Appendix A.1

Notice of Preparation, Initial Study, and Distribution List

NOTICE OF PREPARATION OF A DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT REPORT

DATE: April 3, 2012

TO: NOP Distribution List

PROJECT TITLE: Moreno Master Drainage Plan Revision

PROJECT APPLICANT: Riverside County Flood Control and Water Conservation District
1995 Market Street
Riverside, California 92501

PROJECT LOCATION: The Moreno MDP includes land within Moreno Valley and unincorporated Riverside County. The proposed Project is generally bounded by Lasselle Street to the west, Theodore Street to the east, Reche Canyon and San Timoteo Badlands foothills to the north, and Mount Russell foothills to the south, within Township 2 South, Range 2 West, Sections 30 and 31; Township 2, Township 2 South Range 3 West, Sections 26, 32, 33, 34, 35, and 36; and Township 3 South Range 4 West, Sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 27, and 28 San Bernardino Base and Meridian.

SUBJECT: Notice of Preparation of a Draft Programmatic Environmental Impact Report (DPEIR)

Riverside County Flood Control and Water Conservation District (District) as Lead Agency in accordance with the California Environmental Quality Act (CEQA), will prepare a DPEIR for the Moreno Master Drainage Plan (MDP) Revision Project, described below. The purpose of this notice is to solicit guidance as to the scope and content of the environmental information to be included in the DPEIR. A copy of the Initial Study for the proposed Project is attached which includes figures of the Project vicinity and Project site boundary.

PROJECT DESCRIPTION: Master Drainage Plans (MDPs) are conceptual planning documents that address the current and future drainage needs of a given community. The boundary of the plan usually follows regional watershed limits. The proposed drainage facilities may include channels, storm drains, levees, basins, dams, or any other conveyance capable of feasibly relieving flooding problems within the plan area. The plan includes an estimate of facility capacity, sizes, and costs.

Proposed drainage facilities within the plan area were originally described in the Moreno MDP dated October 1980 (Revised April 1991). The proposed revision is the result of the re-evaluation of the original plans. After adoption, the newly revised Moreno MDP will supersede the 1991 Moreno MDP.

CEQA analysis of a MDP is more complex than the typical project because MDPs have a variety of purposes that are implemented over time; in fact, some parts of the plan could be implemented many years in the future or not at all. Therefore, a forthcoming Programmatic Environmental Impact Report (PEIR) will be prepared to discuss impacts to be considered to have a potentially significant effect on the environment for the proposed Project. The proposed Project consists of revisions to the Moreno MDP and identifies conceptual locations for the future installation of drainage facilities in response to the existing and planned land use within the drainage boundary of the Moreno MDP; hereinafter referred to as the “Project.”

The CEQA analysis for the revisions to the Moreno MDP will consist of three separate components: Administration of the MDP, Future Construction of the MDP, and Future Operations and Maintenance of the MDP; hereinafter collectively referred to as the “Project.”

Administration of the MDP

The first component of the proposed Project being analyzed consists of the preparation and, ultimately, the adoption of the Moreno MDP as a long-range planning document. The Moreno MDP will be a guide for the alignment, type, size and cost of major proposed facilities (MDP Facilities) within the Moreno watershed to address the current and future drainage needs of Moreno Valley and the surrounding area. The drainage boundary of the Moreno MDP (MDP Boundary) is drawn to include all of the watershed area that contributes to the drainage problems in the community. The MDP Facilities would contain the 100-year flood discharge.

The Moreno MDP has a variety of planning uses. The Moreno MDP will be relied upon by the City of Moreno Valley (Moreno Valley) and Riverside County as it reviews and approves development in the MDP Boundary. New development may be required to construct MDP Facilities or set aside right-of-way for future MDP Facilities. The local jurisdictions can also use the Moreno MDP to identify MDP Facilities and costs for inclusion in capital improvement programs. Finally, the local jurisdictions can use the Moreno MDP for long-range planning of other public infrastructure projects like roads or utility pipelines.

Future Construction of the MDP

The second component of the Moreno MDP being analyzed in this Draft PEIR is the reasonably foreseeable impacts resulting from construction of the MDP Facilities. The MDP identifies the approximate location, size and type of MDP Facilities needed in order to alleviate and control flooding within the MDP Boundary. The Moreno MDP proposes the construction of approximately 30 miles of storm drainages and channels, and 50 acres of detention basins. The alignments and type of facilities depicted in the Moreno MDP can change as more detailed information becomes available during the design process. For example, the locations of underground utilities, new development patterns, right-of-way availability, hazardous materials sites, or the results of subsequent focused biological surveys may necessitate a shift in alignment or change in facility type. To add to that uncertainty, the construction of the MDP Facilities will be accomplished in discrete phases over a number of decades by different private entities and public agencies.

Despite this future environment of uncertainty and change, the proposed Project still must identify the general types of construction activities anticipated and the associated impacts. Subsequent CEQA analysis would be required when the individual MDP Facilities are designed and proposed for construction, but those future construction projects would tier from the forthcoming PEIR.

The Moreno MDP proposes a system of open channels, underground storm drains, and six basins, the conceptual location is presented on the attached figure entitled **Proposed Project**.

Open Channels

The Moreno MDP proposes two types of open channels, lined and unlined channels.

Lined channels are usually trapezoidal shaped with concrete paving on the sides and bottom. Sides slope upward from the bottom at a rate of one foot vertically for every 1.5 feet horizontally. There will only be two lined channels; a section of Line A west of the intersection of Locust Ave and Quincy St with a bottom width of 6 feet and depth of 4.5 feet and a section of the Line F, southwest of Oliver St. to Grand Vista Drive with a bottom width ranging from 20 to 35 feet and a depth of 9 feet.

Unlined channels are usually trapezoidal shaped, paved with rock-lined side slopes with a soft earthen bottom. Side slopes for unlined channels will run either 1.5 or 2 feet horizontally for every one-foot of rise. Unlined channels in the Moreno MDP have a bottom width ranging from 10 to 30 feet and a depth of 6 feet. Unlined channels require additional rights-of-way due to their wider cross sections.

Open channel rights-of-way for both lined and unlined facilities must accommodate the channel footprint plus areas needed for channel maintenance including access roads. Generally, channels with top widths less than 20 feet will require one access road; channels with top widths 20 feet or greater, require two access roads.

Open channels are generally considered the most economically feasible means of transporting large flood flows for any appreciable distance and are used wherever appropriate. In addition to their role as flow conveyors, open channels provide an outlet for the underground facilities proposed in the plans as well as local drainage facilities to be built by developers and others. All of the open channels proposed in the Moreno MDP are intended to carry the runoff from a 100-year frequency storm.

Underground Storm Drains

The underground storm drains proposed by the Moreno MDP, generally consist of reinforced concrete pipe (RCP), ranging in size from 30 inches to 96 inches in diameter, and reinforced concrete box (RCB), which could be a square or rectangular "pipe" made of concrete with rebar or wire mesh fabric. A single "cell" of a RCB can be used, or multiple RCBs can be arranged sideways to make a pipe or tunnel-like structure. Manholes are located as necessary for maintenance access with a maximum spacing of 500 feet. Catch basins are not specifically located until final design.

The underground drainage facilities are only proposed in those locations within the Moreno MDP where the application of open channels is not feasible, either because of topographic constraints or existing development (where possible, the underground storm drains proposed in the Moreno MDP are located in existing or future street rights-of-way). Most of the underground facilities within road rights-of-way are sized to carry the runoff generated by a 10-year storm event.

During a 100-year storm event, excess flow is expected to be carried in the street section above the facility. Otherwise, underground facilities are sized to convey the 100-year storm runoff.

Detention Basins and Debris Basin

The Moreno MDP proposes four detention basins and two debris basins. The detention basins' use as temporary storage will reduce fairly high flow rates to substantially lower outflow rates, and the debris basins will reduce the sediment downstream. The reduction of peak flows and debris allows for smaller, less costly facilities downstream of the basins. All four proposed detention basins are designed for ultimate 100-year storm events. The two proposed debris basins are designed for 10-year sediment yield from the watershed area. Flows exceeding the design capacity of a basin would pass over the emergency spillway in flow patterns approximating current conditions.

Future Operations and Maintenance of the MDP

The final component of the Moreno MDP to be analyzed is the reasonably foreseeable impact of future operation and maintenance activities. Once a facility is constructed it will require maintenance in order to retain flood control capacity. It is expected that the District will operate and maintain most if not all of the MDP Facilities.

The maintenance of the concrete-lined channels and storm drains is typically less costly than earthen channels and basins. Maintenance of storm drains and concrete channels typically consists of keeping these facilities and their side drains clear of debris and sediment, as well as repairs to access roads and fences, and removing graffiti. On rare occasions, major repairs may be required following damaging storm events. Thus, major grading will not routinely occur while maintaining the underground storm drains and open concrete channels. To maintain the constructed facilities, the District will occasionally use equipment similar to the types used to construct the proposed facilities.

The District inspects earthen channels and basins. The routine maintenance of the earthen channels and basins will likely require the following activities: the removal of deposition, repair of eroded slopes, and reduction of fire hazard by annually mowing and application of herbicides, as well as the maintenance activities described in the previous paragraph. Vegetation must be removed or mowed, as necessary, to provide the designed hydraulic capacity. Any vegetation that may pose a fire hazard to adjacent structures must also be maintained. The design capacity of the facility and the frequency, duration, and velocity of runoff usually dictate the frequency of vegetation maintenance. Most facilities require some annual vegetation control.

Maintenance of the earthen facilities will also include occasional erosion repair and sediment removal. The frequency of these activities is a function of storm flows, and is difficult to estimate. The proposed earthen facilities are also more likely to be damaged by high velocity peak flows and more frequent storm events. While major repairs are expected to be relatively infrequent, the District will occasionally need to substantially grade and repair the earthen facilities.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: Pursuant to implementation procedures, notice is given to responsible and interested agencies, other organizations, and private citizens. Riverside County Flood Control and Water Conservation District plans to oversee the preparation of the DPEIR for the above-described Project. The list of topics to be analyzed in the DPEIR corresponds to all impacts identified as "potentially significant" in the Initial Study distributed for public review from **April 3 through May 2, 2012**:

- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural Resources
- Hydrology/Water Quality
- Noise
- Mandatory Findings of Significance

Information in that regard should be submitted **no later than May 2, 2012**. A public scoping meeting will be held on April 19, 2012 from 6:30 –7:30 p.m., at Moreno Valley City Council Chambers, 14177 Frederick Street, Moreno Valley, CA 92552.

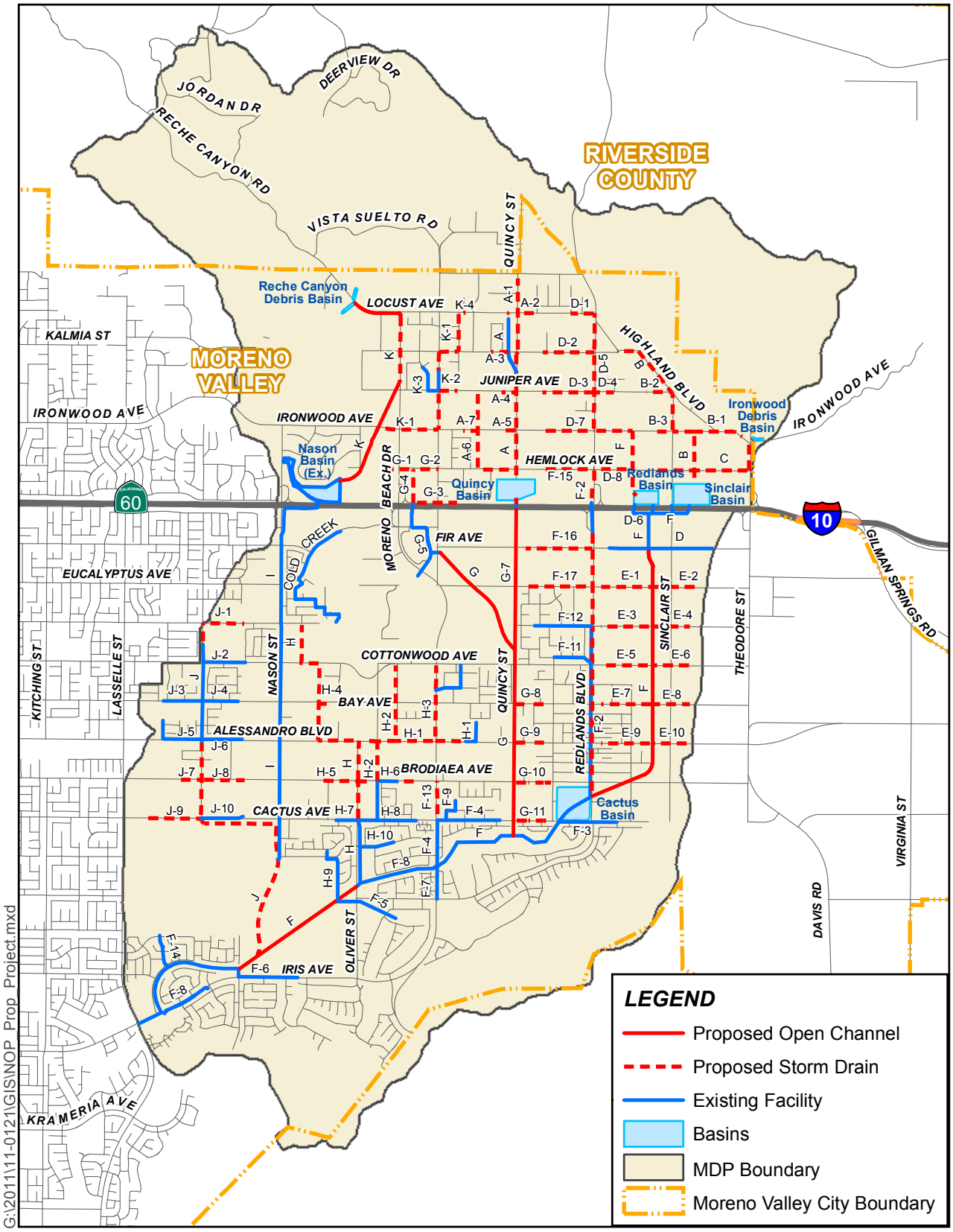
LEAD AGENCY:

Riverside County Flood Control and Water Conservation District
1995 Market Street
Riverside, California 92501
Attn: Kris Flanigan, P.E., Senior Engineer

Please send your responses to Kris Flanigan at the address shown above. We will need the name of a contact. If you have any questions or need clarification regarding this Project, please do not hesitate to contact Kris Flanigan by phone at (951) 955-8581 or by e-mail at kflaniga@rcflood.org.

DOCUMENT AVAILABILITY: The initial study is available for review at the Riverside County Flood Control and Water Conservation District, located at the address above, and may also be accessed on the District's website at http://rcflood.org/, under the "Public Notices" list located on the lower left half of the homepage. The initial study may also be reviewed, both in electronic and hardcopy formats, at:

Moreno Valley Public Library
25480 Alessandro Blvd.
Moreno Valley, CA 92553



G:\2011\11-0121\GIS\NOP_Prop_Project.mxd

Source: County of Riverside GIS, 2012.

NOP - Proposed Project

Moreno Master Drainage Plan Revision

0 0.5 1 1.5 Miles

Albert A. WEBB Associates

INITIAL STUDY

Moreno Master Drainage Plan Revision

Prepared for

Riverside County Flood Control
& Water Conservation District

March 2012

ALBERT A. WEBB ASSOCIATES

Riverside County Flood Control

and Water Conservation District

Riverside, California

CEQA
INITIAL STUDY

Moreno Master Drainage Plan Revision

ZONE 4

March 2012

WARREN D. WILLIAMS
General Manager-Chief Engineer

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

California Environmental Quality Act (CEQA) Initial Study

1. **Project title:**
   Moreno Master Drainage Plan Revision

2. **Lead agency name and address:**
   Riverside County Flood Control and Water Conservation District
   1995 Market Street
   Riverside, California 92501

3. **Contact person email address and phone number:**
   Kris Flanigan, Senior Civil Engineer
   kflaniga@rcflood.org
   (951) 955-1200

4. **Project location:** The proposed project is generally bounded by Lasselle Street to the west, Theodore Street to the east, Reche Canyon and San Timoteo Badlands foothills to the north, and Mount Russell foothills to the south. The Moreno MDP includes land within Moreno Valley and unincorporated Riverside County (**Figure 1 – Vicinity Map; Figure 2 – Proposed Project**). The proposed project is located within Township 2 South, Range 2 West, Sections 30 and 31; Township 2, Township 2 South Range 3 West, Sections 26, 32, 33, 34, 35, and 36; and Township 3 South Range 4 West, Sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 27, and 28 San Bernardino Base and Meridian (**Figure 3 – Topographic Map**).

5. **Project sponsor's name and address:**
   Same as Lead Agency

6. **General plan designation:** The proposed project will affect properties in portions of Moreno Valley, and portions of unincorporated Riverside County. Portions lie within an area designated by Moreno Valley as Residential (R1, R2, R3, R5, R10, R15, R20, and R5/15), Rural Residential, Hillside Residential, Residential/Office, Office, Commercial, Business Park/Light Industrial, Open Space, Floodplain, and Public Facilities land use designations. Portions lie within an area designated by Riverside County as Rural Residential, Rural Mountainous, Rural Community-Very Low Density Residential, Conservation Habitat, Open Space Rural, and Open Space Recreation land use designations.

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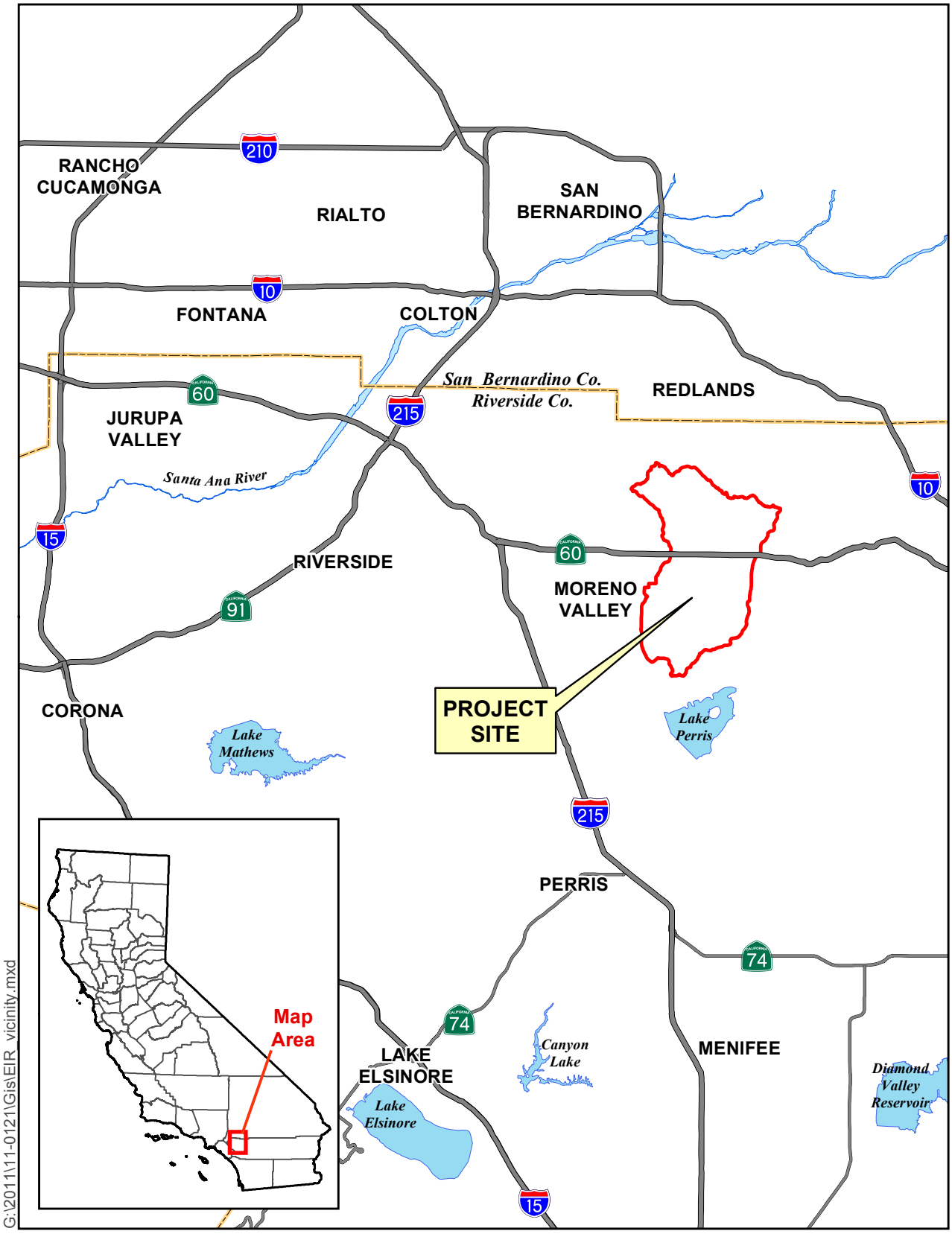
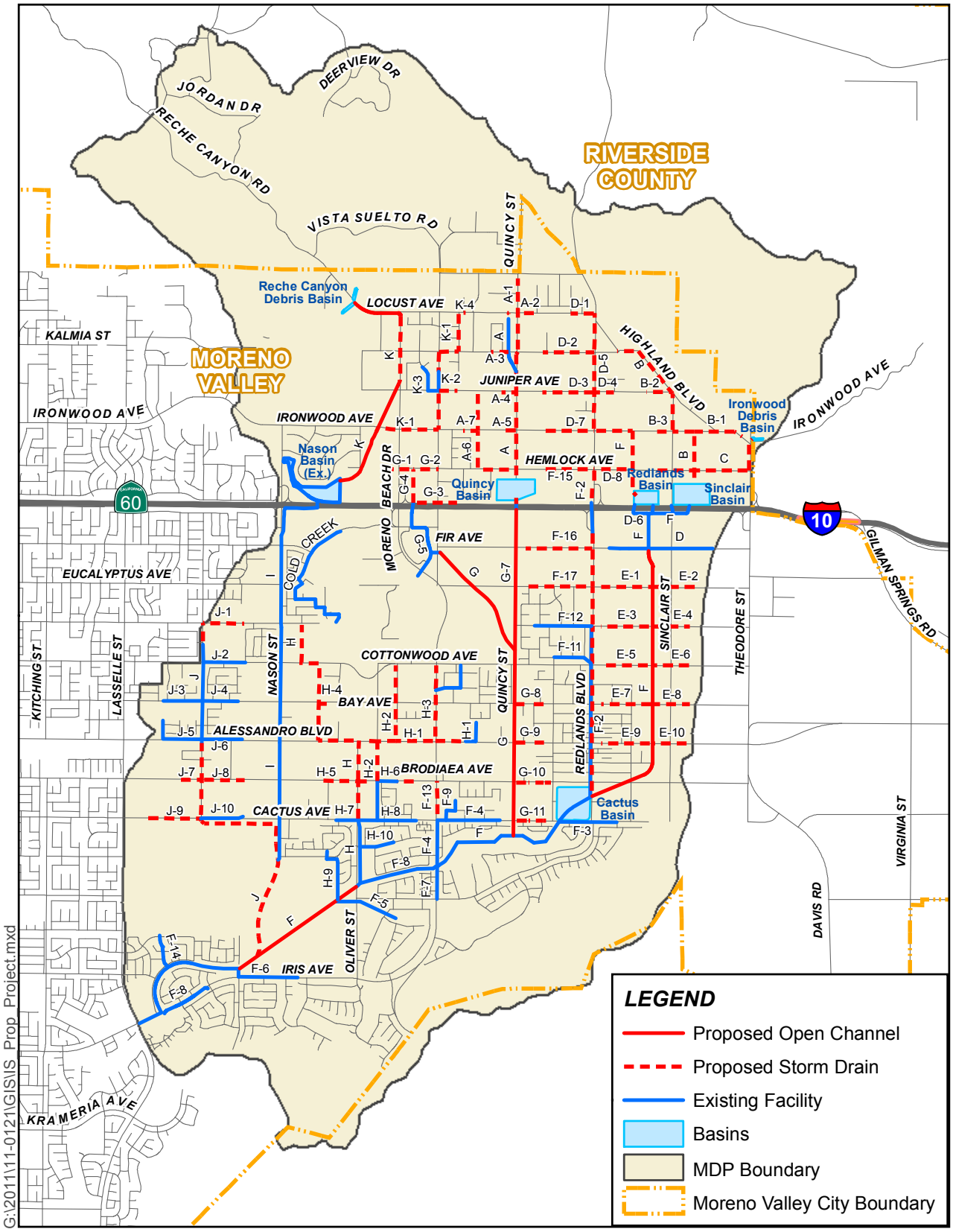


Figure 1 - Vicinity Map

Moreno Master Drainage Plan Revision

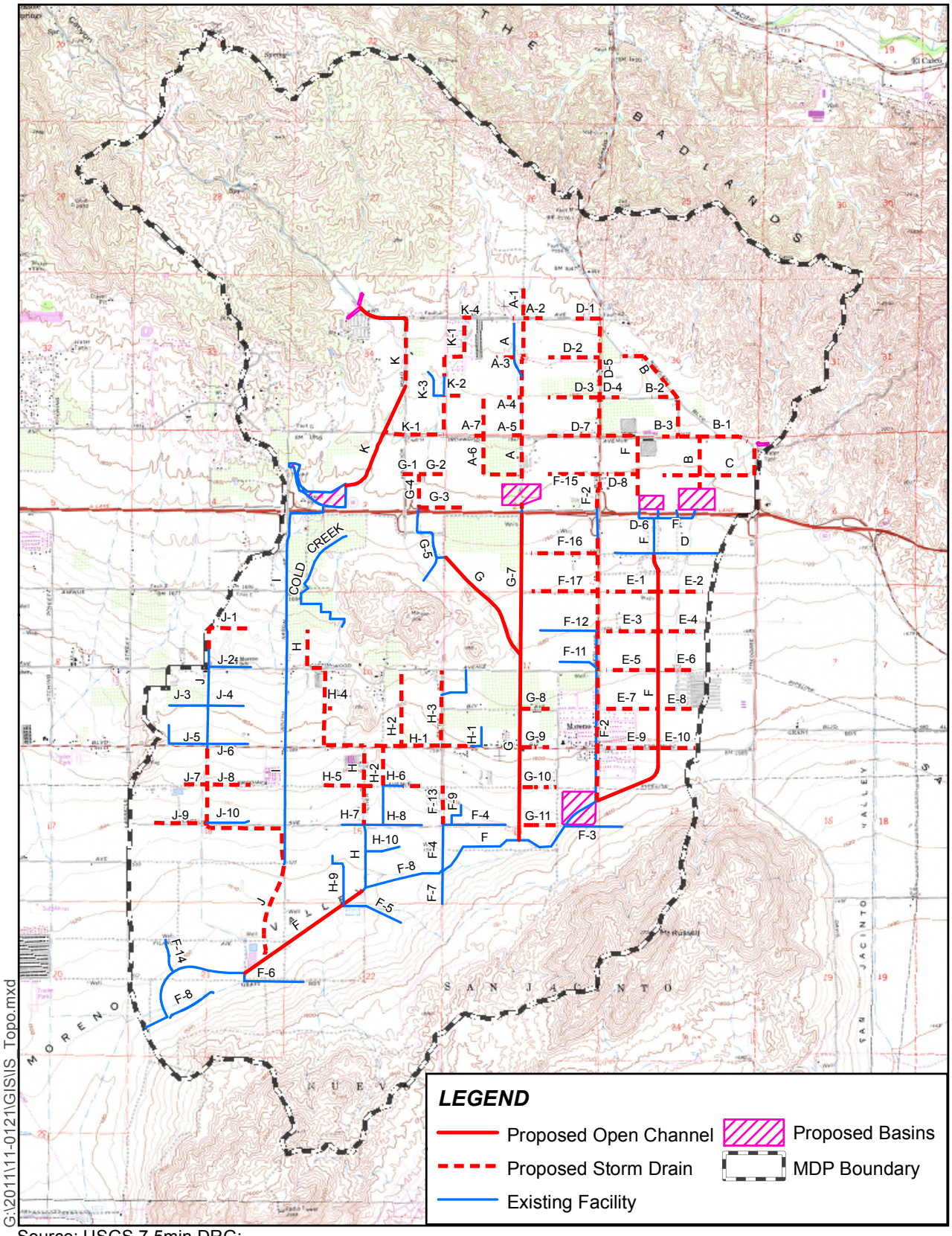
0 2 4 6 Miles



Source: County of Riverside GIS, 2012.

Figure 2 - Proposed Project

Moreno Master Drainage Plan Revision



Source: USGS 7.5min DRG: SUNNYMEAD

Figure 3 - Topographic Map

Moreno Master Drainage Plan Revision

0 2,000 4,000 6,000 Feet

Albert A. WEBB Associates

7. **Description of project:** Master Drainage Plans (MDPs) are conceptual planning documents that address the current and future drainage needs of a given community. The boundary of the plan usually follows regional watershed limits. The proposed drainage facilities may include channels, storm drains, levees, basins, dams, or any other conveyance capable of feasibly relieving flooding problems within the plan area. The plan includes an estimate of facility capacity, sizes, and costs.

Proposed drainage facilities within the plan area were originally described in the Moreno MDP dated October 1980 (Revised April 1991). The proposed revision is the result of the re-evaluation of the original plans. After adoption, the newly revised Moreno MDP will supersede the 1991 Moreno MDP. The preliminary estimated total cost of the revised Moreno MDP is approximately $185.3 million.[1]

CEQA analysis of a MDP is more complex than the typical project because MDPs have a variety of purposes that are implemented over time; in fact, some parts of the plan could be implemented many years in the future or not at all. Therefore, a forthcoming Programmatic Environmental Impact Report (PEIR) will be prepared to discuss impacts to be considered to have a potentially significant effect on the environment for the proposed project. The proposed project consists of revisions to the Moreno MDP and identifies conceptual locations for the future installation of drainage facilities in response to the existing and planned land use within the drainage boundary of the Moreno MDP; hereinafter referred to as the "Project."

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The Moreno MDP has a variety of planning uses. The Moreno MDP will be relied upon by the City of Moreno Valley (Moreno Valley) and Riverside County as it reviews and approves existing and proposed development in the MDP Boundary. New development may be required to construct MDP Facilities or set aside right-of-way for future MDP Facilities. The local jurisdictions can also use the Moreno MDP to identify MDP Facilities and costs for inclusion in capital improvement programs. Finally, the local jurisdictions can use the Moreno MDP for long-range planning of other public infrastructure projects like roads or utility pipelines.

Future Construction of the MDP

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[1] Includes construction, right-of-way costs, engineering, administration, Western Riverside County Multiple Species Habitat Conservation fees, and contingencies.

type of facilities depicted in the Moreno MDP can change as more detailed information becomes available during the design process. For example, the locations of underground utilities, new development patterns, right-of-way availability, hazardous materials sites, or the results of subsequent focused biological surveys may necessitate a shift in alignment or change in facility type. To add to that uncertainty, the construction of the MDP Facilities will be accomplished in discrete phases over a number of decades by different private entities and public agencies.

Despite this future environment of uncertainty and change, the proposed Project still must identify the general types of construction activities anticipated and the associated impacts. Subsequent CEQA analysis would be required when the individual MDP Facilities are designed and proposed for construction, but those future construction projects would tier from the forthcoming PEIR.

The Moreno MDP proposes a system of open channels, underground storm drains, and six basins, the conceptual location of which is presented in **Figure 2 – Proposed Project** and listed in **Exhibit A – Moreno MDP Facilities Update Overview.** The table contained in Exhibit A lists the types of drainage improvements (i.e., new facilities and upgrades to existing ones) proposed in the Moreno MDP Revision and provides a detailed description of each of the individual MDP Facilities.

Open Channels

The Moreno MDP proposes two types of open channels, lined and unlined channels.

Lined channels are usually trapezoidal shaped with concrete paving on the sides and bottom. Sides slope upward from the bottom at a rate of one foot vertically for every 1.5 feet horizontally. There will only be two lined channels; a section of Line F southwest of Oliver Street to Grand Vista Drive in the Moreno MDP with a bottom width ranging from 20 to 35 feet and a depth of nine feet, and a section of Line A west of the intersection of Locust Avenue and Quincy Street with a bottom width of six feet and depth of 4.5 feet.

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Earlier Analyses Used: Not applicable

Impacts Adequately Addressed in Earlier Analyses: Not applicable

Mitigation Measures from Earlier Analysis: Not applicable

8. **Surrounding land uses and setting:** The surrounding land uses includes existing residential, commercial, public facilities, business park/light industrial land uses and is characterized with open space. Topography of the Moreno MDP area is generally flat with Petit Hill within the area and spans up to the mountain range to the north in unincorporated Riverside County, and the Mount Russell area foothills and Lake Perris to the south. To the west is March Air Reserve Base and to the east is the Badlands. Elevations in the Project area range from approximately 1,500 feet to 2,400 feet above sea level

Adjacent Existing Land Use:
North: Open Space Rural and Rural Mountainous
East: Residential, Open Space, Public Facilities, Commercial, and Business Park/Light Industrial
South: Residential, Open Space, Public Facilities, and Commercial,
West: Residential, Open Space, Public Facilities, Commercial, and Business Park/Light Industrial

9. **Other public agencies whose approval is required:** *(e.g., permits, financing approval, or participation agreement.)*

Federal Agencies *(not "public agencies" as defined by CEQA or required to take a CEQA action)*

- U.S. Army Corps of Engineers
  A Clean Water Act Section 404 permit will be required if the construction or maintenance of the proposed facilities involves the discharge of dredged or fill materials within waters of the United States of adjacent wetlands.

State Agencies

- Regional Water Quality Control Board, Santa Ana Region (RWQCB)
  National Pollutant Discharge Elimination System (NPDES) General Construction Permits will be required for grading activities of one acre or larger

  If a 404 permit is required, then a Section 401 Water Quality Certification will be required.

  A Waste Discharge Permit will be required if ground dewatering is necessary during tunneling activities or if waste is discharged into water of the State

- California Department of Fish and Game
  A Fish and Game Section 1600 Streambed Alteration Agreement will be required if a jurisdictional streambed or stream banks will be altered.

- California Department of Transportation (Caltrans)
  Encroachment permits will be required if any work is required within the right-of-way of State Route 60

  Water Pollution Control Plans (WPCP) will also be required.

City/County Agencies
County of Riverside
City of Moreno Valley

Financing Approval or Participation Agreements
Not applicable

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors, as checked below, would potentially be affected by this project.

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

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 EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced any 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 negative declaration. (CEQA Guidelines Section 15063(c)(3)(D)). The use of an earlier analysis as a reference should include a brief discussion that identifies 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 which 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. 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 significance.

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		Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
I.	**AESTHETICS**. Would the project:				
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 the site and its surroundings?	☐	☐	☒	☐
d)	Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II.	**AGRICULTURAL & FOREST 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. Would the project:				
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 agricultural zoning, agricultural use or land subject to a Williamson Act contract or land within a Riverside County Agricultural Preserve?	☐	☐	☐	☒
c)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☒	☐
d)	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))?	☐	☐	☒	☐
e)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

		Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
III.	**AIR QUALITY AND GREENHOUSE GAS EMISSIONS.** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c)	Result in 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 *(including releasing emissions which exceed quantitative thresholds for ozone precursors)?*	☒	☐	☐	☐
d)	Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
f)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
g)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐
IV.	**BIOLOGICAL RESOURCES.** Would the project:				
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 Game 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 Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c)	Have a substantial adverse effect on biological resources involved within a jurisdictional water feature as defined by federal, state or local regulations (e.g., Section 404 of the Clean Water Act, Section 401 of the Clean Water Act, Section 1602 of California Fish and Game Code, Porter-Cologne Water Quality Control Act, etc.) through direct removal, filing, hydrological interruption, or other means?	☒	☐	☐	☐

			Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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?		☒	☐	☐	☐
V.	**CULTURAL RESOURCES.** Would the project:					
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?		☒	☐	☐	☐
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		☒	☐	☐	☐
d)	Disturb any human remains, including those interred outside of formal cemeteries?		☐	☐	☒	☐
VI.	**GEOLOGY AND SOILS.** Would the project:					
a)	Expose people or structures to 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 or mudflows?	☐	☐	☒	☐
b)	Result in substantial changes in topography, unstable soil conditions from excavation, grading or fill, or soil erosion or the loss of topsoil?		☐	☐	☒	☐

		Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
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- 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 (1994 or most current edition), creating substantial risks to life or property?	☐	☐	☒	☐
e)	Have soils incapable of adequately supporting any structures, fill or other improvements associated with the project?	☐	☐	☐	☒
VII.	**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:				
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
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 complied pursuant to Government Code Section 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 for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where Wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

		Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
VIII.	**HYDROLOGY AND WATER QUALITY.** Would the project:				
a)	Violate or conflict with any adopted water quality standards or waste discharge requirements?	☒	☐	☐	☐
b)	Result in substantial discharges of typical stormwater pollutants *(e.g., sediment from construction activities, hydrocarbons, and metals from motor vehicles, nutrients and pesticides from landscape maintenance activities, metals of other pollutants from industrial operation,)* or substantial changes to surface water quality including, but not limited to, temperature, dissolved oxygen, pH, or turbidity?	☒	☐	☐	☐
c)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level *(e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*	☒	☐	☐	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of a watercourse or wetland, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
e)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☒	☐	☐	☐
f)	Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems?	☐	☐	☒	☐
g)	Place housing within a 100-year flood hazard area as mapped on Federal Flood Hazard boundary of Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h)	Place structures or fill within a 100-year flood hazard area, which would impede or redirect flood flows?	☒	☐	☐	☐
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j)	Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

		Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
IX.	**LAND USE PLANNING.** Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
X.	**MINERAL RESOURCES.** Would the project:				
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?	☐	☐	☐	☒
XI.	**NOISE.** Would the project result in:				
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b)	Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

		Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
XII.	**POPULATION AND HOUSING.** Would the project:				
a)	Induce substantial 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)* resulting in substantial adverse physical impacts or conflicts with the adopted general plan, specific plan, or other applicable land use or regional plan?	☐	☐	☒	☐
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIII.	**PUBLIC SERVICES**				
a)	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 following public services:				
	Fire protection?	☐	☐	☐	☒
	Police protection?	☐	☐	☐	☒
	Schools?	☐	☐	☐	☒
	Parks?	☐	☐	☐	☒
	Other public facilities?	☐	☐	☐	☒
XIV.	**RECREATION**				
a)	Would the project 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)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

		Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
XV.	**TRANSPORTATION AND TRAFFIC.** Would the project:				
a)	Conflict with an adopted plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b)	Conflict with an adopted congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the appropriate congestion management agency for designated roads or highways?	☐	☐	☒	☐
c)	Substantially increase hazards due to a design feature *(e.g., sharp curves or dangerous intersections)* or incompatible uses *(e.g., farm equipment)?*	☐	☐	☐	☒
d)	Would the project result in inadequate emergency access?	☐	☐	☒	☐
e)	Would the project result in inadequate parking capacity?	☐	☐	☐	☒
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, pedestrian facilities, or other alternate transportation or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐
XVI.	**UTILITIES AND SERVICE SYSTEMS.** Would the project:				
a)	Impact the following facilities requiring or resulting in the construction of new facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
	Electricity	☐	☐	☐	☒
	Natural Gas	☐	☐	☐	☒
	Communication System	☐	☐	☐	☒
	Street lighting	☐	☐	☐	☒
	Public facilities, including roads and bridges	☐	☐	☒	☐
b)	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

		Potential Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
c)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
d)	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?	☐	☐	☐	☒
e)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
f)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

XVII. MANDATORY FINDINGS OF SIGNIFICANCE.

a)	Does the project have the potential to 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, 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)	Does the project 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)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

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DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

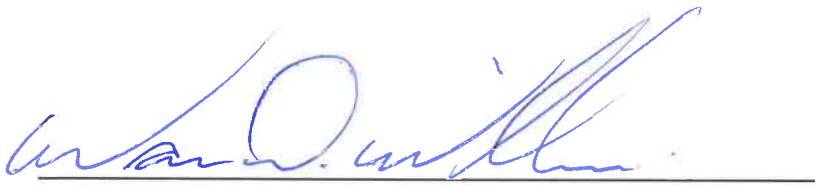
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ 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 the mitigation measures described on an attached sheet have been added to the project. 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, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." 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, there WILL NOT be a significant effect in this case because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project.



Signature

4/2/12

Date

WARREN D. WILLIAMS, General Manager-Chief Engineer
Printed Name and Title

ENVIRONMENTAL EVALUATION

I. AESTHETICS. Would the project:

Ia) Have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. A scenic vista is a distant and picturesque view of a natural landscape. According to the Moreno Valley General Plan (MVGP), the proposed Project is surrounded by Reche Canyon area to the north, the "Badlands" to the east, and the Mount Russell area to the south. Also, Moreno Peak is located south of State Route (SR) 60, along Moreno Beach Drive. The proposed Project consists of revisions to the Moreno MDP and identifies conceptual locations for the future installation of MDP Facilities in response to the existing and planned land use within the Project Boundary. Construction of the proposed Project could have short-term visual impacts from construction equipment and construction activity. However, the Project will not substantially alter the views of, or from the Project area since the proposed MDP Facilities consist of proposed storm drains, open channels (lined and unlined) and detention basins, all of which will be located below or at ground surface level. The proposed Project does not entail any vertical facilities or structures. Therefore, Project implementation would not obstruct any scenic views and potential impacts to scenic vista are less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description; MVGP, p. 7-12 and Figure 7-2 Major Scenic Resources

Ib) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. The proposed Project is not located adjacent to or in the immediate vicinity of any state scenic highways. The proposed MDP Facilities are primarily within the road rights-of-way and disturbed agricultural areas. Areas where basins are planned are not located on elevated lands. The conceptual alignments and locations of the proposed MDP Facilities do not contain any rock outcroppings or historic buildings that are of significant visual quality; thus, implementation of the Project would not damage any such resources. The proposed MDP Facilities are primarily within or adjacent to road rights-of-way; however, construction of MDP Facilities may require vegetation removal. Once construction of the underground facilities is complete the surface will be returned to its original condition. Overhanging trees (if present) may need to be minimally trimmed to facilitate construction of the MDP Facilities. The Caltrans Scenic Highway System does not identify any highways within Riverside County that are in the vicinity of the Project area as scenic highways. For these reasons implementation of the proposed Project will not substantially damage scenic resources and impacts are considered less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description; RivCo GIS; Department of Transportation

Ic) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less Than Significant Impact. The proposed Project is located in the City of Moreno Valley and in unincorporated areas of Riverside County. The portion of the MDP boundaries within the unincorporated area is also within Moreno Valley's Sphere of Influence. Exposed surfaces, construction debris, and construction equipment may temporarily affect the aesthetic quality of the area in immediate proximity to the construction. These impacts will be short-term and will cease when construction is completed. Therefore, they are considered to be less than significant. When construction is completed, the underground storm drains will not be visible. The open storm channels and basins will be visible, but are facilities that are aesthetically consistent with existing residential and non-residential development and therefore, will not substantially degrade the existing visual character or quality of the Project area and impacts will be less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description

Id) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

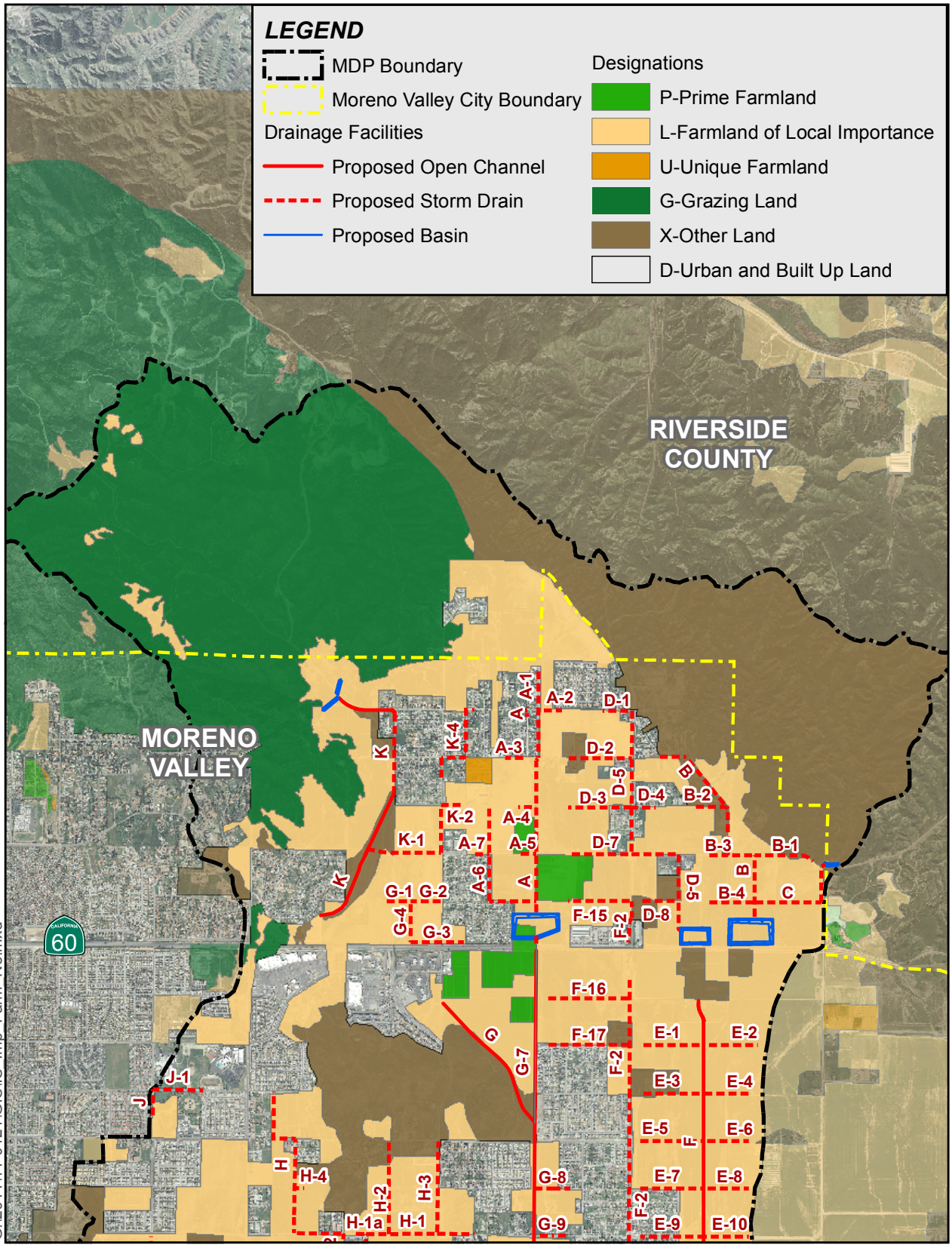
Less Than Significant Impact. The proposed MDP Facilities will not create new or additional light or glare, either during construction or operation and maintenance; therefore, this will not conflict with any day or nighttime views in the Project area. The only lighting that may be expected to be used in connection with the proposed Project would be temporary lighting used for emergency conditions; however, any such lighting would be directed towards the MDP Facilities and not onto adjacent property or into the sky. For these reasons, impacts from light and glare will be less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description

II. AGRICULTURAL & FOREST 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. Would the project:

IIa) 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?

Less Than Significant Impact. The proposed Project consists of revisions to the Moreno MDP and identifies conceptual locations for the future installation of MDP Facilities in response to the existing and planned land use within the Project Boundary. Designated Prime and Unique Farmland are located within the MDP Boundary; see **Figures 4a and 4b – California Department of Conservation Important Farmland**.



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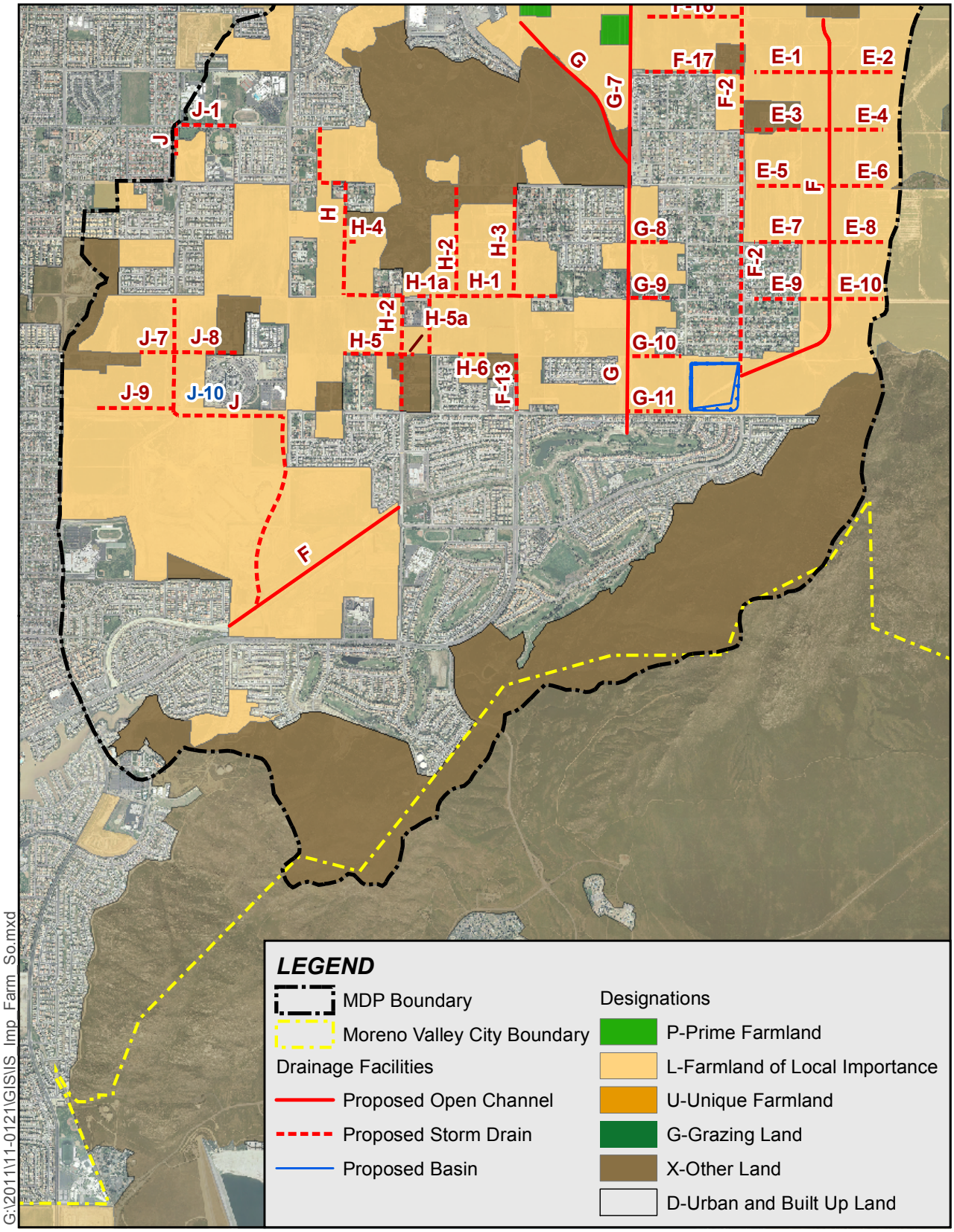
Sources: California Dept. of Conservation, FMMP, 2010; Eagle Aerial, April 2010.

Figure 4A California Department of Conservation Important Farmland

Moreno Master Drainage Plan Revision

0 0.5 1 1.5 Miles

Albert A. WEBB Associates



Sources: California Dept. of Conservation, FMMP, 2010; Eagle Aerial, April 2010.

0 0.5 1 1.5 Miles

Figure 4B California Department of Conservation Important Farmland

Moreno Master Drainage Plan Revision

Proposed storm drains are underground facilities, and as such, will not result in a permanent conversion of Important Farmland, as the facility footprint could be returned to its original condition. Proposed open channel, Line G-7 will result in a permanent change. However, construction of the proposed open channels will be primarily located within or adjacent to road rights-of-way and impacts, if any, will be negligible.

Construction and operation of the proposed Quincy Basin will result in a permanent change to Important Farmland, since it is an open facility and must be maintained in order to retain flood control capacity. The Quincy Basin is anticipated to encompass approximately 18 acres; however, approximately six acres of the western portion of the basin is mapped as Prime Farmland. According to the MVGP Final EIR, the Moreno Valley planning area has approximately 1,639 acres mapped as Prime Farmland**. Table II-1 – Planning Area Important Farmland** depicts the acreage for Prime, Unique, and Farmland of Statewide Importance within the Moreno Valley planning sphere.

Table II-1 – Planning Area Important Farmland

Agricultural Classification	Approximate Acreage
Prime Farmland	1,639
Farmland of Statewide Importance	330
Unique Farmland	60
Source: City of Moreno Valley, *Final Environmental Impact Report, City of Moreno Valley General Plan, Table 5.8-1, Planning Area Agricultural Resources*.	

In relation to the Moreno Valley planning area of 26,820 acres, less than one percent is mapped as Important Farmland. The MVGP acknowledges that increasing pressures from surrounding urban development and economic pressures will result in the transition of agricultural areas to urban uses (MVGP, p. 7-11) and includes policies to supports agriculture as an interim use. However, the MVGP Land Use Plan does not designate any land within Moreno Valley or its sphere for long-term agricultural use. To facilitate the transition from agricultural uses to more urban uses, Moreno Valley's zoning ordinance permits agricultural crops as an allowable use for in all zoning categories as long as such agricultural activities can be economically conducted (MVGP FEIR, p. 5.8-7).

The Quincy Basin is bounded by the 60 freeway to the south, existing residential development to the west, residential and residential agricultural to the north, and an existing cell tower and mini-storage facility to the east. Therefore, pressure from existing surrounding urban development is present without the proposed revisions to the Moreno MDP. Additionally, since development can occur in the Project area under the 1991 Moreno MDP, the proposed revisions to the Moreno MDP will not exacerbate the transition to urban uses.

With only a relatively small footprint of Important Farmland impacted by the Project and to comply with MVGP objectives, potential impacts to Important Farmland are considered to be less than significant. Therefore, this issue will not be discussed in the forthcoming PEIR.

Source: Department of Conservation; Project Description; MVGP, p. 7-11; MVGP Final EIR, p. 5.8-1.

IIb) Conflict with existing agricultural zoning, agricultural use or land subject to a Williamson Act contract or land within an Agricultural Preserve?

No Impact. The California Land Conservation Act (CLCA) of 1965, also known as the Williamson Act, allows owners of agricultural land to have their properties assessed for tax purposes on the basis of agricultural production rather than current market value. According to the Moreno Valley General Plan Final Environmental Impact Report (MVGP FEIR) and Riverside County Land Information System (RivCo GIS), no lands within the Project Boundary are under Williamson Act contract (MVGP FEIR, p. 5.8-6). The proposed Project does not conflict with existing zoning for agricultural use and will not affect agricultural land subject to a Williamson Act or within an Agricultural Preserve. Therefore, no impacts are anticipated. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description; MVGP FEIR; RivCo GIS

IIc) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

Less Than Significant Impact. The proposed MDP Facilities would not result in the direct conversion of farmland to non-agricultural uses other than the acreage within the proposed open channels and detention basins. While implementation of the proposed Project in conjunction with the ultimate street improvements will provide protection from the 100-year flood discharge and alleviate the primary sources of flooding within the Moreno MDP Boundary; the Project is not considered growth-inducing. As discussed in item XIIa), indirect growth inducing impacts are considered to be less than significant for the proposed Project. Therefore, this issue will not be discussed in the forthcoming PEIR.

Source: Department of Conservation; Project Description

IId) 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))?

Less Than Significant Impact. "Forest land," as defined in Public Resources Code (PRC) section 12220(g), is land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Moreno Valley has a wide variation in soil types, terrain, and micro-climates that allow several types of vegetation communities to grow in the region. Oak Woodland is within the MDP Boundary (MVGP FEIR, Figure 5.9-2 Planning Area Vegetation Community). However, the MVGP FEIR states that non-native woodland was erroneously mapped as oak woodland vegetation communities (MVGP FEIR, p. 5.9-5). The City of Moreno Valley staff found the woodland community to consist of non-native eucalyptus and pepper trees (MVGP FEIR, p. 5.9-11). Therefore, there is no forest land within Moreno Valley as defined by PRC. Additionally, a portion of the MDP Boundary is in unincorporated Riverside County. Only one of the MDP Facilities will be constructed outside of Moreno Valley, the Ironwood Debris Basin. According to RivCo GIS, the Ironwood Debris Basin is not within any forest land. As discussed in the response to item IIa, above, the ground surface will be restored to its original

condition after construction of the storm drains and will not result in a permanent change in land use. Additionally, the areas proposed for channels and basins are not zoned for Timberland Production. Therefore, implementation of the Project will not conflict with or cause the rezoning of land zoned for forest land and will be less than significant.

"Timberland," as defined in PRC section 4526, means land, other than land owned by the federal government and land designated as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. According to Riverside County Zoning Ordinance 348, tree crops are permitted uses in the following zones: Rural Residential (R-R), Rural Residential-Outdoor Advertising (R-R-O); One-Family Dwellings (R-1); One-Family Dwellings- Mountain Resort (R-1A), Residential Agricultural (R-A), Multiple Family Dwellings (R-2), Limited Multiple – Family Dwellings (R-2A), General Residential (R-3), Village Tourist Residential (R-3A), Mobile home Subdivision-Rural (R-T-R), all agricultural zoning (A-1, A-P, A-2, and A-D), Controlled Development Areas (W-2), and Regulated Development Areas (R-D). Only one of the MDP Facilities will be constructed outside of Moreno Valley, the Ironwood Debris Basin. Additionally, according to Title 9 of the Moreno Valley Municipal Code (MVMC), crops are permitted uses in all of its zoning. Therefore, portions of MDP Facilities will be constructed within or adjacent to property zoned for timberland according to PRC 4526. However, the Moreno MDP Revision does not propose any change in land use or zoning. Therefore, implementation of the Project will not conflict with or cause the rezoning of land zoned for timberland and impacts will be less than significant.

Both of these issues will not be addressed further in the forthcoming PEIR.

Source: Project Description; RivCo GIS; MVGP FEIR, pp. 5.9-5 and 5.9-11, and Figure 5.9-2 Planning Area Vegetation Community; MVMC, Title 9 Planning and Zoning, Chapter 9 Section 02.020 Permitted Uses; Ord. No. 348

IIe) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. Please refer to item II) d, above. This issue will not be addressed further in the forthcoming EIR.

Source: Project Description; RivCo GIS; MVGP FEIR, pp. 5.9-5 and 5.9-11, and Figure 5.9-2 Planning Area Vegetation Community

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

IIIa) Conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The proposed Project site is within the South Coast Air Basin (Basin), which is in the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Air Quality Management Plan (AQMP) for the Basin was established by SACQMD to set forth a comprehensive program that will lead the Basin into compliance with all federal and state air quality standards. To achieve compliance with these standards, the AQMP establishes control measures and related

emission reduction estimates that are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with the AQMP for any given project is determined by demonstrating that such project is consistent compliance with local land use plans and/or population projections.

The proposed Project consists of revisions to the Moreno MDP and identifies conceptual locations for the future installation of MDP Facilities in response to the existing and planned land use within the Project Boundary. The proposed MDP Facilities are considered to be compatible with all zoning designations pursuant to Section 18.2.b.b of Riverside County Ordinance No. 348, which exempts public agency projects from zoning designations and with Title 9 Planning and Zoning of the MVMC, which does not prohibit stormwater drainage facilities in any zoning district Thus, implementation of the proposed Moreno MDP revisions will not conflict with or obstruct implementation of the AQMP. For these reasons there will be no impacts to the AQMP. This issue will not be addressed further in the forthcoming PEIR.

Source: AQMP; Ord. No. 348; MVMC, Title 9 Planning and Zoning

IIIb) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Potentially Significant Impact. The proposed Project consists of revisions to the Moreno MDP and identifies conceptual locations for the future installation of MDP Facilities in response to the existing and planned land use within the Project Boundary. Construction of the proposed MDP Facilities has the potential to violate air quality standards and contribute substantially to an existing or projected air quality standard. Therefore, an analysis of impacts to air quality and greenhouse gas (GHG) emissions will be conducted for the proposed Project by assuming the worst-case scenario (i.e. longest length of pipeline and channels to be constructed at once and largest proposed basin) and consistency with air quality standards will be provided in the forthcoming PEIR.

Source: Project Description

IIIc) Result in 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 *(including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

Potentially Significant Impact. The portion of the Basin in which the Project is located is designated as a non-attainment area for ozone, PM-10 and PM-2.5 under state and federal standards. The forthcoming PEIR will address the Project's potential to contribute to a cumulative increase of criteria pollutants (i.e., carbon monoxide, ground-level ozone, nitrogen dioxide, sulfur dioxide, and particulate matter equal to or less than 10 microns in size) including those that are considered to be in non-attainment. This issue will be addressed further in the forthcoming PEIR.

Source: AQMP; Project Description

IIId) Expose sensitive receptors to substantial pollutant concentrations?

Potentially Significant Impact. For CEQA purposes, SCAQMD defines sensitive receptors as residences, hospitals, or convalescent facilities where it is possible for an individual to remain for 24 hours. Sensitive receptors include existing residential uses along the alignments of certain proposed MDP Facilities. Construction of the proposed MDP Facilities could produce emissions that may affect sensitive receptors. Therefore the potential to expose sensitive receivers to substantial pollutant concentrations will be discussed in the forthcoming PEIR

Source: AQMP; Project Description

IIIe) Create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. The Project presents the potential for generation of objectionable odors in the form of diesel exhaust during construction in the immediate vicinity of the proposed MDP Facilities. However, these odors will be of short-term duration and will not result in permanent impacts to surrounding land uses or sensitive receptors in the Project Boundary. For these reasons, implementation of the Project will result in less than significant impacts relating to objectionable odors and this issue will not be addressed in the forthcoming PEIR.

Source: Project Description

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

Potentially Significant Impact. Implementation of the Project has the potential to produce GHG emission during construction. Therefore the Project's potential to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment will be addressed in the forthcoming PEIR.

Source: Project Description

IIIg) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Potentially Significant Impact. See response to item IIIf), above.

Source: Project Description

IV. BIOLOGICAL RESOURCES. Would the project:

IVa) 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 Game or U.S. Fish and Wildlife Service?

Potentially Significant Impact. The Project consists of revisions to the Moreno MDP and identifies conceptual locations for the future installation of MDP Facilities in response to the existing and planned land use within the Project Boundary. Although much of the area in which the MDP Facilities are proposed to be located has been disturbed, the proposed Project Boundary may support 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 Game or U.S. Fish and Wildlife Service. A programmatic-level biological resources assessment will be prepared and the Project's potential to impact sensitive plant and wildlife species will be discussed in the forthcoming PEIR.

Source: Project Description

IVb) 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 Game or U.S. Fish and Wildlife Service?

Potentially Significant Impact. See response to item IVa), above.

Source: Project Description

IVc) Have a substantial adverse effect on biological resources involved within a jurisdictional water feature as defined by federal, state or local regulations (e.g., Section 404 of the Clean Water Act, Section 401 of the Clean Water Act, Section 1602 of California Fish and Game Code, Porter-Cologne Water Quality Control Act, etc.) through direct removal, filing, hydrological interruption, or other means?

Potentially Significant Impact. See response to item IVa), above.

Source: Project Description

IVd) 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?

Potentially Significant Impact. The proposed MDP Facilities are mostly below or at ground surface, and are mostly located within developed or previously disturbed areas. However, the proposed Project basins and channels may include fenced areas which could interfere with the movement of native resident or migratory wildlife species with established native resident or migratory wildlife corridors. Therefore, this issue will be addressed further in the forthcoming PEIR.

Source: Project Description

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

Potentially Significant Impact. The MVGP contains several policies relating to the conservation and protection of natural resources, including conservation and protection of important plant communities and wildlife habitats, and the conservation of important natural resources such as mature trees, rock outcroppings, hills, etc. Implementation of the proposed Project may adversely affect important plant communities and wildlife habitats. Project compliance with MVGP policies relating to natural resources and resource management will be discussed in the forthcoming PEIR.

Chapter 5, Multipurpose Open Space of the County of Riverside General Plan (RCIP), contains policies that address the protection and maintenance of water quality, groundwater recharge, floodplains, and riparian areas in Riverside County. Several policies are intended to protect wetlands and native vegetation. Project compliance with the County of Riverside General Plan policies relating to natural resources and resources management will be discussed in the forthcoming PEIR.

Source: MVGP; RCIP, Chapter 5; Project Description

IVf) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Potentially Significant Impact. The Project Boundary is located within the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP serves as a comprehensive, multi-jurisdictional Habitat Conservation Plan, pursuant to Section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, as amended, as well as a Natural Communities Conservation Plan (NCCP) under the State NCCP Act of 2001. The MSHCP encompasses all unincorporated Riverside County land west of the crest of the San Jacinto Mountains to the Orange County line, as well as the jurisdictional areas of the cities of Temecula, Murrieta, Lake Elsinore, Canyon Lake, Norco, Corona, Riverside, Moreno Valley, Banning, Beaumont, Calimesa, Perris, Hemet, San Jacinto, Eastvale, Jurupa Valley, Menifee, and Wildomar. The overall biological goal of the MSHCP is to conserve covered species and their habitats, as well as maintain biological diversity and ecological processes while allowing for future economic growth within a rapidly urbanizing region. Implementation of the MSHCP will result in an MSHCP Conservation Area in excess of 500,000 acres and focuses on the conservation of 146 species.

The MSHCP was adopted June 17, 2003. On June, 22, 2004, the U.S. Fish and Wildlife Service issued its findings, biological opinion, and Take Permit for the MSHCP. On the same day, the California Department of Fish and Game issued the NCCP Permit. Moreno Valley, Riverside County, and the District are permittees under the MSHCP and will comply with MSHCP requirements.

The Reche Canyon/Badlands Area Plan of the MSHCP includes the Project site area within MSHCP Criteria Cells 379, 378, 464, 465, 466, 467, 468, 555, 556, 558, 559, 561, 562, 650, 652, 653, 654, 655, 657, 743, 746, 747, 836, and 841. Therefore, the Project may potentially conflict with the MSHCP. This issue will be addressed further in the forthcoming PEIR.

Source: MSHCP

V. CULTURAL RESOURCES. Would the project:

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

Potentially Significant Impact. The Project identifies conceptual locations for the future installation of MDP Facilities in response to the existing and planned land use within the Project Boundary. The location of the proposed MDP Facilities consists primarily of primarily disturbed areas; however, a programmatic-level historical/archaeological resources report will be prepared for the Project. Potential impacts to historical resources will be discussed in the forthcoming PEIR.

Source: Project Description

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

Potentially Significant Impact. A programmatic-level historical/archaeological resources report will be prepared to for the Project. Potential impacts to archeological resources will be discussed in the forthcoming PEIR.

Source: Project Description

Vc) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Potentially Significant Impact. A programmatic-level paleontological resources record search will be conducted for the Project. Potential impacts to paleontological resources will be discussed in the forthcoming PEIR.

Source: Project Description

Vd) Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact. There are no cemeteries located within the MDP Boundary (Google Earth). Due to the previously disturbed condition of most of the Project area, the discovery of human remains is unlikely. The proposed Project is not expected to disturb any human remains, including those interred outside of formal cemeteries. In the unlikely event that during construction suspected human remains are uncovered, all activities in the vicinity of the remains shall cease and the contractor shall notify the County Coroner immediately, pursuant to California Health & Safety Code Section 7050.5 and California Resource Protection Code Section 5097.98. Therefore, potential impacts to human remains are less than significant and this issue will not be discussed in the forthcoming PEIR.

Source*:* Google Earth; HSC, Section 7050.5; PRC, Section 5097.98

VI. GEOLOGY AND SOILS. Would the project:

VIa) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:

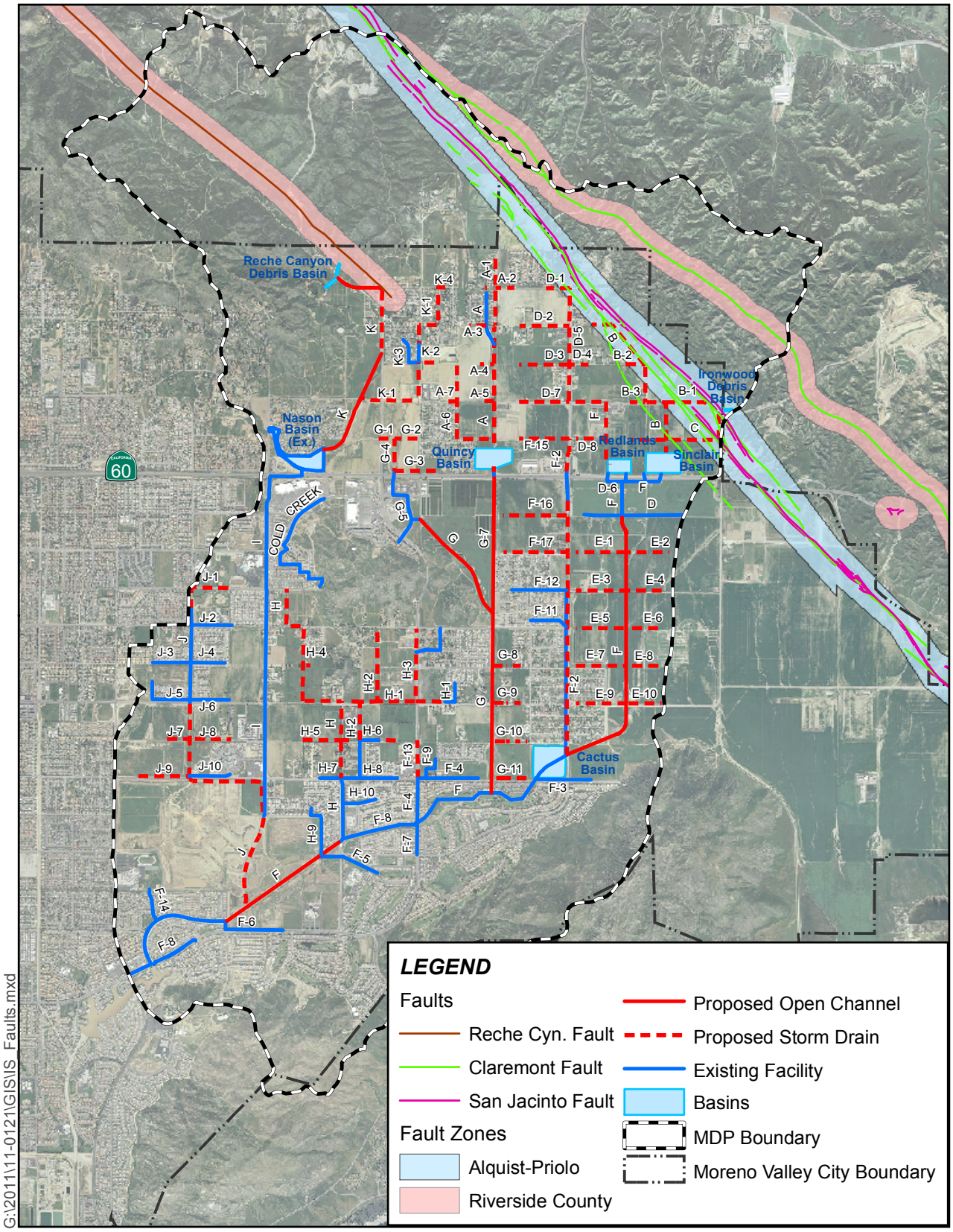
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a Known fault? Refer to Division of Mines and Geology Special Publication 42.

Less Than Significant. An Alquist-Priolo Earthquake Fault Zone that consists of the Claremont segment of the San Jacinto Fault Zone crosses the northeast portion of the proposed MDP Boundary (Leighton, p. 5). Proposed MDP Facilities that are within the Alquist-Priolo Fault Zone are portions of Line B, B-1, B-2, C, D-1, and D-5 storm drain facilities, and the Ironwood Debris Basin (**Figure 5 – Fault Map**). Additionally, two separate Riverside County faults, the Reche Canyon and Claremont, cross the northern portion of the proposed MDP Boundary. Proposed MDP Facilities that are within the Reche Canyon Fault Zone are portions of Line K, an open channel and storm drain system, and portions of the Reche Canyon Debris Basin (**Figure 5**). No proposed MDP Facilities are located within the Claremont Fault Zone on the eastern portion of the MDP Boundary. However, just outside the Alquist-Priolo Fault Zone lies a Claremont Fault Line which crosses portions of Line B, B-3, and C storm drain facilities (**Figure 5**).

The Project itself does not contain structures that would be inhabited by humans; and thereby, will not expose persons directly to substantial adverse effects from ground shaking. Detention basin failure, as a result of ground shaking, could indirectly expose humans and structures to adverse effects such as flooding, if it were to occur during periods of high water in the basins. However, the probability is low due to the short duration of flood water storage within the basins (less than 72 hours) and the absence of large embankments to store large enough quantities of water to cause flooding.

In addition, the proposed MDP Facilities will be designed and constructed to withstand expected ground shaking levels and potential soil instability. A geotechnical report will be prepared as part of the final design for the individual MDP Facilities. All recommended measures outlined by the geotechnical engineer in the geotechnical report will be incorporated into the final design and construction of the MDP Facilities. Therefore, at a programmatic level, potential impacts to people or structures due to seismic hazards are considered less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Leighton; Project Description



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Source: County of Riverside GIS, 2012.

Figure 5 - Fault Map

Moreno Master Drainage Plan Revision

0 0.5 1 1.5 Miles

ii) Strong seismic ground shaking?

Less Than Significant Impact. See response VIai), above.

Source: Leighton; Project Description

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. According to the MVGP, liquefaction is not considered to be a local hazard since groundwater levels in Moreno Valley are far below the surface (MVGP p. 6-19). However, portions within the MDP Boundary are underlain with young alluvial fan deposits that lie within a moderate liquefaction hazard zone (Leighton, p. 6). The proposed MDP Facilities will be designed and constructed to withstand expected ground failure, including liquefaction. Facility-specific geotechnical reports will be prepared as part of the final design for the individual MDP Facilities. All recommended measures outlined by the geotechnical engineer in the geotechnical report will be incorporated into the final design and construction of the MDP Facilities.

Additionally, the proposed Project does not provide habitable structures. The District's routine inspection and maintenance activities will ensure that the local MDP Facilities are repaired if damage does occur during a seismic-related ground failure, including liquefaction. Therefore, the Project is anticipated to have a less than significant impact and this issue will not be addressed in the forthcoming PEIR.

Source: MVGP, p. 6-19; Leighton; Project Description

iv) Landslides or mudflows?

Less Than Significant Impact. The Project site is relatively flat, with an elevation ranging of approximately 1,500 feet to 2,400 feet above mean sea level. Loose rocks might roll down mountain slopes during strong ground shaking, specifically the granitic boulders on the mountains located at the northern and southern margins of the Project area (MVGP, p. 6-19). However, the Project is not located on a hillside and will be installed at or below the ground surface. Regarding mudflows from the canyons, the two proposed debris basins will entrap mud, rocks, and sediments, within the Moreno MDP. This will allow only relatively desilted water to continue downstream within the Moreno MDP. Additionally, the proposed Project does not provide habitable structures. Therefore, potential impacts to people or structures due to landslides or mudflows are not anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: MVGP, p. 6-19; Leighton; Project Description

VIb) Result in substantial changes in topography, unstable soil conditions from excavation, grading or fill, or soil erosion or the loss of topsoil?

Less Than Significant Impact. The proposed MDP Facilities are generally located at or below ground surface and would not entail substantial changes in topography or create unstable soil conditions. The primary components of the Project will reduce erosion. The proposed Project has the potential to result in the short-term loss of top soil during construction due to runoff and soil erosion. This will be

minimized, however, by compliance with the National Pollutant Discharge Elimination System (NPDES) general construction permit, which requires that a stormwater pollution prevention plan (SWPPP) be prepared prior to construction activities and implemented during construction activities. The SWPPP will incorporate applicable Best Management Practices (BMPs) to minimize the loss of topsoil or substantial erosion, thus, potential impacts are considered less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description; NPDES

VIc) 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- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact. Based on published geologic maps, the Moreno MDP Boundary is underlain by several surficial deposits and/or bedrock units. The major surficial deposits and bedrock units that are most likely to be encountered are the following: young alluvial-fan deposits (Qyf), old alluvial-fan deposits (Qof), very old alluvial-fan deposits (Qvof), landslide deposits (Qls), San Timoteo formation (Tss), granitic crystalline rocks-undifferentiated (gr), and heterogeneous granitic rocks (Khg) (Leighton, pp. 2 and 3). The proposed MDP Facilities are mostly underlain by young and old alluvial deposits (Leighton, Figure 2)**.** Alluvial soils can be unstable in that they can be prone to liquefaction, landslides, lateral spreading, collapse, and subsidence. Lateral spreading, subsidence, and collapse are discussed in this item. Potential impacts regarding landslides and liquefaction are found to be less than significant in items VIa iii) and iv).

The phenomenon of liquefaction may also produce lateral spreading of soils adjacent to a body of water or watercourse (Lake Perris and other water retention basins). Lateral spreading is therefore considered a liquefaction-induced ground failure whereby block(s) of surficial, intact natural or artificial fill soils displace laterally, downslope, or towards a free face along a shear zone that has formed within the liquefied sediment. The displacement of the ground surface associated with this lateral spreading may be on the order of several inches to several feet at the top of the slope and may affect areas well beyond the top-of-slope. Developments located further from the lake, retention basins, or drainage courses are anticipated to be at less risk from lateral spreading (Leighton, p. 7).

Subsidence is a lowering or collapse of the ground. Ground fissuring typically develops along previous established planes of weakness such as active and possibly potentially active fault traces as well as along steep buried contacts between bedrock to recent alluvial soils. The active San Jacinto fault may develop fissuring along the fault trace during a significant seismic event or groundwater elevation change (Leighton, p. 6).

Collapsible soils are those that appear to be strong and stable in their natural (dry) state, but which can rapidly consolidate under wetting, generating large and often unexpected settlements. This collapse (or sometimes referred to as 'hydro-collapse') potential can be evaluated in the laboratory on undisturbed soil samples in accordance with ASTM Test Method D4546. Based on past projects in this area, the near surface alluvial soils (upper 10 to 20 feet) are potentially 'hydro-collapsible' (up to 10 percent collapse/vertical settlement). Therefore, the facility-specific geotechnical reports prepared during the design phase for the individual MDP Facilities that are located within areas containing upper/near surface alluvial fan deposits, shall include an investigation of the potential for

'hydro-collapse' within the upper 10 to 20 feet of soil and identify what, if any, measures or design considerations are required (Leighton, p. 8).

Therefore, the proposed MDP Facilities will be designed and constructed to withstand lateral spreading, subsidence, collapsible soils, and any other potential soil instability. Facility-specific geotechnical reports will be prepared as part of the final design for the individual MDP Facilities. All recommended measures outlined in the facility-specific geotechnical reports will be incorporated into the final design and construction of the MDP Facilities. Therefore, at a programmatic level, potential impacts to life or property due to unstable soils are considered less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Leighton; Project Description

VId) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994 or most current edition), creating substantial risks to life or property?

Less Than Significant Impact. Expansive soils are those that expand when water is added, and shrink when they dry out. Based on past projects within specific areas of the Moreno MDP, expansive soils may be encountered within the young and old alluvial deposits. The Expansion Index (EI) of such soils is expected to vary from one location to another. However, soils with an EI greater than 51 per ASTM Test Method D4829, can be found locally within the interbedded silt and clay layers and be a significant impact to drainage structures (lined channels or box culverts) if found at foundation or below grade levels (Leighton, p. 8).

However, because facility-specific geotechnical reports will be prepared during the design phase for the individual MDP Facilities and the recommendations of such geotechnical reports will be incorporated into the Facilities' designs, the proposed MDP Facilities will be designed and constructed to withstand expansive soil and potential soil instability. Therefore, at a programmatic level, potential impacts to life or property due to expansive soil are considered less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Leighton; Project Description

VIe) Have soils incapable of adequately supporting any structures, fill or other improvements associated with the project?

No Impact. The proposed MDP Facilities consist of detention basins, debris basins, soft- and hard-bottomed channels, and underground storm drains. The proposed MDP Facilities do not include any other structures, fill, or other improvements that would require supporting soils. Therefore, no impacts are anticipated. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description

VII. HAZARDS AND HAZARDOUS MATERIALS. Would the project:

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

Less Than Significant Impact. During construction and future maintenance, some potential hazardous materials such as fuel, herbicides and pesticides will be used. These materials will be used in accordance with standard safety measures and regulations. Such measures and regulations are under the jurisdiction of numerous federal, state, and local agencies. At the federal level, such agencies and legislation include Environmental Protection Agency; Occupational Safety and Health Administration; Resource Conservation and Recovery Act; Hazardous Materials Transportation Act; Hazardous and Solid Waste Amendments Act; Comprehensive Environmental Response, Compensation, and Liability Act; Superfund Amendments and Reauthorization Act; Emergency Planning and Community Right-to-Know; and Code of Federal Regulations titles 10, 29, 40, and 49. At the state level, such agencies and legislations include, but are not necessarily limited to: state Occupational Safety and Health Administration; California Environmental Protection Agency; Department of Fish and Game; Department of Transportation; Department of Toxic Substances Control; Air Resources Board; Regional Water Quality Control Board; Office of Emergency Services; State Office of Environmental Health Hazard Assessment; Hazardous Material Management Act; Hazardous Waste Control Law; Emergency Services Act; Hazardous Materials Storage and Emergency Response; Safe Drinking Water and Toxic Enforcement Act of 1986; and the California Code of Regulations. Lastly, at the local level there is the Riverside County Hazardous Waste Management Plan. Therefore, there will not be a significant hazard to the public or environment from the proposed Project. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description

VIIb) 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 Impact. See response VIIa), above.

Source: Project Description

VIIc) 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. The Project Boundary is within Moreno Valley Unified School District and Val Verde Unified School District (Moreno Valley General Plan, Figure 2-3, School District Boundaries). Because of the span of the Project area, the proposed MDP Facilities will be within one-quarter mile of five existing schools, as identified below in **Table VII-1 – Schools Along/Adjacent Proposed MDP Facilities**. Only one of the MDP Facilities will be constructed outside of Moreno Valley, the Ironwood Debris Basin, which has no schools located within a one-quarter mile (Google Earth).

Table VII-1 – Schools Along/Adjacent Proposed MDP Facilities

School	Location
Moreno Elementary School	26700 Cottonwood Avenue
Ridge Crest Elementary School	28500 John F. Kennedy Drive
Landmark Middle School	15261 Legendary Drive
Mountain View Middle School	13130 Morrison Street
Valley View High School	13135 Nason Street
Source: Moreno Valley General Plan Final Environmental Impact Report, Table 5.13-2 Moreno Valley Unified School District Schools and Table 5.13-3 Val Verde Unified School District Schools, pp. 5.13-8 and 5.13-9.	

Since hazardous materials will be handled in accordance with applicable regulations as discussed in response VIIa), above potential impacts resulting from hazardous emissions, materials, and wastes will be less than significant. This issue will not be addressed further in the forthcoming PEIR.

Source: Moreno Valley General Plan, Figure 2-3, School District Boundaries; MVGP FEIR, Table 5.13-2 Moreno Valley Unified School District School and Table 5.13-3, Val Verde Unified School District Schools; Google Earth; Project Description

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

Less Than Significant Impact. According to the environmental regulatory database search that was performed by EDR, dated September 20, 2011. Sites identified within one mile of the proposed Project were evaluated for their potential to be encountered and/or unearthed during construction of proposed MDP Facilities. Seventy (70) sites were recorded on 24 database lists, but often individual sites are included on multiple lists. Of the 70 recorded sites, 21 are along or adjacent to the proposed MDP Facilities, as shown on **Figure 6 – Proposed MDP Facilities and EDR Database Search Results** (which follows Table VII-2) and described below in **Table VII-2 – Hazardous Materials Sites Along/Adjacent Proposed MDP Facilities**. EDR's full report listing all of the identified sites is included as Appendix B.

Table VII-2 – Hazardous Materials Sites Along/Adjacent Proposed MDP Facilities

Site No.	Site Address	Federal, State, and Local Databases	Description
1	O' Connell Calvin Motorsports 28411 Black Oak St	HAZNET	This site had waste oil and mixed oil disposed of through a recycler program.
2	11-150 Redlands Blvd	ERNS and CHMIRS	25 gallons of waste oil found abandoned at a park on 9/29/00. Waste contained by Riverside Co. Fire Department.
3	Hud Intown Properties 11266 Weber Ave	HAZNET	This site had household waste disposed of through a recycler program.
4	29305 Highland Blvd	CDL	Site where an illegal drug lab was operated or drug lab equipment and/or

Site No.	Site Address	Federal, State, and Local Databases	Description
			materials were stored.
5	11630 Redlands Blvd	CHMIRS and CDL	Site where an illegal drug lab was operated. Three 55-gallons drums of assorted hazardous drug waste, chemicals and trash was cleaned up by a contractor.
9	Sunnymead Poultry Ranch 29170 Ironwood Ave	HIST CORTESE, LUST, and HAZNET	This site had waste oil and mixed oil disposed of through a recycler program. An underground storage tank leak was reported on 3/30/94 of potential contaminants of diesel and gasoline affecting soil. Case was closed with no further action letter on 8/19/94.
11	Delbert Waddell 12170 Theodore St	HAZNET	This site had tank bottom waste disposed of through a recycler program.
12	12264 Redlands Blvd	CDL	Site where an illegal drug lab was operated or drug lab equipment and/or materials were stored.
13	Leni Axup 28011 White Sand Trail	HAZNET	This site had waste oil, mixed oil, and liquids with halogenated organic compounds >=1,000 mg/l disposed of through a recycler program.
14	United Housing 12472 Prairie Wind Trail	HAZNET	This site had household waste disposed of through a recycler program.
15	Icne Contractors 28900 Spruce Ave	HAZNET	This site had unspecified aqueous solution disposed of through a recycler program.
19	Kern Ranch 12520 Redlands Blvd	HAZNET	This site had asbestos containing waste and other inorganic solid waste disposed of through a recycler program.
	Highland Fairview Properties 12520 Redlands Blvd	HAZNET	This site had off-specification, aged or surplus organics, unspecified organic liquid mixture, other organic solids, and unspecified aqueous solution disposed of through a recycler program.
21	28885 Fir St	CHMIRS	Drug lab bust by S.O. on 10/12/98. Drug lab waste was cleaned up by DTSC and S.O.
24	Eucalyptus High School #5 Site Eucalyptus Ave and Redlands Blvd	SCH and ENVIROSTOR	This site is a proposed or existing school and is being evaluated by DTSC for possible hazardous materials contaminations. Site entered into mitigation and brownfield reuse program addressing past use of agricultural orchards and row crops.

Site No.	Site Address	Federal, State, and Local Databases	Description
			School completed Preliminary Endangerment Assessment Report and Workplan receiving no further action on 02/06/07.
28	Eastern Municipal Water District 13400 Redlands Blvd	CA FID UST and SWEEPS UST	Has two active underground storage tanks since 10/29/92 containing motor oil. Additionally, an underground storage tank that holds waste oil since 10/29/92. No leaks reported.
29	Huston Fergurson Apiaries 27913 Cottonwood Ave	HAZNET	This site had unspecified organic liquid mixture disposed of through a recycler program.
41	Alessandro Blvd and Redlands Blvd	ERNS and CHMIRS	2 abandoned 5-gallon buckets found next to the road on 12/13/11. Waste cleaned up by County Health.
	Easter Market at 29010 Alessandro Blvd	LUST, UST, SWEEPS UST, HAZNET, and CA FID UST	Has four active underground storage tanks since 10/29/92 containing two regular unleaded and two leaded fuel. No leaks reported. An underground storage tank leak was reported on 3/30/05 of potential contaminants of gasoline affecting soil. Case was completed and closed on 10/5/05. This site had other organic solids disposed of through a recycler program.
45	14101 Oliver St	CDL	Site where an illegal drug lab was operated or drug lab equipment and/or materials were stored.
47	EF Aranda's Mobile Maintenance Mechanic 28993 Maltby Ave	HAZNET	This site had waste oil and mixed oil disposed of through a recycler program.
51	Dr Horton 27000 Cactus Ave	HAZNET	This site had latex waste disposed of through a recycler program.

Site No.	Site Address	Federal, State, and Local Databases	Description
53	Riverside County Regional Medical Center 26520 Cactus Ave	HAZNET, UST, RCRA-LQG, and FINDS	This hospital is a large quantity generator that generates 1,000 kg or more of hazardous waste during any calendar month. Hazardous waste includes barium, silver, a corrosive waste, and an ignitable waste. There are no reported violations found. Also, this site has photochemicals / photoprocessing waste, laboratory waste chemicals, unspecified organic liquid mixture, empty containers less than 30 gallons, off-specification, aged or surplus organics, and other waste disposed of through a recycler program. A record of one underground storage tank is listed; however, no mention of its contents or of a reported spill.

Site No. as shown on Figure 6

DTSC = Department of Toxic Substances Control. S.O. = Special Operations.

Federal Databases: ERNS = Emergency Response Notification System. FINDS = Facility Index System. RCRA-LQG = Resource Conservation and Recovery Act-Large Quantity Generators.

State and Local Databases: CA FID UST = Facility Inventory Database. CDL = California Drug Labs. CHMIRS = California Hazardous Material Incident Report System. ENVIROSTOR = DTSC's Site Mitigation and Brownfields Reuse Program Database. HAZNET = Hazardous waste manifests received by DTSC. HIST CORTESE: List designated by DTSC, Integrated Waste Board, and State Water Resource Control Board. LUST = Leaking Underground Storage Tank Incident Reports. SCH = Proposed and existing school sites being evaluated by DTSC. SWEEPS UST = Statewide Environmental Evaluation and Planning System. UST = Underground Storage Tank.

Based on the information provided in the EDR report these sites do not pose a potential significant hazard to the public or environment. Most of records are listing of sites that have participated in hazardous waste recycling. Those sites with previous leaking storage tanks have been closed with no further action. Therefore, the proposed MDP Facilities do not pass through a known contaminated site that would create a significant hazard to the public or the environment.

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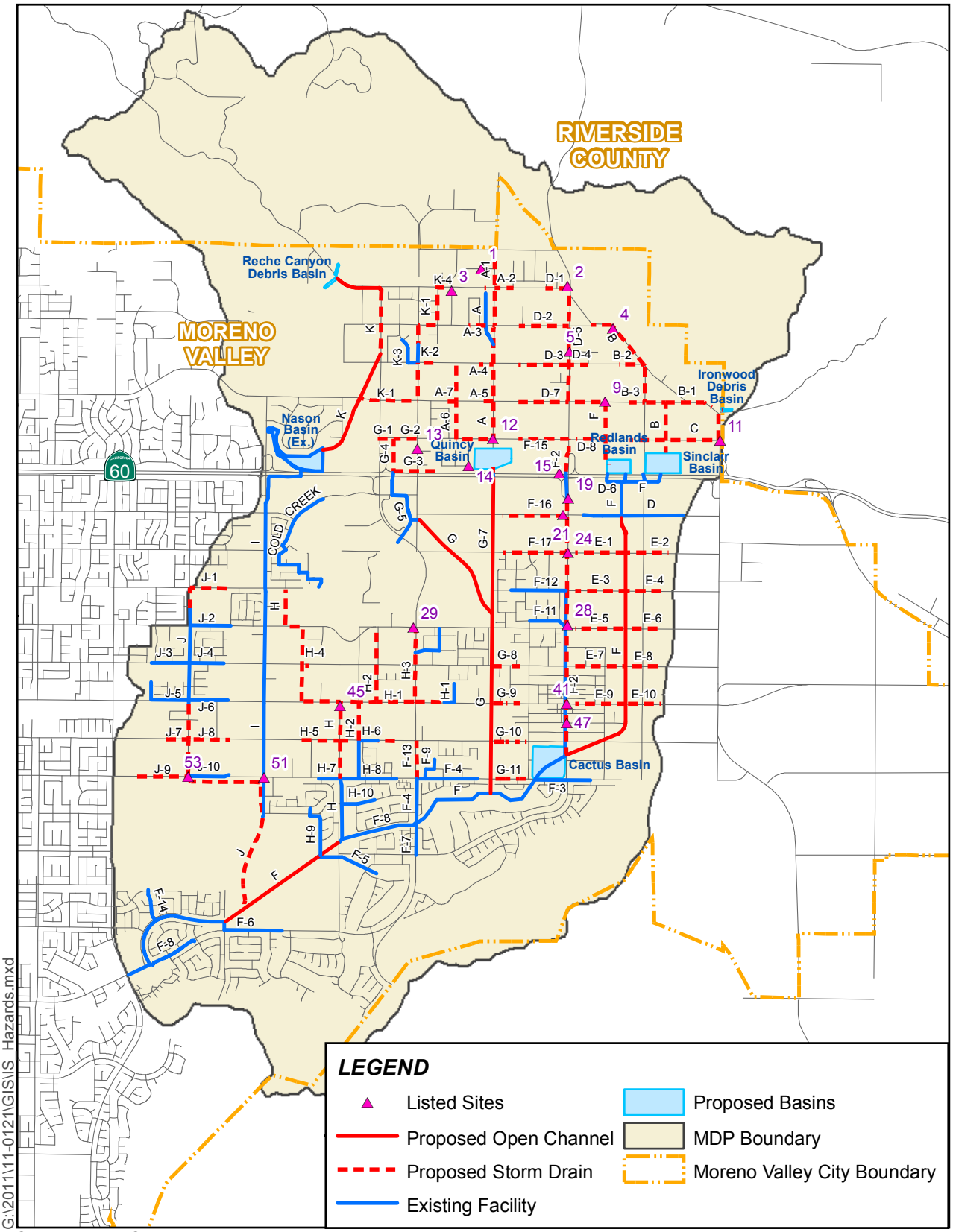

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Source: EDR, Sept. 2011;
County of Riverside GIS, 2012.

0 0.5 1 1.5 Miles

Figure 6 - Project Alignment and EDR Database Search Results

Moreno Master Drainage Plan Revision

The majority of the proposed Project will be constructed within rights-of-ways and other previously disturbed areas. Therefore, there will not be a significant hazard to the public or environment from the proposed Project. This issue will not be addressed further in the forthcoming PEIR.

Source: EDR

VIIe) 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 for people residing or working in the project area?

No Impact. The closest public or private airport to the Project site is March Joint Air Reserve Base which is located approximately 2.5 miles west of the Project site. However, the Project area lies outside of the airport influence area boundary. Therefore, the Project would not result in a safety hazard for people working within the Project Boundary. No impacts are anticipated and this issue will not be discussed further in the forthcoming PEIR.

Source: RCALUC

VIIf) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. See response VIIe), above.

VIIg) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Any potential hazard in Moreno Valley resulting from a manmade or natural disaster may result in the need for evacuation. The Emergency Management Office within the Moreno Valley Fire Department, prepares the Emergency Operations Plan (EOP) and uses the Standardized Emergency Management System when responding to emergencies. The EOP identifies resources available for emergency response and establishes coordinated action plans for specific emergency situations including earthquake, fire, major rail and roadway accidents, flooding, hazardous materials incidents, terrorism, and civil disturbances, etc. (EOP, p. 5).

However, implementation of the proposed Project will not reconfigure current roadways that would result in inadequate emergency access. Construction of certain MDP Facilities may require temporary closure of a travel lane; however, access will be maintained throughout the construction activities. Additionally, when the proposed Project is constructed in conjunction with the ultimate street improvements, the Project will provide protection from the 100-year flood discharge and alleviate the primary sources of flooding within the Moreno MDP Boundary. Therefore, the proposed Project will not impair or physically interfere with an adopted emergency response plan or emergency evacuation plan and this issue will not be discussed further in the forthcoming PEIR.

Source: Project Description; Figure 2, Proposed Project; EOP

VIIh) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less Than Significant Impact. Reche Canyon Debris Basin and Line K will be in a very high fire risk area and Ironwood Debris Basin in a substantial fire risk area as indentified in the MVGP FEIR (Figure 5.5-2, Floodplains and High Fire Hazard Areas). However, the Project is primarily within urbanized areas and will not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Additionally, the Moreno MDP Facilities transport flood waters and will be impervious to damage from wildland fires. Therefore, issue will not be discussed further in the forthcoming PEIR.

Source: Project Description; MVGP FEIR, Figure 5.5-2, Floodplains and High Fire Hazard Areas

VIII. HYDROLOGY AND WATER QUALITY. Would the project:

VIIIa) Violate or conflict with any adopted water quality standards or waste discharge requirements?

Potentially Significant Impact. Construction of the proposed Project may result in the discharge of sediment and other construction by-products. This will be minimized, however, by compliance with the National Pollutant Elimination System (NPDES) general construction permit issued by the State Water Resources Control Board (SWRCB). Coverage under the general construction permit requires that a stormwater pollution prevention plan (SWPPP) be prepared prior to construction activities for sites with a disturbance area of one acre or more. The SWPPP will incorporate applicable Best Management Practices (BMPs) to reduce loss of topsoil, substantial erosion, or discharge of polluted runoff associated with project construction.

The proposed MDP Facilities will convey stormwater emanating from residential, commercial, industrial, and construction areas. Although the proposed MDP Facilities will not create new sources of pollutants, there is potential for pollutants to be conveyed within the proposed MDP Facilities and discharged into the San Jacinto River, Canyon Lake, and ultimately to Lake Elsinore (MVGP FEIR, p. 5.7-1). The proposed detention basins and stormwater conveyance facilities may reduce stormwater pollutant discharges by reducing peak flows, allowing for infiltration, and routing stormwater around potential pollutant sources in urbanized areas. The discharge of stormwater from MDP Facilities is regulated under the NPDES municipal separate stormwater sewer system (MS4) permit issued to the District, Moreno Valley, and other municipalities. The Project's potential to contribute Urban Runoff that could violate water quality standards or waste discharge requirements will be discussed in the forthcoming PEIR.

Source: Project Description; MVGP FEIR, p. 5.7-1; NPDES

VIIIb) Result in substantial discharges of typical stormwater pollutants *(e.g., sediment from construction activities, hydrocarbons, and metals from motor vehicles, nutrients and pesticides from landscape maintenance activities, metals of other pollutants from industrial operation,)* or substantial changes to surface water quality including, but not limited to, temperature, dissolved oxygen, pH, or turbidity?

Potentially Significant Impact. See response VIIIa), above.

VIIIc) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level *(e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Potentially Significant Impact. The proposed MDP Facilities will be designed to convey stormwater through the MDP Boundary. The proposed Project does not involve the extraction of groundwater, nor will it create a substantial addition of impervious surfaces such that existing areas of groundwater recharge are altered. However, the proposed basins will provide for additional regional groundwater recharge as stormwater flows are conveyed through the MDP Facilities. Therefore, the proposed Project has potential to substantially deplete groundwater supplies or interfere with groundwater recharge. This issue will be discussed further in the forthcoming PEIR.

Source: Project Description

VIIId) Substantially alter the existing drainage pattern of the site or area, including through the alteration of a watercourse or wetland, in a manner which would result in substantial erosion or siltation on- or off-site?

Less Than Significant Impact. The Project proposes two debris basins that will entrap mud, rocks, and sediments within the Moreno MDP. This will allow only relatively desilted water to continue downstream within the Moreno MDP. As discussed in item VIb), above, the proposed Project has the potential to result in the short-term loss of top soil during construction due to runoff and soil erosion. This will be minimized, however, by compliance with the NPDES General Construction Permit which requires that a SWPPP be prepared prior to construction activities and implemented during construction activities. The SWPPP will incorporate applicable BMPs to minimize the loss of topsoil or substantial erosion; thus, potential impacts will be less than significant. Therefore, the Project's potential to result in erosion, siltation, or flooding on-or off-site will not be discussed further in the forthcoming PEIR.

Source: Project Description

VIIIe) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Potentially Significant Impact. The proposed MDP Facilities will generally follow the existing drainage pattern of the area on a large scale, but will alter the existing drainage pattern within the Moreno MDP Boundary at a local level. However, the intent of the proposed Project is to reduce the potential for flooding in the MDP Boundary and downstream of the Project area. The Moreno MDP will act as a guide for the location and size of MDP facilities that need to be constructed by the District, Moreno Valley, and/or others as the area develops, or facilities that need to be constructed to resolve existing flooding problems within developed areas. It is expected that many of the MDP Facilities will be constructed in conjunction with local development projects. In these instances, conditions of

approval requiring the construction of MDP Facilities will be placed on future development projects within the MDP Boundary by Moreno Valley, Riverside County, and/or the District to ensure that impacts with respect to surface runoff are less than significant. This issue will be addressed further in the forthcoming PEIR.

Source: Project Description

VIIIf) Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems?

Less Than Significant Impact. The proposed Project will be designed to prevent the overflow of existing and proposed MDP Facilities through the design and construction of new and/or revised facilities. This issue will not be addressed further in the forthcoming PEIR.

Source: Project Description

VIIIg) Place housing within a 100-year flood hazard area as mapped on Federal Flood Hazard boundary of Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. No housing is proposed as part of the Project; therefore, no impacts are anticipated.

Source: Project Description

VIIIh) Place structures or fill within a 100-year flood hazard area, which would impede or redirect flood flows?

Potentially Significant Impact. The proposed MDP Facilities will collect and redirect stormwater flows within a 100-year flood hazard area. This issue will be discussed further in the forthcoming PEIR.

Source: Project Description

VIIIi) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less Than Significant Impact. Dam inundation is a potential flood hazard within portions of the Moreno Valley planning area. This condition is based on the assumption of instantaneous failure of a dam with the reservoir at or near its full capacity. Two locations of concern are Poorman Reservoir (Pigeon Pass Reservoir) and Lake Perris. Failure of the dam at Poorman Reservoir could result in extensive flooding along the downstream watercourse. However, the reservoir does not retain water throughout the year and the risk of flooding due to dam failure is limited to the period during and immediately after major storms. Failure of the dam at Lake Perris would only affect a very small area south of Nandina Avenue along the Perris Valley Storm Drain and the Mystic Lake area in the southeast corner of the planning area (MVGP Final EIR, p. 5.5-4). Both of these locations are outside of the Moreno MDP Boundary.

Additionally, the primary purpose of the proposed Project is to control flooding associated with stormwater runoff within the MDP Boundary. The proposed basins are expected to be primarily

constructed below the existing ground surface. When embankments are required, they will be designed and constructed in accordance with standard engineering and seismic criteria to minimize the risk of failures. The proposed Project does not include construction of a levee or dam. Standard inspection and maintenance activities will ensure that any damaged facilities are repaired. Finally, the proposed basins would mostly be incised, with a maximum embankment height of approximately six feet, and would only impound floodwaters temporarily during large and infrequent storm events. Moreover, floodwaters in contact with that portion of the basin embankment would have a maximum drawdown time of approximately 24-hours. Thus, the likelihood of flooding due to a failure from an earthquake while the basins contain stormwater is remote, since the bulk of stormwater would be below ground level. Potential impacts to people or structures from flooding as a result of a levee or dam failure is less than significant. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description; MVGP Final EIR

VIIIj) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?

Less Than Significant Impact. The Project is not located within an area that would be subjected to seiche, tsunami, or mudflow. As discussed in item VIIIi), above, the proposed basins will only store floodwaters temporarily during large and infrequent storm events thus limiting the potential for inundation that would impact people or structures. Additionally, the proposed basins will be designed and constructed to District standards, which require slopes adjacent to stormwater impoundment areas to be stable during storm events. Impacts are considered less than significant and this issue will not be addressed in the forthcoming PEIR.

Source: Project Description

IX. LAND USE PLANNING. Would the project:

IXa) Physically divide an established community?

No Impact. Underground storm drains by their very nature, do not divide communities. While open channels can divide communities, crossings for traffic, pedestrians, and wildlife will be provided to retain the connections from one side of the channel to the other. For these reasons, no impacts are anticipated and this issue will not be addressed in the forthcoming PEIR.

Source: Project Description

IXb) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The Project Boundary lies within an area designated by MVGP as Residential (R1, R2, R3, R5, R10, R15, R5/15, and R20), Rural Residential, Hillside Residential, Residential/Office, Office, Commercial, Business Park/Light Industrial, Open Space, Floodplain, and Public Facilities land uses. The Project Boundary lies within an area designated by Riverside County as Rural Residential, Rural

Mountainous, Rural Community-Very Low Density Residential, Conservation Habitat, Open Space Rural, and Open Space Recreation land use designations. Installation of the proposed MDP Facilities would not affect the surrounding land use designations or other policies or regulations. In addition, Riverside County Ordinance No. 348, Section 18.2a(b), exempts public agency projects, such as this proposed Project, from County zoning regulations and the MVMC does not prohibit infrastructure in any zoning district. For these reasons, no impacts are anticipated.

Source: Project Description; MVMC, Title 9; Ord. No. 348; MVGP, Figure 2-2 Land Use Map; RivCo GIS

X. MINERAL RESOURCES. Would the project:

Xa) 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?

No Impact. According to the RCIP, the proposed Project Boundary is located within an area designated as MRZ-3, as determined by the State Mining and Geology Board (SMGB). This mineral resource zone includes areas where the available geologic information indicates that mineral deposits exist, or are likely to exist; however, the significance of the deposit is undetermined. According to the MVGP, the planning area does not have significant mineral resources (MVGP, p. 5.14-1). Additionally, there is only one inactive sand and gravel quarry on record within Moreno Valley, the Jack Rabbit Canyon Quarry near Quail Ranch Golf Course which is outside the Project Boundary (MVGP, pp. 4-4 and 7-14). The proposed MDP Facilities are primarily within the road rights-of-way located at or below ground surface and will not preclude significant areas from being mined, if resources occur. The proposed Project is not located on a locally important mineral resource recovery site; therefore, no impacts are anticipated.

Source: RCIP, Figure 4.12.1, Mineral Resource Areas; MVGP, p. 5.14-1

Xb) 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. See response to item Xa), above.

XI. NOISE. Would the project result in:

XIa) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Potentially Significant Impact. The Project will primarily involve heavy equipment such as backhoes, excavators, cranes, water trucks, wheeled loaders, blades/road graders, tunnel/boring machines, and dump trucks. Construction will also include truck trips to move, cut, and fill material for the proposed basins. Maintenance operations would include the use of utility trucks and occasionally, heavy machinery such as: excavators, scrapers, mowers, dozers, or backhoes to maintain the basins. Typical noise levels range up to 91 dBA L_{max} at 50 feet during the noisiest construction phases (RCIP FEIR, p. 442). Construction activities, especially those utilizing heavy equipment, may create substantial short-term noise increases near the construction site. Maintenance activities may also create noise

increases near the site of the MDP Facilities, but to a lesser degree and on an intermittent basis, as compared to construction activities. This issue will be addressed further in the forthcoming PEIR.

Source: Project Description

XIb) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

Potentially Significant Impact. See response to item XIa), above. The proposed Project would involve the temporary use of construction equipment for construction and installation of MDP Facilities, which may result in temporary ground-borne vibration impacts in the Project area. This issue will be addressed further in the forthcoming PEIR.

Source: Project Description

XIc) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant Impact. The increased noise levels associated with construction activities will not be permanent. Maintenance activities will be infrequent and short-term in nature and would not permanently increase noise levels in the Project Boundary. Therefore, operation of the proposed Project will not create a substantial permanent increase in ambient noise above levels which already exist without the Project. This issue will not be discussed further in the forthcoming PEIR.

Source: Project Description

XId) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Potentially Significant Impact. See response to items XIa) and XIc). This issue will be addressed further in the forthcoming PEIR.

Source: Project Description

XIe) 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 expose people residing or working in the project area to excessive noise levels?

No Impact. The Project Boundary is not located within the vicinity (or within two miles) of a public airport or public use airport and lies outside of the airport influence area boundary. Additionally, as the Project will not result in the construction of new places of employment or residences, the Project will not involve placing people in a noisy environment near an airport or private airstrip. For these reasons, no impact will occur and this issue will not be discussed further in the forthcoming PEIR.

Source: Project Description; Google Earth

XIf) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The proposed Project is not located within two miles of a private airstrip; therefore, no impact will occur. This issue will not be discussed further in the forthcoming PEIR.

Source: Google Earth

XII. POPULATION AND HOUSING. Would the project:

XIIa) Induce substantial 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)* resulting in substantial adverse physical impacts or conflicts with the adopted general plan, specific plan, or other applicable land use or regional plan?

Less Than Significant Impact. Implementation of the proposed Project will not directly induce substantial population growth, as it does not include the construction of homes or businesses. A project could indirectly induce growth by removing barriers to growth, by creating a condition that attracts additional population or new economic activity, or by providing a catalyst for future unrelated growth in an area. While a project may have a potential to induce growth, it does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the public or private sectors. The land use policies established by Moreno Valley will regulate growth in the Project area. Growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if can be demonstrated that the potential growth significantly affects the environment in some other way.

Implementation of the MVGP land use policies and proposed developments will increase the need for storm drainage facilities and infrastructure contained in the proposed Project. The proposed MDP Facilities have been designed to convey stormwater flows from areas planned for urban development within Moreno Valley. Currently, the Project area experiences periodic flooding due to the relatively flat topography of the area and the inadequacy of the existing MDP Facilities. The proposed Project includes MDP Facilities designed to attenuate peak-flow rates and create a more efficient stormwater drainage system. Though the Project would alter the flow velocity and volume of stormwater flows, the proposed Moreno MDP will result in decreased flood potential in the Project area. This is because the Moreno MDP Facilities have been sized in a comprehensive manner that takes into account the existing and proposed land uses within the proposed Moreno MDP Boundary. When constructed in conjunction with the ultimate street improvements, the Project will provide protection from the 100-year flood discharge and alleviate the primary sources of flooding within the Moreno MDP Boundary. Therefore, the Project will protect people from natural disasters and will not significantly affect the environment indirectly.

Additionally, the MVGP Final EIR addressed potential impacts involving growth inducement from the implementation of policies and land use designations set forth in the MVGP. It was concluded that adoption and implementation of the MVGP would not indirectly induce substantial population growth through increased residential and non-residential development. This is because, the rate of population and housing growth resulting from the implementation of the General Plan, “would not differ substantially from recently experienced growth rates.” (MVGP FEIR, p. 5.12-2.) Therefore, potential indirect impacts to population growth within the Moreno MDP Boundary are considered less than significant. This issue will not be discussed in the forthcoming PEIR.

Source: Project Description; MVGP Final EIR

XIIb) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The Project does not propose the displacement of any persons or housing, or necessitate the construction of replacement housing elsewhere. No impacts are anticipated. Therefore, this issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XIIc) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. See response XIIb), above.

Source: Project Description

XIII. PUBLIC SERVICES

XIIIa) 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 following public services:

Fire protection?

No Impact The nature of this Project generally does not require fire protection and will not necessitate the construction of new facilities or increase the demand on fire services. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

Police protection?

No Impact. The nature of this Project generally does not require police protection and will not necessitate the construction of new facilities or increase the demand on police protection services. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

Schools?

No Impact. The nature of this Project generally does not require school services and will not necessitate the construction of new facilities or increase the demand on schools. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description; MVGP, Figure 2-3, School District Boundaries; MVGP FEIR, Table 5.13-2, Moreno Valley Unified School District School and Table 5.13-3, Val Verde Unified School District Schools; Google Earth

Parks?

No Impact. The nature of this Project generally does not require park services and will not necessitate the construction of new facilities or increase the demand on park services. Although, proposed MDP Facilities are within one-quarter mile of five parks, as identified below in **Table XIII-1 – Parks Along/Adjacent Proposed MDP Facilities** (MVGP FEIR and Google Earth), MDP facilities are not proposed to cross these parks. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Table XIII-1 – Parks Along/Adjacent Proposed MDP Facilities

Park	Location
Morrison Park	26667 Dracaea Ave.
Moreno Valley Equestrian Park and Nature Center	11150 Redlands Blvd.
Ridge Crest Park	28506 John F. Kennedy Dr.
Vista Lomas Park	26700 Iris Ave.
Celebration Park	14875 Caliente Dr.
Source: Moreno Valley General Plan Final Environmental Impact Report, Table 5.13-4 Existing Parks and Recreational Facilities, pp. 5.13-13 and 5.13-14.	

Source: Project Description; MVGP FEIR, Table 5.13-4 Existing Parks and Recreational Facilities, pp. 5.13-13 and 5.13-14; Google Earth

Other public facilities?

No Impact. There are no other public facilities that would be adversely impacted by implementation of the proposed Project. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XIV. RECREATION

XIVa) Would the project 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?

No Impact. The proposed Project does not involve new housing or employment opportunities that would directly generate users which would result in an increased use of existing parks or recreational

facilities. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XIVb) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed Project does not include recreational facilities or involve the construction of housing or creation of employment opportunities that would directly generate users that would result in a need for construction or expansion of recreational facilities Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XV. TRANSPORTATION AND TRAFFIC. Would the project:

XVa) Conflict with an adopted plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less Than Significant Impact. The MVGP Circulation Element identifies Level of Services standards "C" and "D" within the City of Moreno Valley roadway network. The exceptions to this standard are primarily located on Perris Blvd., Cactus Ave., and Frederick St./Pigeon Pass Rd. in the vicinity of State Route 60 (MVGP, pp. 5-3–5-5).

The Riverside Transit Agency (RTA) has existing bus routes along Eucalyptus Avenue, Alessandro Avenue, Cactus Avenue, Iris Avenue, Nasson Street and Moreno Beach Boulevard, portions of which lie within the Project Area. Currently, the locations of facilities in the MDP are conceptual. The Riverside County Flood Control and/or future developers of the MDP Facilities will coordinate with the RTA during the final design stages of the MDP Facilities. The General Plan does not identify any service standards for public transit or bikeway systems (MVGP, pp. 5-3–5-5).

The proposed Project is not a traffic-generating use. Temporary truck traffic will be incrementally increased on area roadways during the construction period. Ongoing maintenance will involve infrequent visits to the site, likely utilizing a light truck; however, this will not contribute to any significant increase in traffic on area roadways. Since the Project will not cause an increase in traffic that is considered substantial in relation to the existing traffic load and capacity of the street system, less than significant impacts are anticipated. Therefore, the Project does not include any factor that would cause a conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system. This includes all modes of transportation, taking into account mass transit and non-motorized methods of travel. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description; MVGP

XVb) Conflict with an adopted congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the appropriate congestion management agency for designated roads or highways?

Less Than Significant Impact. As described under item XVa), the MVGP Circulation Element identifies Level of Services standards "C" and "D" within the City of Moreno Valley roadway network (MVGP, pp. 5-4–5-5).

The City of Moreno Valley complies with the 2010 Congestion Management Program (CMP) that has been put in place by the Riverside County Transportation Commission (RCTC) (MVGP, p. 5-3). A portion of the proposed Project (Lines G-3, G-4, and F-2) is planned to be constructed near a CMP designated State Highway facility; however, this will not affect traffic along the highway.

There are no components of the proposed Project that would cause a substantial permanent increase in traffic, which would result in an individual or cumulative exceedance of an established level of service standard. There will be a temporary increase in trips associated with construction of the MDP Facilities, and there will be a minor increase in trips associated with ongoing maintenance of the MDP Facilities. Therefore, with respect to a Project-specific exceedance, either individually or cumulatively, of an established level of service standard, less than significant impacts are expected. Additionally, for the same reasons, the proposed Project will not conflict with the CMP, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways will occur as a result of the proposed Project. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XVc) Substantially increase hazards due to a design feature *(e.g., sharp curves or dangerous intersections)* or incompatible uses *(e.g., farm equipment)?*

No Impact. The proposed Project does not include any component that would alter existing roadway design features. The proposed Project does not include any component that would introduce new hazards to design features since the Project does not propose any new roadways. The Project is not proposing a new use that could introduce incompatible elements to area roadways. Therefore, with respect to substantially increasing hazards due to a design feature or incompatible uses, no impact is anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XVd) Would the project result in inadequate emergency access?

Less Than Significant Impact. Construction of the proposed Project will not reconfigure current roadways that would result in inadequate emergency access. Construction of certain MDP Facilities may require temporary closure of a travel lane; however, access will be maintained throughout the construction activities. Therefore, impacts will be less than significant. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XVe) Would the project result in inadequate parking capacity?

No Impact. Adequate construction parking will be provided through construction staging areas to accommodate employee and construction vehicles. Once construction is completed the Project does not need parking. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XVf) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, pedestrian facilities, or other alternate transportation or otherwise decrease the performance or safety of such facilities?

Less Than Significant Impact. The proposed Project will not reconfigure any roadways or alternative transportation services. Proposed MDP Facilities are within 100 feet of four Riverside Transit Agency (RTA) bus routes, Route 20, 35, 41, and 210 (RTA). Although construction of MDP Facilities may require temporary closure of a traffic lane, such closure would be temporary and road access would be maintained or a detour provided. If access to a RTA bus route will be affected, then the party constricting the facility (e.g., District, Moreno Valley, and/or private developer) would be required to coordinate with RTA in advance to maintain service in the area. Therefore, impacts to alternative transportation services from the Project are considered less than significant. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description; RTA

XVI. UTILITIES AND SERVICE SYSTEMS. Would the project:

XVIa) Impact the following facilities requiring or resulting in the construction of new facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Electricity

No Impact. The nature of this Project generally does not require electricity services and will not necessitate the construction of new facilities or increase the demand for electricity services. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

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Natural Gas

No Impact The nature of this Project generally does not require natural gas services and will not necessitate the construction of new facilities or increase the demand for natural gas services. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

Communication System

No Impact. The nature of this Project generally does not require communication system services and will not necessitate the construction of new facilities or increase the demand for communication system services. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Street lighting

No Impact. The nature of this Project generally does not require street lighting services and will not necessitate the construction of new facilities or increase the demand for street lighting services. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

Public facilities, including roads and bridges

No Impact. There are no other public facilities that would be adversely impacted by implementation of the proposed Project. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XVIb) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less Than Significant Impact. This Project is the result of the Moreno Watershed developing with a much higher density than originally anticipated, therefore, prompting the District to revise the master plan adopted in April 1991. The potential environmental impacts (such as those to biological resources, air quality, cultural resources) from implementation of the proposed Project will be addressed within each respective issue in the forthcoming PEIR.

The construction of new or expanded non-MDP Facilities may be needed. However, because the location, type, and size of such non-MDP Facilities are not known at this time, they cannot be addressed in the forthcoming PEIR. A separate CEQA review will be required for any non-MDP Facilities that will connect to the proposed MDP Facilities in the future. Therefore, impacts are less than significant. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XVIc) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less Than Significant Impact. The proposed Project does not involve activities that will require new or expanded permanent water supplies. Construction of the proposed MDP Facilities will necessitate short-term water use in order to provide for dust control. Therefore, impacts are less than significant. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XVId) 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?

No Impact. The proposed Project would not generate wastewater. No new wastewater facilities are required as a result of the proposed Project. Therefore, no impacts are anticipated. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description

XVIe) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less Than Significant Impact. The proposed Project would not generate solid waste and will not require landfill service on a long-term basis. Construction waste will be limited to trash generated by construction crews plus minimal debris created during maintenance of MDP Facilities. Demolition of existing structure may be necessary. Local landfills that have sufficient capacity to accept construction materials include the Riverside County Waste Management Department's Badlands Landfill, located approximately 1.5 miles north of State Route 60 near Ironwood Avenue and Theodore Street (MVGP FEIR, p. 5.13-35). The Badlands Landfill currently has a permitted maximum disposal capacity of 4,000 tons per day (CalRecycle Badlands) and received approximately 1,638 tons of waste per day in October 2011 (CalRecycle Badlands Tonnage). The remaining estimated capacity at Badlands Landfill is 43.9% with an expected closure date in 2024 (CalRecycle Badlands). Additionally, other County landfills in the area such as El Sobrante and Lambs Canyon Landfill can also serve the Project (MVGP FEIR, p. 5.13-35). For these reasons impacts would be less than significant. This issue will not be addressed in the forthcoming PEIR.

Source: Project Description; MVGP FEIR, p. 5.13-35; CalRecycle Badlands; CalRecycle Badlands Tonnage

XVIf) Comply with federal, state, and local statutes and regulations related to solid waste?

Less Than Significant Impact. As discussed in item XVIe), above, the proposed Project will not generate large quantities of solid waste on a long-term basis. The disposal of construction waste will comply with all federal, state, and local status and regulations related to solid waste. Potential impacts would be less than significant and this issue will not be addressed in the forthcoming PEIR.
Source: Project Description

XVII. MANDATORY FINDINGS OF SIGNIFICANCE.

XVIIa) Does the project have the potential to 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, 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?

Potentially Significant Impact. The proposed Project has the potential to degrade the quality of the environment. Construction and maintenance of the proposed Project may affect habitats that support sensitive plants, wildlife, or historic and prehistoric resources. Potential impacts to special status species and historic and prehistoric resources, as a result of the proposed Project, will be discussed further in the forthcoming PEIR.

Source: Above checklist

XVIIb) Does the project 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.)*

Potentially Significant Impact. The proposed Project may result in cumulatively considerable impacts to air quality, biological resources, cultural resources, hydrology and water quality, and noise. These issues will be discussed further in the Cumulative Impacts discussion in the forthcoming PEIR.

Source: Above checklist

XVIIc) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact. The proposed Project does not have the potential for any significant environmental effects that would cause substantial direct or indirect adverse impacts to human beings. This issue will not be addressed in the forthcoming PEIR.

Source: Above checklist

INITIAL STUDY CHECKLIST REFERENCE LIST

The following documents were referred to as information sources during preparation of this document. They are available for public review at the locations abbreviated after each listing and identified at the end of this section.

Cited As:	Source:
AQMP	South Coast Air Quality Management District, *2007 Air Quality Management Plan*, June 2007. (Available at http://www.aqmd.gov/aqmp/07aqmp/aqmp/Complete_Document.pdf, accessed Dec 2011.)
CalRecycle Badlands Tonnage	State of California, CalRecyle, *Solid Waste Information System*, *Facility/Site Inspection Listings: Badlands Sanitary Landfill (33-AA-0006)*. (Available at http://www.calrecycle.ca.gov/SWFacilities/Directory/33-AA-0006/Inspection/345378/, accessed January 13, 2011.)
Department of Conservation	California Department of Conservation, Division of Land Resource Protection, *Farmland Mapping and Monitoring Program, Riverside County Important Farmland 2008, Sheet 1 of 3*, September 2009. (Available at ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2008/riv08_west.pdf, accessed November 1, 2011.)
Department of Transportation	California Department of Transportation, *California Scenic Highway Mapping System, Riverside County*, September 7, 2011. (Available at http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm, accessed January 12, 2012.)
EDR	Environmental Data Resources, Inc. (EDR), *EDR DataMap Area Study, Moreno MDP (Inquiry Number: 3161071.1s)*, September 20, 2011. (Appendix B)
EOP	City of Moreno Valley, *Emergency Operations Plan*, March 2009. (Available at http://www.moreno-valley.ca.us/resident_services/emergency/pdf/mv-eop-0309.pdf, accessed January 12, 2012.)
Google Earth	Google, Inc, Google Earth (Version 6.1.0.4857). (Available at http://www.google.com/earth/download/ge/, accessed January 12. 2012.)
HSC	State of California, *California Health & Safety Code*. (Available at http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc, accessed January 12, 2012.)
Leighton	Leighton Consulting, Inc., *Seismic and Geologic Hazards Review, Moreno Master Drainage Plan (MDP), Moreno Valley, California*, March 23, 2012. (Appendix A)
MSHCP	County of Riverside, *Riverside County Integrated Project Multiple Species Habitat Conservation Plan (MSHCP), Volume 1 – The Plan & Volume 2 – The MSHCP Reference Document*, June 17, 2003. (Available http://www.rctlma.org/mshcp/ index.html, accessed January 10, 2012.)

Cited As:	Source:
MVGP	City of Moreno Valley, *City of Moreno Valley General Plan,* July 11, 2006. (Available at http://www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/gp/gp-tot.pdf, accessed Sep 2011 – January, 12, 2012.)
MVGP FEIR	City of Moreno Valley, *Final Environmental Impact Report City of Moreno Valley General Plan, Volume 1, SCH# 20091075*, July 2006. (Available at http://www.moreno-valley.ca.us/city_hall/general-plan/06gpfinal/ieir/eir-tot.pdf, accessed September 2011–January 12, 2012.)
MVMC	City of Moreno Valley, *Moreno Valley Municipal Code,* August 2011. (Available at http://qcode.us/codes/morenovalley/, accessed January 12, 2012.)
NPDES	California Regional Water Quality Control Board, Santa Ana Region, *2009-0009-DWQ Construction General Permit*, July 1, 2010. (Available at http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml, accessed January, 12, 2012.)
Ord. No. 348	County of Riverside, Planning Department, *Ordinance 348, Land Use Ordinance of Riverside County, Amended through Ordinance No. 348.4596*, March 12, 2009. (Available at http://www.rctlma.org/planning/content/zoning/ordnance/ord348_toc.html, accessed January 12, 2012.)
Ord. No. 457	County of Riverside, *Ordinance 457,* September 28, 2010. (Available at http://rivcocob.com/ords/400/457.pdf, accessed January 12, 2012.)
PRC	State of California. *California Public Resources Code*. (Available at http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=prc, accessed January 12, 2012.)
RCALUC	Riverside County Airport Land Use Commission, March Air Reserve Base (MARB) Old Compatibility Plan, January 14, 2005. (Available at http://www.rcaluc.org/filemanager/plan/old//March%20Air%20Reserve%20Base%20%28MARB%29.pdf, accessed January 12. 2012.)
RCIP	County of Riverside, *Riverside County Integrated Project General Plan, Count of Riverside,* Adopted October 7, 2003. (Available at http://www.rctlma.org/genplan/, accessed January 18, 2012.
RivCo GIS	County of Riverside, *Riverside County Land Information System*. (Available at http://www3.tlma.co.riverside.ca.us/pa/rclis/, accessed January 12, 2012.)
RTA	Riverside Transit Agency, *2012-01 System Map*. (Available at http://www.riversidetransit.com/home/images/stories/DOWNLOADS/PUBLICATIONS/SYSTEM_MAPS/2012-01%20System%20Map.pdf, accessed December 2011.)

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EXHIBIT A

Exhibit A – Moreno MDP Update Facilities Overview

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Cactus Basin	Located in between Redlands Blvd and Wilmot St, north of Cactus Ave. Existing and proposed Lines F and proposed F-2 outlet into this facility.	Proposed	Detention Basin	28.5 acres	-	30.5
Ironwood Debris Basin	Located at the intersection of Ironwood Ave and Theodore St.	Proposed	Debris Basin	-	-	1.5
Line A	Line A begins approximately 160' south of the intersection at Locust Ave and Quincy St, connects to a portion of existing Line A that runs southerly and south easterly to a confluence point with proposed Line A-1, and continues southerly along Quincy St to the proposed Quincy Basin, just north of State Route 60 (SR-60).	Proposed	Channel (unlined)	b=6' d=4.5' ss=1.5:1	225	0.3
		Existing	Channel	b=6’ d=4.5’ ss=1.5:1	1080	-
		Proposed	Storm Drain (RCB)	8' X 7'	710	-
		Proposed	Storm Drain (RCB)	9' X 7’	1290	-
		Proposed	Storm Drain (RCB)	9' X 7’	1325	-
		Proposed	Storm Drain (RCB)	9' X 7’	760	-
Line A-1	Begins approximately 1,500' south of the intersection of Walther Ave and Quincy St, continues along Quincy St, and connects to existing and proposed Line A south of Kalmia Ave.	Proposed	Storm Drain (RCP)	60"	3165	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Line A-2	Connects to proposed Line A-1 system at the intersection of Locust Ave and Quincy St and extends easterly.	Proposed	Storm Drain (RCP)	42"	650	-
Line A-3	Begins at intersection of Edmonson Ave and Kalmia Ave; runs easterly along Kalmia Ave and connects to existing Line A.	Proposed	Storm Drain (RCP)	54"	600	-
Line A-4	Parallel between Ironwood and Kalmia Ave; approximately 1,300’ north of Ironwood Ave. Connects to proposed Line A, extends westerly.	Proposed	Storm Drain (RCP)	42"	500	-
Line A-5	Begins approximately 1,700' east of the Ironwood Ave and Hinson St Intersection. Runs easterly along Ironwood Ave and connects to proposed Line A.	Proposed	Storm Drain (RCP)	42"	500	-
Line A-6	Connects to proposed Line A; extends westerly of and along Hemlock Ave, northerly at approximately 250' east of the intersection at Hemlock Ave and Fenimore Dr, and continues for 2,600'.	Proposed	Storm Drain (RCP)	36"	1300	-
		Proposed	Storm Drain (RCP)	48"	1315	-
		Proposed	Storm Drain (RCP)	60"	500	-
		Proposed	Storm Drain (RCP)	66"	500	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Storm Drain (RCP)	72"	300	-
Line A-7	Connects to proposed Line A-6 and extends westerly along Ironwood Ave.	Proposed	Storm Drain (RCP)	48"	500	-
Line B	Begins approximately 1,200' southeast of the intersection of Redlands and Highland Blvd. Runs south easterly along Highland Blvd, southerly of Sinclair St, 735' easterly of Ironwood Ave and outlets 2,100' south to proposed Sinclair Basin.	Proposed	Storm Drain (RCP)	66"	720	-
		Proposed	Storm Drain (RCB)	8' X 7'	1835	-
		Proposed	Storm Drain (RCB)	8' X 7'	1350	-
		Proposed	Storm Drain (RCB)	12.5' X 7'	735	-
		Proposed	Storm Drain (RCB)	8' X 7'	1300	-
		Proposed	Storm Drain (RCB)	10' X 8'	800	-
Line B-1	Connects to proposed Line B, 735' west of the Ironwood Ave and Sinclair St intersection. Pipe extends east along Ironwood Ave towards Theodore St.	Proposed	Storm Drain (RCP)	36	325	-
		Proposed	Storm Drain (RCP)	66	1345	-
Line B-2	Connects to proposed Line B at the intersection of Highland Blvd and Juniper Ave and extends westerly along Juniper Ave.	Proposed	Storm Drain (RCP)	54"	850	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Line B-3	Connects to proposed Line B on Sinclair St and Ironwood Ave and extends westerly along Ironwood Ave.	Proposed	Storm Drain (RCP)	54"	535	-
Line B-4	Parallel between Ironwood Ave and SR-60. Located approximately 1,300' south of the Ironwood Ave and Sinclair St intersection. Connects to proposed Line B and extends westerly.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	250	-
Line C	Begins at the intersection of Theodore St and Ironwood Ave. Runs southerly 930' along Theodore St, and westerly to connect with proposed Line B.	Proposed	Storm Drain (RCP)	72	930	-
		Proposed	Storm Drain (RCP)	78	1845	-
Line D	Begins approximately 1,370’ east of the intersection of Sinclair St within Eucalyptus Ave. and extends west.	Existing	Storm Drain (RCP)	36-42”	2400	-
Line D-1	Connects to proposed Line D-5 at the intersection of Locust Ave and Redlands Blvd. Extends westerly along Locust Ave.	Proposed	Storm Drain (RCP)	36"	375	-
		Proposed	Storm Drain (RCP)	48"	445	-
Line D-2	Connects to proposed Line D-5 at the intersection of Kalmia and Redlands Ave. Extends westerly along Kalmia Ave.	Proposed	Storm Drain (RCP)	42"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Storm Drain (RCP)	60"	500	-
		Proposed	Storm Drain (RCP)	66"	250	-
Line D-3	Connects to proposed Line D-5 at the intersection of Juniper and Redlands Ave. Extends westerly of Juniper Ave.	Proposed	Storm Drain (RCP)	42"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	60"	500	-
		Proposed	Storm Drain (RCP)	66"	250	-
Line D-4	Connects to proposed Line D-5 at the intersection of Juniper and Redlands Ave. Extends easterly along Juniper Ave.	Proposed	Storm Drain (RCP)	36"	670	-
Line D-5	At SR-60, 1,370’ west of proposed Sinclair St, to 100’ south of SR-60. Continues at the intersection of Locust Ave and Redlands Blvd. Runs southerly along Redlands Blvd, easterly for approximately 1,300' along Ironwood Ave, and southerly to connect to proposed Redlands Basin.	Existing	Storm Drain (RCP)	2-48”	110	-
		Proposed	Storm Drain (RCP)	48"	1310	-
		Proposed	Storm Drain (RCP)	66"	1350	-
		Proposed	Storm Drain (RCP)	66"	1315	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Storm Drain (RCP)	90"	1300	-
		Proposed	Storm Drain (RCP)	90"	1290	-
		Proposed	Storm Drain (RCP)	90"	795	-
Line D-6	At SR-60, 1,370’ east of Redlands Ave.	Existing	Storm Drain (RCP)	48”	420	-
Line D-7	Connects to proposed Line D-5 at the intersection of Redlands and Ironwood Ave. Extends westerly along Ironwood Ave.	Proposed	Storm Drain (RCP)	42"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	60"	500	-
		Proposed	Storm Drain (RCP)	66"	250	-
Line D-8	Parallel between Ironwood Ave and the SR-60. Located approximately 1,300' south of the Ironwood Ave and Redlands Blvd intersection. Connects to proposed Line D-5 and extends westerly.	Proposed	Storm Drain (RCP)	42"	500	-
		Proposed	Storm Drain (RCP)	54"	550	-
Line E-1	Parallel between Fir and Dracaea Ave, approximately 1,300' south of Fir Ave.	Proposed	Storm Drain (RCP)	36"	500	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
	Connects to proposed Line F and extends westerly.	Proposed	Storm Drain (RCP)	48”	500	-
		Proposed	Storm Drain (RCP)	54”	500	-
		Proposed	Storm Drain (RCP)	60”	250	-
Line E-2	Parallel between Fir and Dracaea Ave, approximately 1,300' south of Fir Ave. Connects to proposed Line F and extends easterly.	Proposed	Storm Drain (RCP)	36"	250	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	500	-
		Proposed	Storm Drain (RCP)	60"	250	-
Line E-3	Connects to proposed Line F and extends westerly along Dracaea Ave.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	500	-
		Proposed	Storm Drain (RCP)	60"	250	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Line E-4	Connects to proposed Line F and extends easterly along Dracaea Ave.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	250	-
Line E-5	Connects to proposed Line F and extends westerly of Cottonwood Ave.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	500	-
		Proposed	Storm Drain (RCP)	60"	250	-
Line E-6	Connects to proposed Line F and extends easterly of Cottonwood Ave.	Proposed	Storm Drain (RCP)	42"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	250	-
Line E-7	Connects to proposed Line F and extends westerly of and along Bay Ave.	Proposed	Storm Drain (RCP)	42"	500	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Storm Drain (RCP)	54"	500	-
		Proposed	Storm Drain (RCP)	60"	500	-
		Proposed	Storm Drain (RCP)	66"	250	-
Line E-8	Connects to proposed Line F and extends easterly of Bay Ave.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	250	-
Line E-9	Connects to proposed Line F and extends westerly along Alessandro Blvd.	Proposed	Storm Drain (RCP)	42"	500	-
		Proposed	Storm Drain (RCP)	54"	500	-
		Proposed	Storm Drain (RCP)	60"	500	-
		Proposed	Storm Drain (RCP)	66"	250	-
Line E-10	Connects to proposed Line F and extends easterly along	Proposed	Storm Drain (RCP)	36"	500	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
	Alessandro Blvd.	Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	60"	250	-
Line F	Existing Line F begins at proposed Sinclair Basin and runs westerly, parallel to SR-60, southerly past Fir Ave approximately 75’ south. Proposed Line F begins at the connection of the existing portion of Line F located approximately 800' west of the intersection at Sinclair St and Fir Ave. Continues southerly, south westerly of Alessandro Blvd, and connects to proposed Cactus Basin. Proposed Cactus Basin outlets to a portion of existing Line F south westerly of Cactus Ave towards Oliver St. Proposed Line F continues at the connection of existing Line F at approximately 500' north of the intersection of Oliver St and John F Kennedy Dr, runs south westerly and connects to existing Line F at approximately 300' north of the intersection of Iris Ave and Grande Vista Dr. Existing Line F runs westerly and southerly near Camino Flores. At the intersection of Iris Ave and Camino Flores, existing Line F runs westerly to Lasselle St.	Existing	Storm Drain (RCP)	2-48”	100	-
		Existing	Storm Drain (RCP)	2-72”	130	-
		Existing	Storm Drain (RCB)	W=10-12’ H=8’	2700	-
		Proposed	Channel	b=30' d=8' ss=2:1	540	1.3
		Proposed	Channel	b=6' d=6' ss=2:1	635	1
		Proposed	Channel	b=8' d=6' ss=2:1	1160	1.9
		Proposed	Channel	b=12' d=6' ss=2:1	1250	2.1
		Proposed	Channel	b=16' d=6' ss=2:1	1340	2.4
		Proposed	Channel	b=20’ d=6’ ss=2:1	880	1.5

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Channel	b=24’ d=6’ ss=2:1	590	1.1
		Proposed	Channel	b=38' d=9' ss=1.5:1	3160	7.4
		Existing	Floodplain Golf Course	-	4,080	-
		Existing	Channel (natural)	-	2,650	-
		Proposed	Channel	b=20' d=9' ss=1.5:1	3230	6
		Proposed	Channel	b=35' d=9' ss=1.5:1	1570	3.5
		Existing	Channel	b=40’ D=10.8’ Ss=1.5:1	4,080	-
Line F-2	Line F-2 begins approximately 1,200' north of the Redlands Blvd off-ramp at the SR-60. The line runs southerly along Redlands Blvd and confluences with proposed Line F just south of Broadiaea Ave. Line F-2 is to replace the existing line along Redlands Blvd from Dracaea Ave to south of Broadiaea Ave.	Proposed	Storm Drain (RCP)	54"	1155	-
		Existing	Storm Drain (RCP)	60"	1050	-
		Proposed	Storm Drain (RCP)	66"	510	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Storm Drain (RCP)	66"	2620	-
		Proposed	Storm Drain (RCP)	72"	1330	-
		Proposed	Storm Drain (RCP)	84"	1325	-
		Proposed	Storm Drain (RCP)	90"	1300	-
		Proposed	Storm Drain (RCP)	90"	1450	-
		Existing (to be replaced)	Storm Drain (RCP)	42-60”	5800	-
		Existing	Channel (natural)	-	1300	-
Line F-3	Existing Line F-3 connects to the Cactus Basin and runs easterly on Cactus Ave.	Existing	Storm Drain (RCP)	36-48”	430	-
Line F-4	Existing Line F-4 connects to Line F and runs northerly along Moreno Beach Dr, easterly along Cactus Ave.	Existing	Storm Drain (RCP)	36-42”	1080	-
		Existing	Storm Drain (RCP)	48-54”	610	-
Line F-5	Existing Line F-5 connects to proposed Line F approximately 700’ west of Oliver St and 500’	Existing	Storm Drain (RCB)	W: 2-8’ H: 4-	900	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
	north of Evergreen St. Existing Line F 5 runs east towards Olive St, and south easterly along Via De La Real Dr to La Palma Way.	Existing	Storm Drain (RCP)	60-72”	630	-
Line F-6	Existing Line F-6 connects to proposed Line F approximately 275’ north of Iris Ave. Existing Line F-6 runs southerly on Grande Vista Dr and easterly on Iris Ave.	Existing	Storm Drain (RCP)	54-78”	2040	-
Line F-7	Existing Line F-4 connects to Line F and runs southerly along Moreno Beach Dr to John F Kennedy Dr.	Existing	Storm Drain (RCP)	36”	1095	-
Line F-8	Existing Line F-8 begins approximately 125’ west of the intersection of Iris Ave and Mesa Verde Dr. Runs west on Iris Ave approximately 1,600’.	Existing	Storm Drain (RCP)	42-54”	1600	-
Line F-9	Existing Line F-9 connects to existing Line F-4 at the intersection of Bradshaw Cir and Cactus Ave. Runs northerly approximately 300’, easterly 300’, and northerly 300’ towards Broadiaea Ave.	Existing	Storm Drain (RCP)	36”	885	-
		Existing	Storm Drain (RCP)	36”	1030	-
Line F-11	Existing Line F-11 connects to Proposed Line F-2 at Cottonwood Ave and Redlands Blvd. Runs westerly on Cottonwood Ave, northerly on Wilmot St, and westerly on Lexington Way.	Existing	Storm Drain (RCP)	36-42”	1030	-
Line F-12	Existing Line F-11 connects to proposed Line F-2 at Dracaea Ave and Redlands Blvd and extends westerly on Dracaea Ave.	Existing	Storm Drain (RCP)	42”	1900	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Line F-13	Connects to existing Line F-4 and extends northerly along Moreno Beach Dr.	Proposed	Storm Drain (RCP)	33"	500	-
		Proposed	Storm Drain (RCP)	39"	850	-
Line F-14	Existing Line F-14 connects to existing Line F-2 approximately 80’ southeast of Camino Flores. Runs north westerly on Calle Camelia to Casa Encantador Rd.	Existing	Storm Drain (RCP)	42"	1115	-
Line F-15	Line begins approximately 1,200' north of the Redlands Blvd off-ramp at SR-60 and 1,800' west of Redlands Blvd. The line runs easterly and connects to the beginning of proposed Line F-2 on Redlands Blvd.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	42"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	250	-
Line F-16	Connects to proposed Line F-2 and extends westerly along Fir Ave.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	60"	500	-
		Proposed	Storm Drain (RCP)	66"	500	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Storm Drain (RCP)	66"	250	-
Line F-17	Connects to Proposed Line F-2 and extends westerly along Eucalyptus Ave.	Proposed	Storm Drain (RCP)	42"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	54"	500	-
		Proposed	Storm Drain (RCP)	60"	250	-
Line G	Proposed Line G is the outlet of existing Lines G-5 and G-6. The line runs south easterly and connects to proposed Line G-7 approximately 500' north of the intersection of Cottonwood Ave and Quincy St. Proposed Line G travels southerly, parallel to Quincy St and outlets into existing Line F.	Existing	Storm Drain (RCP)	72-86”	2165	-
		Proposed	Channel	b=10' d=6' ss=2:1	4230	7.2
		Proposed	Channel	b=14' d=6' ss=2:1	1820	3.3
		Proposed	Channel	b=14' d=6' ss=2:1	1300	2.3
		Proposed	Channel	b=14' d=6' ss=2:1	1350	2.4

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Channel	b=16' d=6' ss=2:1	1285	2.4
		Proposed	Channel	b=18' d=6' ss=2:1	515	1
		Existing	Slope Protection	ss=1.5:1	1200	-
Line G-1	Located approximately 1,100' north of the Moreno Beach Dr off-ramp of SR-60. Connects to proposed Line G-4 and extends westerly.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	48"	250	-
Line G-2	Connects to proposed Line G-4 and extends easterly towards Hemlock Ave.	Proposed	Storm Drain (RCP)	60"	840	-
Line G-3	Connects to existing Line G-5 and proposed Line G-4 and extends easterly, parallel and along the north of SR-60.	Proposed	Storm Drain (RCP)	54"	665	-
		Proposed	Storm Drain (RCP)	60"	815	-
Line G-4	Proposed Line G-4 begins approximately 1,200' north of SR-60 and 500' east of Moreno Beach Dr and runs southerly to the connection of existing Line G-5.	Proposed	Storm Drain (RCP)	60"	1130	-
Line G-5	Connects to proposed Line G approximately 300’ east of Auto Mall Dr. Runs westerly onto Auto Mall Dr, southerly on Auto Mall Dr, westerly approximately 500’, and northerly to SR-60.	Existing	Storm Drain (RCP)	48”	775	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Line G-7	Proposed Line G-7 is the outlet for Quincy Basin. The line runs southerly and connects to proposed Line G.	Proposed	Channel	b=6' d=5' ss=2:1	4750	7.2
		Existing	Slope Protection	ss=1.5:1	1200	-
Line G-8	Connects to proposed Line G and extends easterly along Bay Ave.	Proposed	Storm Drain (RCP)	36"	500	-
		Proposed	Storm Drain (RCP)	48"	500	-
Line G-9	Connects to proposed Line G and extends easterly along Alessandro Blvd.	Proposed	Storm Drain (RCP)	42"	250	-
		Proposed	Storm Drain (RCP)	54"	500	-
Line G-10	Connects to proposed Line G and extends easterly along Broadiaea Ave.	Proposed	Storm Drain (RCP)	36"	250	-
		Proposed	Storm Drain (RCP)	48"	500	-
		Proposed	Storm Drain (RCP)	60"	500	-
Line G-11	Connects to proposed Line G and extends easterly along Cactus Ave.	Proposed	Storm Drain (RCB)	36"	250	-
		Proposed	Storm Drain (RCP)	48"	500	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Storm Drain (RCP)	60"	500	-
Line H	Existing Line H begins at the intersection of Woodglen Way and Creekside Way. Existing Line H runs southerly to Quail Creek Dr, easterly along Cottonwood Ave, and southerly along Mill Creek Rd for approximately 320'. Proposed Line H begins at the intersection of Mill Creek Rd and Dracaea Ave. Proposed Line H runs southerly to Cottonwood Ave, easterly along Cottonwood Ave for approximately 610', southerly to Alessandro Blvd, easterly along Alessandro Blvd for approximately 1,400', southerly along Oliver St and connects to existing Line H. Existing Line H continues southerly along Oliver St and connects to existing Line F.	Existing	Ditch	-	-	-
		Proposed	Storm Drain (RCP)	42"	1300	-
		Proposed	Storm Drain (RCB)	8.25' X 5'	610	-
		Proposed	Storm Drain (RCP)	75"	1365	-
		Proposed	Storm Drain (RCP)	75"	1250	-
		Proposed	Storm Drain (RCP)	87"	2745	-
		Proposed	Storm Drain (RCB)	90"	1320	-
Line H-1	Begins at the existing portion of Line H-1 at the intersection of Moreno Beach Blvd and Alessandro Blvd. Runs westerly along Alessandro Blvd to Oliver St and connects to existing Line H-2.	Existing	Storm Drain (RCP)	48"	1045	-
		Proposed	Storm Drain (RCP)	48"	1020	-
		Proposed	Storm Drain (RCP)	63"	500	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
		Proposed	Storm Drain (RCP)	63"	830	-
		Proposed	Storm Drain (RCP)	75"	630	-
Line H-1a	Connects to existing Line H-2 at the intersection of Oliver St and Alessandro Blvd. Extends westerly along Alessandro Blvd.	Proposed	Storm Drain (RCP)	36"	280	-
Line H-2	(North Portion) Proposed Line H-2 begins at the intersection of Cottonwood Ave and Bethany Rd. Runs southerly of and along Bethany Rd and connects to proposed Line H-1 on Alessandro Blvd.	Proposed	Storm Drain (RCP)	33"	320	-
		Proposed	Storm Drain (RCP)	39"	650	-
		Proposed	Storm Drain (RCP)	42"	640	-
		Proposed	Storm Drain (RCP)	54"	950	-
		Proposed	Storm Drain (RCP)	48”	1020	-
Line H-2	(South Portion) Existing Line H-2 begins on Cactus Ave and approximately 250’ west of Landon Rd. Existing Line H-2 runs northerly to Alessandro Blvd.	Existing	Storm Drain (RCP)	84-90”	1865	-
Line H-3	Proposed Line H-3 begins at the intersection of Cottonwood Ave and Moreno Beach Dr. Runs	Existing	Channel	b=2’ d=2’ ss=2:1	690	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
	southerly along Moreno Beach Dr and connects to existing and proposed Line H-1 on Alessandro Blvd.	Existing	Storm Drain (RCP)	42-48”	775	-
		Proposed	Storm Drain (RCP)	42"	830	-
		Proposed	Storm Drain (RCP)	45"	1040	-
		Proposed	Storm Drain (RCP)	45"	680	-
Line H-4	Connects to proposed Line H at approximately 1,350' south of Cottonwood Ave and extends easterly.	Proposed	Storm Drain (RCP)	30"	260	-
Line H-5	Connects to proposed Line H at the intersection of Oliver and Broadiaea Ave and extends west of Broadiaea Ave.	Proposed	Storm Drain (RCP)	30"	675	-
		Proposed	Storm Drain (RCP)	33"	675	-
Line H-5a	Connects to proposed Line H at the intersection of Oliver and Broadiaea Ave and extends east of Broadiaea Ave.	Proposed	Storm Drain (RCP)	36"	290	-
Line H-6	Existing Line H-6 connects to existing Line H-2 on Broadiaea Ave and extends approximately 650’ easterly. Proposed Line H-6 connects to existing Line H-6 and continues easterly on Broadiaea Ave.	Existing	Storm Drain (RCP)	36-48”	630	-
		Proposed	Storm Drain (RCP)	36"	625	-
Line H-7	Existing Line H-7 connects to existing Line H on Cactus Ave and extends easterly.	Existing	Storm Drain (RCP)	36”	700	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Line H-8	Existing Line H-8 connects to existing Line H on Cactus Ave and extends westerly.	Existing	Storm Drain (RCP)	36-60”	1725	-
Line H-9	Extends south on Silver Mountain Way from Big Horn Ave, east on Delphinium Ave and south on Evergreen St.	Existing	Storm Drain (RCP)	66”	1850	-
Line H-10	Beginning at Oliver St. and Rockwood Ave and extends easterly to Newburgh Rd.	Existing	Storm Drain (RCP)	36”	1110	-
Line I	Connect to existing Nason Basin and runs easterly along SR-60 and southerly on Nason St. to Delphinium Ave.	Existing	Storm Drain (RCB)	10’W x 5’H	120	-
		Existing	Storm Drain (RCP)	90”	1725	-
		Existing	Storm Drain (RCP)	90-78”	3010	-
		Existing	Storm Drain (RCP)	78”	3730	-
		Existing	Storm Drain (RCP)	84”	3230	-
Line J	Proposed Line J begins at the intersection of Morrison St. and Dracaea Ave. Runs approximately 650' south of Morrison St and connects with existing Line J. Existing Line J continues southerly along Morrison St to Alessandro Blvd to connect with the proposed Line J. Proposed Line J runs southerly to Cactus Ave, easterly	Proposed	Storm Drain (RCP)	48"	720	-
		Existing	Storm Drain (RCP)	60-78”	3400	-
		Proposed	Storm Drain (RCP)	78"	1250	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
	along Cactus Ave, south westerly along Nason St and connects to proposed Line F.	Proposed	Storm Drain (RCP)	84"	1305	-
		Proposed	Storm Drain (RCP)	108"	3880	-
		Proposed	Storm Drain (RCB)	14' X 9'	1530	-
		Proposed	Storm Drain (Double RCB)	(2) 7' X 10'	1815	-
Line J-1	Connects to proposed Line J at the intersection of Morrison St and Dracaea Ave and extends easterly along Dracaea Ave.	Proposed	Storm Drain (RCP)	27"	650	-
		Proposed	Storm Drain (RCP)	39"	755	-
Line J-2	Connects to existing Line J at the intersection of Morrison St and Cottonwood Ave and extends easterly along Cottonwood Ave.	Existing	Storm Drain (RCP)	48-60”	1240	-
Line J-3	Connects to existing Line J at the intersection of Morrison St and Bay Ave and extends westerly along Bay Ave.	Existing	Storm Drain (RCP)	36-48”	1240	-
Line J-4	Connects to existing Line J at the intersection of Morrison St and Bay Ave and extends easterly along Bay Ave.	Existing	Storm Drain (RCP)	48”	1325	-
Line J-5	Connects to existing Line J at the intersection of Morrison St and Alessandro Blvd and extends westerly along Alessandro Blvd.	Existing	Storm Drain (RCP)	36”	1345	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Line J-6	Connects to existing Line J at the intersection of Morrison St and Alessandro Blvd and extends easterly along Alessandro Blvd.	Existing	Storm Drain (RCP)	48”	665	-
Line J-7	Connects to proposed Line J and extends westerly along Brodiaea Ave.	Proposed	Storm Drain (RCB)	24"	800	-
Line J-8	Connects to proposed Line J and extends easterly along Brodiaea Ave.	Proposed	Storm Drain (RCP)	39"	540	-
		Proposed	Storm Drain (RCP)	42"	920	-
Line J-9	Connects to proposed Line J and extends westerly along Cactus Ave.	Proposed	Storm Drain (RCP)	57"	890	-
		Proposed	Storm Drain (RCP)	57"	570	-
		Proposed	Storm Drain (RCP)	60"	320	-
Line J-10	Riverside County Regional Medical Center	Existing	Storm Drain (RCP)	42-54”	1435	-
Line K	Line K begins 1,600' north east of the intersection of Reche Canyon Rd and Locust Ave along Reche Canyon Rd. Runs south easterly along Reche Canyon Rd, southerly along Moreno Beach Dr, south westerly near the intersection of Moreno Beach Dr and Juniper Ave, continues south westerly passed Ironwood Ave, and connects to existing	Proposed	Channel	b=10' d=7' *ss=1.5 :1	1600	2.2
		Proposed	Storm Drain (RCB)	14' X 7'	160	-
		Proposed	Storm Drain (RCB)	9.5' x 7'	2200	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
	Nason Basin.	Proposed	Channel	b=25' d=6' *ss=2:1	1700	3.1
		Proposed	Channel	b=30' d=6' *ss=2:1	305	0.6
Line K-1	Existing Line K-1 begins at the intersection of Pettit St and Kalmia Ave and extends southerly to connect to proposed Line K-1 at Juniper Ave. Proposed Line K-1 runs southerly of Pettit St, westerly along Ironwood Ave, and connects to proposed Line K.	Proposed	Storm Drain (RCP)	42”	840	-
		Proposed	Storm Drain (RCP)	42”	475	-
		Proposed	Storm Drain (RCP)	51”	670	-
		Proposed	Storm Drain (RCP)	51”	690	-
		Existing	Storm Drain (RCP)	54-48”	660	-
		Proposed	Storm Drain (RCP)	63"	600	-
		Proposed	Storm Drain (RCP)	63"	730	-
		Proposed	Storm Drain (RCP)	90"	2035	-
Line K-2	Connects to proposed Line K-1 at the intersection of Juniper Ave and Pettit St and extends easterly of Juniper Ave.	Proposed	Storm Drain (RCP)	33”	640	-

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Line K-3	Existing Line K-3 connects to existing Line K-1 at Pettit St and Juniper Ave. Runs westerly along Juniper Ave, north easterly along Knoll Vista St to Kalmia Ave.	Existing	Storm Drain (RCB)	48”	1100	-
Line K-4	Proposed Line K-4 begins approximately 250' east of the intersection of Locust Ave and Carrie Ln. Runs westerly along Locust Ave, southerly along Carrie Ln, westerly along Kalmia Ave, and connects to existing Line K-1 at the intersection of Kalmia Ave and Pettit St.	Proposed	Storm Drain (RCP)	42"	235	-
		Proposed	Storm Drain (RCP)	42"	840	-
		Proposed	Storm Drain (RCP)	42"	475	-
		Proposed	Storm Drain (RCP)	51"	670	-
Moreno Cold Creek Storm Drain	Begins on Eucalyptus Ave approximately 1100’ east of Fir Ave, extending westerly to Summerwinds Dr.	Existing	Storm Drain (RCP)	36”	2070	-
		Existing	Storm Drain (RCP)	48-54”	2845	-
Nason Basin	Located north of SR-60 and approximately 350’ east of the Nason St SR-60 off-ramp.	Existing	Detention Basin	20.5 acres	234	-
Quincy Basin	Located north of the SR-60 and approximately 2000’ west of the Redlands Blvd SR-60 Freeway off-ramp.	Proposed	Detention Basin	17.5 acres	-	19.5
Reche Canyon Debris Basin	Located 1,600' north east of the intersection of Reche Canyon Rd and Locust Ave along Reche Canyon Rd.	Proposed	Debris Basin	-	-	5.5

Facility Name	Facility Description	Existing or Proposed	Facility Type	Facility Size	Facility Length (ft)	Right–of-Way Required (acres)
Redlands Basin	Located north of SR-60 and approximately 1,000' east of the Redlands Blvd SR-60 off-ramp.	Proposed	Detention Basin	7.5 acres	-	8.7
Sinclair Basin	Located north of SR-60 and approximately 1,800' west of the Theodore St SR-60 off-ramp.	Proposed	Detention Basin	17.6 acres	-	19.7

APPENDIX A

SEISMIC AND GEOLOGIC HAZARDS REVIEW
MORENO MASTER DRAINAGE PLAN (MDP) REVISION
MORENO VALLEY, CALIFORNIA

Prepared For:

ALBERT A. WEBB ASSOCIATES INC.
3788 McCray Street
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Project No. 112547-001

March 23, 2012

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

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A LEIGHTON GROUP COMPANY

March 23, 2012

Project No. 112547-001

ALBERT A. WEBB ASSOCIATES INC.
3788 McCray Street
Riverside, CA 92506

Attention: Ms. Cheryl Degano

Subject: Seismic and Geologic Hazards Review, Moreno Master Drainage Plan (MDP) Revision, Moreno Valley, California

In accordance with your authorization, we have performed a seismic and geologic hazards review for the Environmental Impact Report (EIR) for the Moreno Master Drainage Plan (MDP) Revision located in eastern portion of the City of Moreno Valley, California. This revised report summarizes our findings and conclusions related to potential seismic and geologic hazards within the MDP study area and addresses comments provided by Riverside County Flood and Conservation District. Based on the results of our review, it is our opinion that there are seismic/geologic constraints within the MDP study area and as such, site-specific evaluations should be performed for future drainage facilities or improvements to address the geotechnical/geologic concerns associated with each site or structure.

If you have any questions regarding this report, please do not hesitate to contact the undersigned. We appreciate this opportunity to be of service on this project.

Respectfully submitted,
LEIGHTON CONSULTING, INC.

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1.0 INTRODUCTION

1.1 Purpose and Scope

The purpose of this report is to compile and summarize the known seismic and geologic hazards within the Moreno MDP study area and provide an overview of the known typical geotechnical constraints that might be expected during design and construction of future drainage improvements. Our scope for this report generally included the following:

- Review available in-house and published data pertinent to the geologic settings of the MDP study area including site-specific native soils, groundwater conditions, rock units and geologic structure,
- Perform a site reconnaissance to observe certain areas of the MDP to verify previously mapped geologic and soils conditions and document any obstructions to natural drainages,
- Prepare this report that summarizes our findings and present the known geologic hazards within the MDP study area including mapped fault traces and County and/or State of California Alquist-Priolo Earthquake Fault Zone (AP Zone) within the MDP study area. Other geologic hazards that are discussed in this report include liquefaction or dry seismic settlement, ground rupture, rock fall hazards, landslides, subsidence, Tsunamis and Seiches. Potential grading and foundation design challenges are also discussed based on our past experience in certain areas of the MDP study area.

1.2 MDP Location and General Description

The Moreno MDP study area is generally located in the eastern portion of the City of Moreno Valley, Riverside County, California (see Figure 1). More specifically, the study area covers most of the southerly to south westerly sloping portion of the eastern part of the City of Moreno Valley City located north of Lake Perris. The majority of the study area is comprised of undeveloped land and drainages descending toward the south and southwest. The major obstruction to this natural drainage is the east-west State Route 60 (SR-60) that divides the study area in almost the middle. The low lying areas along the west side of the study area are generally developed and consist primarily of residential and local retail developments.

2.0 GEOLOGY

2.1 Regional Settings

The Moreno MDP study area is generally located within the northern portion of the San Jacinto Valley, northern portion of the Perris Block, within the Peninsular Ranges geomorphic province of California. Tectonic uplift of the surrounding Badlands and subsequent erosion has resulted in thick sequences of the Quaternary aged alluvial fan deposits capping the underlying Cretaceous-age granitic bedrock. This granitic bedrock is exposed in the northwest and southern boundaries of the study area.

2.2 Area Geology

The MDP study area is underlain by several surficial deposits and/or bedrock units based on published geologic maps (Figure 2). The major surficial deposits and bedrock units observed during our site reconnaissance that are most likely to be encountered are briefly described below:

- **Artificial Fill (not a mapped unit):** Artificial fills are generally referred to as undocumented fills or engineered (documented) fills. Undocumented fills are typically those fills that were placed without the review and testing of a geotechnical consultant. Observed undocumented fills consist of a berm along planned Line F between Redlands Boulevard and Wilmot Street, south of Brodiaea Avenue, in the vicinity of proposed new basin. Undocumented fill was also noted in vicinity of the proposed Reche Canyon Debris Basin, likely the result of past erosion repair and roadway access construction. Engineered fills are those fills that were observed and tested by a geotechnical consultant. Most artificial fills within the MDP study area are expected to be engineered and placed during construction of existing public roads and private developments. The engineering characteristics and vertical or horizontal extent of these fills are site-specific.

- **Young Alluvial Deposits (not a mapped unit):** These are active and recently active fluvial deposits along active channels or drainage areas. These deposits consist of unconsolidated sandy, silty, or clay-bearing alluvium.

- **Young Alluvial-Fan Deposits (map symbol Qyf):** These deposits generally covers most of the low lying areas of the study area and consist of unconsolidated, gravelly, sandy, or silty alluvial fan deposits, and headward channel parts of alluvial fans.

- **Old Alluvial-Fan Deposits (map symbol Qof):** These deposits are generally located in the northeastern portion of the site and consist of reddish brown, gravel and sand alluvial fan deposits; indurated, commonly slightly dissected.

- **Very Old Alluvial-Fan Deposits (map symbol Qvof):** These deposits generally cover most the low lying areas and underlie the young alluvial-fan deposits. These materials generally consist of more consolidated gravel, sand and silt alluvial fan deposits.

- **Landslide Deposits (map symbol Qls):** The Landslide deposits are located in the far northern portion of the MDP study area and generally related to failures of slopes along San Timoteo Canyon.

- **San Timoteo formation (map symbol Tss):** This formation is located along the northeastern portion of the study area and generally consists of coarse grained, tertiary aged non-marine sediments.

- **Granitic Crystalline Rocks-undifferentiated (map symbol gr)**: This is a Cretaceous-age formation with intermediate composition granitic rocks, mainly biotite-hornblende and biotite granodiorite.

- **Heterogeneous granitic rocks (map symbol Khg)**: This unit generally comprises the majority of the high slopes along the northwestern and southern boundary areas. This Cretaceous-age formation includes heterogeneous, compositionally diverse granitic rocks mostly of tonalitic and granodiorite composition, but includes some monzogranite and gabbro.

2.3 Groundwater

Groundwater within the MDP study area is generally controlled by the northern portions of the San Jacinto Lower Pressure Basin and Perris North Basin. Depending on rainfall and seasonal variation, groundwater should be expected within the alluvial fan and valley deposits. In addition, groundwater conditions should be anticipated within natural drainages at higher elevations and may also accumulate within layers of differing permeability, within bedrock fractures and at bedrock/fill contacts. Groundwater flows generally from the surficial materials within the study area toward the southwest and southeast around Mount Russell. Current groundwater levels typically vary from a high elevation of 1660 Mean Sea Level (msl) in the northern study area (North Basin) to a low elevation of 1420 (South West Basin) depending on seasonal conditions (EMWD, 2011).

3.0 SEISMIC/FAULTING CONSTRAINTS

3.1 General

Moreno Valley MDP, like the rest of Southern California, is located within a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. Based on published data, the most significant known active Fault Zones that are capable of seismic ground shaking and can impact the MDP study area include (see also Figure 3):

- *San Jacinto Fault Zone:* This fault zone, which includes the San Jacinto and Claremont Segments, pass through the eastern edge of the MDP study area. The San Jacinto fault is capable of generating Maximum Earthquake Magnitude (Mw) in excess of 7.1 Mw.

- *San Andreas Fault Zone (southern section):* This fault zone, located approximately 13 miles northeast of the MDP study area, is considered the dominant active fault in California. This fault zone is capable of generating earthquakes in excess of 7.4 Mw.

- *Elsinore Fault Zone:* This fault zone is located approximately 22 miles west of the MDP study area and is capable of generating earthquake in excess of 6.8 Mw.

The Alquist-Priolo Hazards Act (A-P Act) passed by the State legislature in 1972 (renamed the Alquist-Priolo Earthquake Fault Zoning Act in 1994) established earthquake fault zones along faults considered by the State Division of Mines and Geology to be active or potentially active. An active fault is considered one which has experienced surface displacement within the last 11,000 years, while a potentially active fault is a fault which has moved during the past 1.6 million years but proven to have not moved within the past 11,000 years. Such displacement can be recognized by the existence of cliffs in alluvium, terraces, offset stream courses, the alignment of depressions, sag ponds, fault troughs and saddles, and the existence of markedly linear steep mountain fronts. However, some active faults are not visible at the surface and can only be located through detailed subsurface investigations.

The State Geologist designates seismic hazard zones and the State issues earthquake fault zone maps to assist cities and counties in avoiding the hazard of surface fault rupture. In addition, the County of Riverside has zoned fault systems and required

similar special studies prior to land development. The State has identified the Claremont segment of the San Jacinto Fault Zone as an A-P Earthquake Fault zone within the MDP study area. This fault zone is located in the far easterly portion of the study area (See Figure 3). Additionally, two separate Riverside County faults, the Reche Canyon Fault in the north west portion of the study area and an un-named fault in the north east portion of the study area are noted (See Fig. 3)

The State A-P and County fault hazard zones typically extend about 500 feet in width on either side of a major active fault trace and about 200 to 300 feet in width on either side of a well-defined minor active fault. Our Fault Hazard Map (Figure 3) depicts the current Alquist Priolo and Riverside County Fault Hazard Zones.

3.2 Fault Rupture

As indicated above, several State and County Faults systems are mapped within the MDP study area. Based on the proposed MDP, several storm drain lines and the proposed Ironwood Debris Basin appear to be located crossing some the mapped faults/fault zones. The potential for ground rupture affecting these particular areas is a geologic concern. In the event that such ground rupture hazard is to be evaluated for a specific future drainage facility, fault trenching may be required to locate such facility away from an existing fault. Methods for the evaluation of ground rupture and locating a mapped fault at any given site are presented in the California Geologic Survey Note 49 (CGS, 2002).

3.3 Ground Shaking

As indicated in Section 3.1 above, the Moreno valley MDP study area can be subjected to severe seismic ground shaking as a result of being located near active Fault Zones. The intensity of earthquake ground shaking within the study area varies from one location to another depending primarily upon the distance to the fault and the site-specific geology. As such, the effect of seismic shaking on future drainage facilities should be evaluated based on site-specific seismic evaluations.

3.4 Secondary Seismic Hazards

Ground shaking can induce “secondary” seismic hazards such as liquefaction and/or lateral spreading, landslides, rock falls, subsidence and ground fissuring. Areas of the

MDP study area known to be at risk from these hazards have been mapped and shown on Figures 4 (Liquefaction Hazard Map).

3.4.1 Dynamic Settlement / Liquefaction and "Dry" Settlement

Liquefaction of saturated cohesionless soils can be caused by strong ground motion resulting from earthquakes. Soil liquefaction is a phenomenon in which saturated, cohesionless soils lose their strength due to the build-up of excess pore water pressure during cyclic loading such as that induced by earthquakes. The primary factors affecting the liquefaction potential of deposit are: 1) intensity and duration of earthquake shaking, 2) soil type and relative density, 3) overburden pressures, and 4) depth to groundwater. Soils most susceptible to liquefaction are clean, loose, uniformly graded, fine-grained sands, and non-plastic silts that are saturated. Silty sands, under certain site conditions, may also be susceptible to liquefaction. As depicted on Figure 4, most of the areas underlain with young alluvial fan deposits lie within "moderate" liquefaction hazard zone per County of Riverside seismic hazard maps (Riverside, 2003). Site-specific evaluations will be required to address such hazard for futures facilities and provide mitigation measures, if needed.

In addition to liquefaction settlement, dynamic densification of "dry" or moist soil above the water table can occur. The site-specific evaluation for future development should also include evaluation for settlement associated with dynamic densification of "dry" soils. To reduce the effects and magnitude of seismically-induced dynamic settlements, remedial grading measures or ground improvement techniques are normally implemented.

3.4.2 Lateral Spreading

The phenomenon of liquefaction may also produce lateral spreading of soils adjacent to a body of water or water course (Lake Perris and other water retention basins). Lateral spreading is therefore considered as a liquefaction-induced ground failure whereby block(s) of surficial intact natural or artificial fill soils displace laterally downslope or towards a free face along a shear zone that has formed within the liquefied sediment (Bartlett and Youd, 1995). The displacement of the ground surface associated with this lateral spreading may be on the order of several inches to several feet at the top of the slope and may affect areas well beyond the top-of-slope. Developments located further from the lake, retention basins or drainage courses are anticipated to be at less risk from lateral spreading.

3.4.3 Differential Subsidence and Ground Fissuring

Ground fissuring typically develops along previous established planes of weakness such as active and possibly potentially active fault traces as well as along steep buried contacts between bedrock to recent alluvial soils. The active San Jacinto fault may develop fissuring along the fault trace during a significant seismic event or groundwater elevation change. As such, there is a moderate to high potential for ground fissuring and associated differential subsidence along the active fault zones. If commercial water wells are installed within or near the subsidence zone, the potential for ground fissuring and differential settlement could be substantially increased.

3.4.4 Seiches

A seiche can results from a number of factors including wind-driven current, tides, variation in atmospheric pressures and ground shaking. A seiche is an oscillation of a landlocked body of water that can cause water damage to buildings, roads, and other facilities that surround the body of water (Lake Perris). It is expected that such hazard could be a concern for low lying areas within the MDP study area.

3.4.5 Flooding

Portions of the MDP study area lie within the boundaries of the FEMA 100-year flood plain. Potential flood hazard should be evaluated on a case-by-case basis during individual site developments. This report does not address such flood hazard risk.

3.4.6 Landslides

The potential for earthquake related landsliding within the MDP study area limits is based on known conditions and published geologic maps. The State Seismic Hazard Zones (CGS, 2007) provides locations of previous known landsliding or where local conditions indicate a potential for ground displacements. Site-specific geologic review should be performed to determine whether the potential for landsliding or slope instability exists for any future facility.

3.4.7 Rock Fall Hazards

The potential for rock fall due to natural weathering and instability or rock falls due to a seismic event are possible in local areas of the MDP study area. The hazard areas are limited to those where rocks and boulders exist, either within the site, or upslope and adjacent to the property. Site-specific geologic review should be performed to evaluate such hazard and provide appropriate corrective

measures. To reduce the potential effects from rock falls in these areas, mitigation may include avoidance, rock removal, anchoring or catchment devises.

3.5 Collapsible Soils

Collapsible soils are those that appear to be strong and stable in their natural (dry) state, but which can rapidly consolidate under wetting, generating large and often unexpected settlements. This collapse (or sometimes referred to as 'hydro-collapse') potential can be evaluated in the laboratory on undisturbed soil samples in accordance with ASTM Test Method D4546. Based on Leighton's past experience in this area, the near surface alluvial soils (upper 10 to 20 feet) are potentially 'hydro-collapsible' (up to 10 percent collapse/vertical settlement). As such, the upper/near surface alluvial-fan deposits within the study area should investigated to evaluate the impact of such hazard on proposed future drainage facilities or adjacent improvements, especially in case of basins that can cause saturation of subsurface soils.

3.6 Expansive Soils:

Expansive soils are those that expand when water is added, and shrink when they dry out. Based on Leighton's past experience within specific areas of the MDP study area, expansive soils may be encountered within the young and old alluvial deposits. The Expansion Index (EI) of such soils is expected to vary from one location to another. However, soils with an EI greater than 51 per ASTM Test Method D4829 can be found locally within the interbedded silt and clay layers and can be detrimental to drainage structures (lined channels or box culverts) if found at foundation or subgrade levels. Such soils should be investigated to evaluate their impact on proposed future drainage facilities.

3.7 Erosion

The study area surficial soils (young and old alluvium) are considered highly erosive as evidenced by deeply incised drainages and alluvial filled drainage culverts. Based on the results of Leighton's in house and published data, the Soil Erodibility Factor (k) is generally expected to range from 0.10 to 0.45 per the Erickson/USDA nomograph. Site specific evaluations and erosion protection measures should be considered for all future improvements.