.61	59.04	77.31
Lane Group LOS	D	F	C	E	D	D	F	D	B	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.84	26.74	1.69	6.12	6.62	4.71	5.08	11.93	11.03	2.01	16.11
50th-Percentile Queue Length [ft/ln]	170.90	668.54	42.20	153.06	165.60	117.68	127.11	298.27	275.72	50.25	402.66
95th-Percentile Queue Length [veh/ln]	11.12	36.94	3.04	10.18	10.84	8.27	8.87	17.60	16.48	3.62	23.39
95th-Percentile Queue Length [ft/ln]	278.10	923.43	75.97	254.51	271.12	206.63	221.85	439.89	411.88	90.45	584.68

Movement, Approach, & Intersection Results

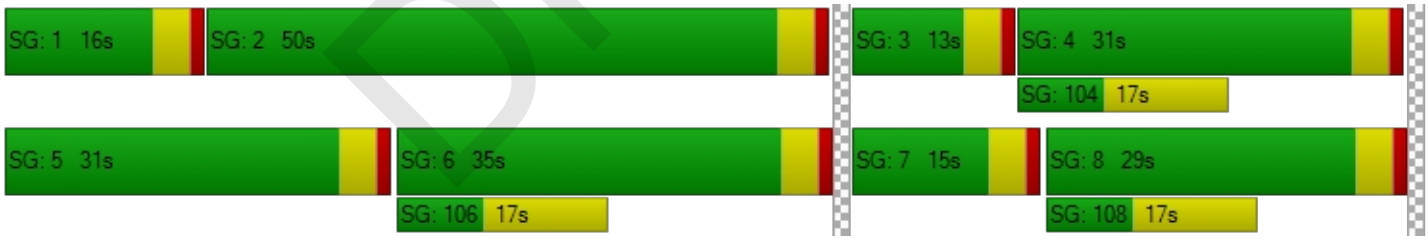
d_M, Delay for Movement [s/veh]	38.73	75.60	20.40	71.88	36.10	35.89	83.78	44.37	19.61	59.04	77.31	77.31
Movement LOS	D	F	C	E	D	D	F	D	B	E	E	E
d_A, Approach Delay [s/veh]	63.56			41.33			41.28			75.02		
Approach LOS	E			D			D			E		
d_I, Intersection Delay [s/veh]	53.92											
Intersection LOS	D											
Intersection V/C	1.047											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	0.00
l_p,int, Pedestrian LOS Score for Intersection	3.601	3.420	3.100	0.000
Crosswalk LOS	D	C	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	836	564	455	491
d_b, Bicycle Delay [s]	18.62	28.37	32.84	31.31
l_b,int, Bicycle LOS Score for Intersection	3.448	2.263	3.837	2.456
Bicycle LOS	C	B	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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