available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee or apprentice in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by both the Department and the Federal Highway Administration. The Department and the Federal Highway Administration will approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee or apprentice for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with the State of California, Department of Industrial Relations, Division of Apprenticeship Standards recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the County prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office Engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the Contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the Contractor where he does one or more of the following and the trainees or apprentices are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or apprentice or pays the trainee's or apprentice's wages during the offsite training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee or apprentice as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee or apprentice will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees or apprentices be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees or apprentices specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.
Only trainees or apprentices registered in a program approved by the State of California's State Administrator of Apprenticeship may be employed on the project and said trainees or apprentices shall be paid the standard wage specified under the regulations of the craft or trade at which they are employed.

The Contractor shall furnish the trainee or apprentice a copy of the program he will follow in providing the training. The Contractor shall provide each trainee or apprentice with a certification showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

00-1.06.2 FEDERAL TRAINING PROGRAM

The Contractor shall comply with Federal Requirement Training Special Provisions included elsewhere in these bid documents.

Reimbursement to Contractor, as described in the Federal Requirement Training Special Provisions, will be paid for under the Bid Item "Federal Trainee Program".

00-1.07 ADDITIONAL FEDERAL REQUIREMENTS:

In addition to the requirement in the Instruction to Bidders, General Conditions, Special Provisions, and elsewhere in the Contract Documents, refer to **Appendix E** for Additional Federal Requirements and Forms.

00-1.08 ADDITIONAL INSURANCE REQUIREMENTS, ADDITIONAL INSURED LIST:

In addition to the requirements of General Conditions Section 4, "Insurance and Hold Harmless" of these contract documents, the Contractor's Certificate of Insurance and additional insured endorsements for the project shall name the following listed entities as additional insured under the Contractor's general liability, excess liability, and auto liability insurance policies, and each listed entity shall be named on the Waiver of Subrogation for the Contractor's Workers Compensation policy.

1. The City of Jurupa Valley, its elected and appointed officials, employees, agents, and representatives,
2. Jurupa Community Services District, its elected and appointed officials, employees, agents, and representatives,
3. Southern California Edison Company, its officials, employees, agents, and representatives,
4. Union Pacific Railroad Company , its officials, employees, agents, and representatives,

Each of the above listed entities shall also be held harmless, in accordance with the requirements of General Conditions Section 4, "Insurance and Hold Harmless" of these contract documents.

Refer to Appendix "E" page 78 of 84 of these Special Provisions for UPRR insurance requirements set forth in Exhibit "C" of Contractor's Right of Entry Agreement, "Insurance Provisions". Also refer to the Insurance provisions within the Railroad Specification of these Special Provisions. Additionally, refer to General Condition item 4, "Insurance and Hold Harmless. Contractor must provide one acceptable set of insurance documents for this project. For any differing provisions between the General Conditions and the UPRR requirements, insurance documents shall contain the higher of any stated coverage amounts and also contain the most stringent requirements.

Payment
Full compensation for compliance with the requirements of this Section shall be considered as included in the various items of work, and no additional compensation will be allowed therefor.

00-1.09 ADDITIONAL INSURANCE REQUIREMENTS, COURSE OF CONSTRUCTION INSURANCE:

The Contractor shall provide evidence of insurance and the required endorsements in accordance with these Special Provisions and shall declare all terms, conditions, coverage, limits, and policy deductible.

Contractor shall provide All Risk Builder's Risk (Course of Construction) insurance, including earthquake and flood, property at off-site storage locations and while in transit. Coverage shall include collapse, faulty workmanship debris removal, expediting expense, Fire Department Service charges, valuable papers and records, trees, grass, shrubbery and plants. Policy shall be written on a completed value form. Policy shall also provide coverage for temporary structures (onsite and offices, etc.), fixtures, machinery and equipment being installed as part of the construction project and Business Interruption coverage.

Contractor shall insure its own machinery, equipment, tools, etc., from any loss of any nature whatsoever. Coverage must be provided for the full term of construction, for the full value of the contract, with the following entities being named as insured or additionally insured regarding their respective interests under this contract:

1. Prime Contractor
2. All Subcontractors
3. County of Riverside
4. All owner's of right of way affected by this construction contract.
5. All owners of utilities affected by the construction contract.

The occurrence limit of the Course of Construction Insurance shall be for the full value of the contract. Course of Construction insurance shall include coverage for earth movement and flood damage, for the full value of the contract.

Course of Construction coverage shall be for all work included in the construction contract, as awarded by the County of Riverside.

Your attention is directed to section "Progress Payment" of these Special Provisions.

Payment
Full compensation shall be considered as included in the lump sum price for Course of Construction Insurance, and no additional compensation will be allowed therefor.

00-1.10 ENCROACHMENT PERMIT:

It shall be the responsibility of the Contractor to obtain a City of Jurupa Valley and Union Pacific Railroad Company Encroachment Permit for work within their jurisdiction or (Right of Way). The request submitted by the Contractor for payment for Encroachment Permit fees paid upon completion of all work done within Right-Of-Way shall include copies of the Encroachment Permit and all receipts and refund payment documents.

Payment
Full compensation for the actual cost of the Encroachment Permit fees, as paid by the Contractor to the City of Jurupa Valley and Union Pacific Railroad Company shall be made on a force account basis, up to the fixed bid price. No markups will be allowed. All incidental costs incurred by the Contractor shall be considered as included in the various items of work and no additional compensation will be allowed therefor.

00-1.11 PROGRESS PAYMENT RESTRICTIONS:

Attention is directed to Sections 9-1.16, "Progress Payments" and 9-1.17, "Payment After Contract Accectance" of the Standard Specifications and these Special Provisions.

For the purpose of making progress payments pursuant to Section 9-1.16, "Progress Payments" of the Standard Specifications, the amount set forth for the contract items of work hereinafter listed shall be

deemed to be the maximum value of the contract item of work, which will be recognized for progress payment purposes.

A.	Course of Construction Insurance	$ 52,600.00
B.	Water Pollution Control	$ 30,000.00
C.	De-Mobilization	$ 158,000.00
D.	Develop Water Supply	$ 20,000.00
E.	Resident Engineers Office	$ 50,000.00
F.	Progress Schedule (Critical Path Method)	$ 20,000.00
G.	Clearing and Grubbing	$ 75,000.00

After acceptance of the contract pursuant to the provisions in Section 5-1.46, "Final Inspection and Contract Acceptance" of the Standard Specifications, the amount, if any, payable for a contract item of work in excess of the maximum value for progress payment purposes hereinabove listed for the item, will be included for payment in the first estimate made after acceptance of the contract.

No progress payment will be made for any materials ordered, furnished, delivered and/or stored that are not incorporated in the construction project.

00-1.12 RECORD DRAWINGS:

The Contractor shall keep one clean set of bond originals to note any changes which take place during construction. These changes to the original plans and/or specifications shall be noted at the appropriate locations with the appropriate changes indicated in red pencil or ink. The Contractor shall note in large letters "RECORD DRAWINGS" on the Title Sheet of the plans. The project will not be accepted as finalized by the Engineer until these record drawings have been completed to the satisfaction of the Engineer. The changes shall be noted on the plans as the changes occur. The record drawings shall be submitted to the Resident Engineer, and become the property of the County at the conclusion of this project.

Payment
Full compensation for maintaining and compiling the Record Drawings shall be considered as included in the various items of work and no additional compensation will be allowed therefor.

00-1.13 COOPERATION:

Attention is directed to Section 5-1.20 "Coordination with Other Entities" of the Standard Specifications and these Special Provisions.

Attention is directed to Section 5-1.36D, "Non-highway Facilities," of the Standard Specifications.
Should construction be under way by other forces, or by other Contractors, adjacent to the work specified, the Contractor shall cooperate to avoid delay or hindrance to such construction.

The Contractor shall communicate on a regular basis with the other Contractors and agencies responsible for the other near vicinity projects.

Contractor is required to attend all construction progress meetings for this project as needed.

Should construction be under way by other forces or by other Contractors within or adjacent to the limits of the work specified or should work of any other nature be under way by other forces within or adjacent to those limits, the Contractor shall cooperate with all the other Contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces.

Each Contractor shall be responsible to the other for all damage to work, to persons or property caused to the other by their operations, and for loss caused the other due to unnecessary delays or failure to finish the work within the time specified for completion.

Payment
Full compliance with the requirements of this item including cooperating and coordinating with other Contractors, shall be considered as included in the various items of work, and no additional compensation will be allowed therefor.

00-1.14 PARTNERING:

Attention is directed to Section 5-1.09, "Partnering" of the Standard Specifications.

The County of Riverside will promote the formation of a "Partnering" relationship with the Contractor in order to effectively complete the contract to the benefit of both parties. The purpose of this relationship will be to maintain cooperative communication and mutually resolve conflicts at the lowest possible management level.

The Contractor may request the formation of such a "Partnering" relationship by submitting a request in writing to the Engineer after approval of the contract. If the Contractor's request for "Partnering" is approved by the Engineer, scheduling of a "Partnering" workshop, selecting the "Partnering" facilitator and workshop site, and other administrative details shall be as agreed to by both parties.

The costs involved in providing a facilitator and a workshop site will be borne equally by the County of Riverside and the Contractor. The Contractor shall pay all compensation for the wages and expenses of the facilitator and of the expenses for obtaining the workshop site. The State's share of such costs will be reimbursed to the Contractor in a change order written by the Engineer. Markups will not be added. All other costs associated with the "Partnering" relationship will be borne separately by the party incurring the costs.

The establishment of a "Partnering" relationship will not change or modify the terms and conditions of the contract and will not relieve either party of the legal requirements of the contract.

00-1.15 CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGNS:

The Contractor shall furnish and install Two (2) Construction Project Funding Identification Signs (4' X 8'); the signs shall be installed at locations to be determined by the Engineer, within or near the project limits, in accordance with the relevant requirements of Section 56-2 of the Standard Specifications and the appropriate details of Standard Plans RS1 through RS4 for two post installation of signs, and as directed by the Engineer.

An exhibit displaying the text and colors of the sign will be provided to the Contractor prior to construction. The Contractor shall submit a copy of the final sign design for approval by the resident Engineer prior to fabrication.

The Contractor shall submit to the Engineer the final sign design in the form of an editable picture file in .eps format – Encapsulated PostScript file.

At the completion of the project, the signs will become property of the County. When directed by the Engineer, the Contractor shall remove all hardware from the signs. Posts and hardware shall become the property of the Contractor. The Contractor shall deliver and off-load the signs to the address listed below or as directed by the Engineer:

Riverside County Transportation Department
McKenzie Highway Operations Center

2950 Washington Street
Riverside, California 92504
Telephone (951) 955-6894

Payment
Full compensation for furnishing and installing Construction Project Funding Identification Sign, including transportation, furnishing all labor, materials, tools, equipment, and incidentals and for doing all the required work, including all necessary excavation and backfill, shall be considered as included in the various items of work, and no additional compensation will be allowed therefor.

00-1.16 NOTICE TO PROPERTY OWNERS:

The Contractor shall be responsible to distribute an information letter pertaining to the planned work to all affected residences and businesses, at least one week prior to commencing work adjacent to those residences and businesses. It shall be the responsibility of the Contractor to design the information letter, obtain design approval from the Engineer, print sufficient copies, and distribute the letter. The Transportation Department logo and City of Jurupa Valley Logo shall be included on the letter. A computer file of the logo may be obtained from the Engineer. The letter shall be similar to a sample to be provided by the Engineer, and shall include a project description, the scope of work, the anticipated construction schedule, and other information as appropriate.

The Contractor shall post temporary no parking signs on affected streets 24 hours prior to work on those streets. The temporary no parking signs shall state the anticipated dates and hours of work on those streets.

Contractor shall provide and maintain access to all residents and businesses including MWD and Crest Steel at all times.

Payment
Full compensation for preparing and distributing Notice to Property Owners shall be considered as included in the Lump Sum price bid paid for Traffic Control System and no additional compensation will be allowed.

00-1.17 JOB SITE POSTERS:

Contractor shall obtain, furnish, post, preserve and maintain notices and posters in areas readily accessible to all personnel. Areas include, but are not limited to, jobsite trailer common area, material staging area, designated area where employees meet to take shift breaks, and /or equipment storage area. The designated location(s) of posters must be approved by the Engineer.

If posters are placed outside, they will need to be weatherproofed.

Copies of the posters may be obtained at the Caltrans Division of Construction Website:

http://www.dot.ca.gov/hq/construc/LaborCompliance/posters.htm

The Contractor shall check the website periodically for poster updates, additions, and changes. Contact information for various government agencies associated with poster information are provided at this website with links.

The following is a list of required posters:

Document number	Poster Name	Note/ Comment
-	Notice of Labor Compliance Program Approval	Required in English and Spanish and for all projects.
DFEH 162	Discrimination and Harassment in Employment are Prohibited by Law	Required in English and Spanish and for all projects.
DSLE 8	Payday Notice	Required for all projects.
WH Publication 1321	Davis-Bacon Act Poster (Notice to All Workers Working on Federally Financed Construction Projects)	Required in English and Spanish and for Federally funded projects.
FHWA 1495	Wage Rate Information Federal-Aid Highway Project	Required in English and Spanish and for Federally funded projects.
EEOC P/E-1	Equal Employment Opportunity is THE LAW (Revised 11/09)	Required in English and Spanish and for Federally funded projects.
FHWA 1022	False Statement Notice	Required for Federally funded projects.
OSHA 3165 (3167-Spanish)	Job Safety and Health – It's the law!	Required in English and Spanish and for Federally funded projects.
WHD Publication 1088	Employee Rights Under the Fair Labor Standards Act (Revised July 2009)	Required for Federally funded projects.
WHD Publication 1420	Employee Rights And Responsibilities Under The Family And Medical Leave Act (Revised January 2009)	Required for Federally funded projects.
WH Publication 1462	NOTICE Employee Polygraph Protection Act (June 2003)	Required for Federally funded projects.
-	Whistleblower Poster	Required for ARRA funded projects.

Though not posters, but included in the listing above, are the Federal (Davis-Bacon) wage rates and the California State prevailing wage rates, which are applicable to this specific contract, and also to be posted at the job site. See Section 5-2 "Federal Prevailing Wage Decision" or see correlated addendum that updates this referenced section.

Additionally, copies of the U.S. Department of Transportation Federal Highway Administration (FHWA) posters may be obtained at the FHWA Website:

http://www.fhwa.dot.gov/programadmin/contracts/poster.cfm
The revision dates shown in this listing were current as of April 20, 2010.

Payment

Full compensation for obtaining, furnishing, posting, preserving and maintaining all notices and job site posters shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

00-1.18 BUY AMERICA REQUIREMENTS:

Refer to Section 6-2.05, "Buy America" of the Standard Provisions.

Attention is directed to the "Buy America" requirements of the Surface Transportation Assistance Act of 1982 (Section 165) and the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) Sections 1041(a) and 1048(a), and the regulations adopted pursuant thereto. In conformance with the law and regulations, all manufacturing processes for steel and iron materials furnished for incorporation into the work on this project shall occur in the United States; with the exception that pig iron and processed, pelletized and reduced iron ore manufactured outside of the United States may be used in the domestic manufacturing process for such steel and iron materials. The application of coatings, such as epoxy coating, galvanizing, painting, and other coating that protects or enhances the value of steel or iron materials shall be considered a manufacturing process subject to the "Buy America" requirements.
A Certificate of Compliance, conforming to the provisions in Section 6-1.07, "Certificates of Compliance" of the Standard Specifications, shall be furnished for steel and iron materials. The certificates, in addition to certifying that the materials comply with the specifications, shall specifically certify that all manufacturing processes for the materials occurred in the United States, except for the above exceptions.

The requirements imposed by the law and regulations do not prevent a minimal use of foreign steel and iron materials if the total combined cost of the materials used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or $2,500, whichever is greater. The Contractor shall furnish the Engineer acceptable documentation of the quantity and value of the foreign steel and iron prior to incorporating the materials into the work.

00-1.19 OBSTRUCTIONS

Attention is directed to General Condition's item 27, "Obstructions".

Attention is directed to Sections 5-1.36, "Property and Facility Preservation", 15, "Existing Facilities" 7-1.05 'Indemnification" and 7-1.06 "Insurance" of the Standard Specifications and these Special Provisions.

Existing utility and privately owned facilities shall be protected in accordance with Section 5-1.36, "Property and Facility Preservation" and these Special Provisions. The Contractor is also responsible to protect those facilities that are to be relocated by others prior to or during construction, and shall protect those facilities in both their existing and their ultimate locations. The Contractor shall cooperate with owners and their Contractors of utility and privately owned facilities, for the relocation of said facilities, in accordance with Section 5-1.20, "Coordination with other Entities" of the Standard Specifications.

All water valves and covers, gas valves and covers, sewer manholes, survey monuments, survey markers and any other utility appurtenances shall be protected in place.
The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workmen and the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipe lines greater than 6 inches in diameter or pipe lines operating at pressures greater than 60 psi (gage); underground electric supply system conductors or cables either directly buried or in duct or conduit which do not have concentric neutral conductors or other effectively grounded metal shields or sheaths; and underground electrical conductors with potential to ground of more than 300 volts. The Contractor shall notify the Engineer at least twenty-four hours prior to performing any work in the vicinity of such facilities.

Attention is directed to the requirements of Government Code Sections 4216-4216.9 pertaining to existing utility facilities.

The Contractor shall assume that every house, building and lot within the project limits has utility service pipes and conductors (laterals), and that utility main and trunk facilities exist within the project limits. The Contractor shall determine if it is warranted to determine the exact location of these utility service laterals and existing main lines, unless directed by the Engineer to pot-hole at specific locations, or as otherwise required herein. The Contractor will not be directly reimbursed for determining the exact location of the utility main lines or services laterals but shall include any compensation for this work in the contract price paid for the various items of work. Any damage to existing main lines or service laterals for which pot-holing was not performed shall be considered damage due to not using reasonable care and the damage shall be repaired at the Contractor's expense.

The Contractor shall conduct his operations with the assumption that underground utility facilities exist within the project limits. The Contractor shall exercise caution and best construction practices for safety and for protection of underground facilities. The approximate locations of underground utility facilities, as shown on the plans, are based on information provided by the respective owners, listed below. The Contractor shall also utilize the markings of the regional notification center (Underground Service Alert), and above-ground utility appurtenances to determine the existence and approximate location of underground utilities.

No excavation shall be made within 4 feet of any underground utilities, as shown on the plans and/or marked by Underground Service Alert, unless and until such utilities have been positively located as to horizontal and vertical position. This requirement applies to all underground electric, natural gas, toxic or flammable gas, chlorine, oxygen or petroleum facilities.

The Contractor is advised that abandoned or active utility facilities may exist within the project limits, which were not known to the design Engineer and which are not shown on the plans. The Contractor shall immediately inform the Engineer if any such utility facilities are encountered within the project limits so that resolution can be initiated if a conflict exists. Any utility facilities that have been encountered, and which have been determined by the Engineer to be abandoned, shall be cut and capped and disposed-of as directed by the Engineer. Removal, capping and disposal of abandoned utility conduits, conductors, pipe and other facilities shall be considered as incidental excavation, and shall be included in the contract unit price for Clearing and Grubbing or Excavation, and no additional compensation will be allowed therefor.

In the event that the Contractor encounters abandoned or active Asbestos Cement pipe, or any other utility facility containing or suspected of containing asbestos, the Contractor shall immediately notify the Engineer, and will cease work in the vicinity of the encountered material. The Engineer will endeavor to have any such conflicting facilities removed or relocated by the owner of the facilities. If so ordered by the Engineer, the Contractor or his sub-contractor will remove and dispose of abandoned utility facilities containing or suspected of containing asbestos accordance with the health and safety requirements for handling the material, using properly trained and licensed personnel. Said work shall be considered as extra work.

Forty-eight hours prior to beginning construction, the Contractor shall notify the following agencies:

Underground Service Alert	800-227-2600
AT & T California	714-963-7964
Charter Communications	951-343-5100
Jurupa Community Services District	951-685-7434
Santa Ana Watershed Project Authority	951-354-4220
Southern California Edison Company	909-357-6709
Southern California Gas Company	909-335-7561

Payment

Full compensation for all costs, including labor, equipment, materials and incidentals, required to comply with the requirements of this section above, including protection of water valves and covers, gas valves and covers, sewer manholes, survey monuments, survey markers and any other utility appurtenances, shall be considered as included in the various items of work, and no additional compensation will be allowed therefor.

Adjustments to Grade for Obstructions

The Contractor shall adjust to finish grade any valve covers encountered within the project limits, as required, for those utility valves that are provided with slip cans and are adjustable without the replacement of parts or the removal of concrete collars. In cases where the owning utility company insists upon upgrades in the standards, or when additional parts or the removal of concrete collars are required for the adjustment, said adjustment will be the responsibility of the owning utility company.
Communication and coordination with the owning utility company shall be the responsibility of the Contractor.

For public safety, traffic shall not be allowed on temporary or permanent pavement until all manholes are either adjusted to grade or otherwise protected, as approved by the Engineer. The Contractor shall adjust to grade manholes and valves when and as necessary for the protection of the traveling public during construction, and shall coordinate all work on said facilities with the owning utility companies. This requirement is intended for traffic that is to be allowed on temporary surfaces during the course of construction. Final adjustment to grade will be the responsibility of the owning utility company, except as provided herein.

Said work shall be performed in accordance with Section 15-2.10B, "Adjust Frames, Covers, Grates, and Manholes" of the Standard Specifications. Full compensation for adjustment of valve covers shall be considered as included in the contract price paid for asphalt concrete or applicable items of work in the event that there is no asphalt concrete bid item, and no additional compensation will be allowed therefor.
All existing utility facilities shall be protected from damage by the Contractor's operations.
Unless otherwise provided herein, the owning utility companies will not be obligated to lower their surface utilities (manholes and valve covers) for Contractor's grading, grinding and/or paving operations. The contractor shall lower surface facilities, including manholes and valve covers, to facilitate construction, and the following shall apply:

1. Contractor shall coordinate all work with the utility owner.

2. Contractor shall be responsible for all costs and shall be responsible for any damage caused to the owner's facilities. If the Contractor observes any pre-existing damage to the utility facilities, the Contractor shall notify the Engineer and the utility owner of that damage prior to performing additional work on the facility.

3. Contractor shall, after removing grade rings and covers, arrange for pickup by, or delivery to, the owner's yard. Any and all concrete collars removed by the Contractor shall become the property of the Contractor, and shall be disposed of as specified elsewhere in these special provisions.

4. The Contractor is advised that he is responsible for ensuring that construction materials do not enter the utility owner's facilities. The Contractor shall install traffic bearing steel plates for this purpose, and provide all coordination and transportation necessary. It is recommended that the Contractor request the utility owner to provide such steel plates. If the Contractor provides steel plates, it shall be the Contractor's responsibility to coordinate with the utility owner for the return of the steel plates to the Contractor after final adjustment to grade. If the Contractor utilizes utility owner's steel plates, and if the Contract items of work include adjustment to final grade, the Contractor shall return the steel plates to the Utility owner's yard, or as otherwise arranged with the Utility owner.

5. Prior to paving or covering the plated utility facility, the Contractor shall tie-out the facility utilizing a method acceptable to the utility owner and provide notes and data of all covered facilities to both the utility owner and the Engineer.

6. The Contractor shall notify the utility owner, upon completion of the Contractor's work, when the utility owner may move in to make the final adjustments to grade.

7. The requirements for lowering of surface facilities shall not apply to vaults. The Contractor shall notify the utility owner of the need to make adjustments to such major facilities.

8. The Contractor is reminded that the utility facilities are owned by public and private utility companies that operate their facilities within public rights of way. The utility owner's preferences with regards to the handling of its facilities shall be complied with to the greatest extent possible.

9. Contractor shall repair damaged signals detector loops

Payment
Full compensation for initial lowering of surface utilities facilities shall be considered as included in the contract price paid for Hot Mix Asphalt, and no additional compensation will be allowed therefor.

00-1.20 DISPOSAL OF EXCESS EXCAVATION OR MATERIALS:

Attention is directed to Section 16-1.03D, "Disposal of Materials", of the Standard Specifications and these Special Provisions.

Excess earth excavation, pavement grindings and other excess materials resulting from construction operations shall be disposed of by the Contractor outside of the highway right of way.
When any material is to be disposed of outside the highway right of way, and the County has not made arrangements for the disposal of such material, the Contractor shall first obtain written authorization from the property owner on whose property the disposal is to be made, and obtain all required permits from the jurisdictional agency(s) for said work, and Contractor shall file with the Engineer said authorization or a certified copy thereof together with a written release from the property owner absolving the County from any and all responsibility in connection with the disposal of material on said property. If the disposal of materials is to be made at an established disposal facility that is available for public use, the Contractor shall retain all authorizations and receipts from said disposal facility and shall provide copies to the Engineer upon request.

Payment
Full compensation for all costs involved in disposing of materials as specified in this section, including all costs of hauling, shall be considered as included in the various contract items of work and no additional compensation will be allowed therefor.

00-1.21 GRAFFITI REMOVAL AND CLEANING:

The Contractor shall remove existing graffiti within the project limits and any new graffiti produced during the construction period of the project.

Contractor shall submit a method of graffiti removal plan to the Engineer for approval. Sand blasting will not be allowed. Methods may include but not limited to power washing, solvent washing, and painting over graffiti, as appropriate for the surface to be cleaned.
All graffiti shall be completely removed or obliterated and the area feathered out to hide any imperfections.

Graffiti shall be removed from, but not limited to, the surfaces listed as follows: bricks, cinder blocks, concrete sidewalks, pavement, bridge under passes, overhead structures, drainage channels, roadside signs, temporary construction signs, barricades, k-railing, traffic control devices, all types of poles, and other objects within the project limits as directed by the Engineer. Painting of k-railing for the purposes of graffiti removal shall not be considered as repainting as outlined in paragraph one of Section 12-3.08 and shall not be paid for as extra work.

Graffiti to be removed may include, but shall not be limited to: paint, signs, wood, metal, plastic, decals, gum, markers, crayons, ropes, chains, strings, wires, and tapes of any kind on an as needed basis.
All painting over graffiti must be done with exact color matches, so as not to show any blocking or shadowing of colors. Painting over graffiti is the preferred option on previously painted surfaces, and where solvents are unsuccessful at removing graffiti. Painting services shall be done on an as needed

basis on the following types of surfaces, but not limited to: walls, hardscapes, poles, fences, bollards, railings, and buildings.

Paint shall be exact color match. Paint types may include oil base, water base and enamels as approved by the Engineer. Graffiti cover-up by paint will be allowed with appropriate type of paint at locations where graffiti cannot be removed only upon direction by the Engineer. All paint applications shall adhere to the manufacture's recommendations. All material and solutions shall be safe and biodegradable and approved by the Engineer.

Regional Water Quality Control Board (RWQCB) and Air Quality Management District (AQMD) regulations, as well as all NPDES required best management practices shall be complied with and followed.

The Contractor shall so conduct his operation as to cause the least possible obstruction and inconvenience to public traffic. The Contractor shall provide, erect and maintain barricades, lights, danger signals, and warning signs as deemed appropriate by the Engineer.

When necessary, the Contractor shall provide and erect safe and adequate scaffolding and equipment, barriers, and masking, required for the proper execution of the work. All scaffolding shall be properly braced and erected to insure the safety of the workmen and meet all appropriate OSHA regulations.
The Contractor shall respond and provide manpower for any urgent graffiti removal and cleaning notifications within two (2) working days.

Payment

Full compensation for conformance with these Graffiti Removal and cleaning requirements, including labor, equipment, materials, necessary traffic control, and incidentals, shall be paid at the lump sum price for Traffic Control System, and no additional compensation will be allowed therefor.

00-1.22 PROJECT APPEARANCE:

Attention is directed to General Condition 26, "Use, Care and Protection of Premises."
The Contractor shall maintain a neat appearance to the worksite. The parkway between the pavement and property line is generally maintained free of trash and debris by the adjacent property owners. The Contractor shall inform all workers to be respectful of the property owners and maintaining the parkways and street adjacent to their homes.

The Contractor must maintain a neat appearance to the work.
In areas visible to the public, the following shall apply:

A. When practicable, broken concrete and debris developed during clearing and grubbing shall be disposed of concurrently with its removal. If stockpiling is necessary, the material shall be removed or disposed of weekly.

B. Trash bins shall be furnished for debris from structure construction. Debris shall be placed in trash bins daily.

C. Forms or falsework that are to be re-used shall be stacked neatly concurrently with their removal. Forms and falsework that are not to be re-used shall be disposed of concurrently with their removal.

Prior to the leaving the project site daily, the Contractor shall collect and dispose of any trash or debris within the project area.

Liquidated Damages:
If the Contractor fails to comply with the requirements of these Special Provisions, the Contractor shall pay to the County of Riverside the sum of **$500.00** per day for each and every calendar day's delay after the expiration of 48 hours notification from the Engineer.

Payment
Full compensation for conforming to the requirements of this section, Project Appearance, shall be considered as included in the various items of work involved and no additional compensation will be allowed therefor.

00-1.23 SURVEY STAKING:

Section 5-1.26, "Construction Surveys" of the Standard Specifications is deleted and replaced with the following provisions.

County surveyors will establish external primary survey control monuments and/or marks to be used throughout the construction period. These control monuments and marks are to be protected by Contractor and will be used to set construction stakes and/or marks. The control marks will also be used to make verification surveys at various stages of work.

Survey monuments, stakes and marks are set per the County's Survey Manual.
Contractor must submit a written request for County furnished construction staking before, or immediately after, area to receive staking is ready for the installation of the construction stakes.

The County will provide Contractor with a survey request form. Survey staking requests must be received from Contractor a minimum of two (2) Business Days prior to the installation of the requested construction staking. The County shall receive written survey request on operating Business Day, Monday through Thursday, and prior to 4:00 p.m. Requests received after 4:00 p.m. or on any other day, shall be considered as submitted at 7:30 a.m. the next Business Day.

Contractor must preserve primary survey control monuments and marks, construction stakes and construction marks placed by the County. Survey costs are incurred by the County; however, if the Contractor fails to protect and/or destroys these survey items, the County shall replace them at the County's earliest convenience and deduct the cost of replacement from payment due to the Contractor.

00-1.24 DE-MOBILIZATION:

De-mobilization shall consist of the completion of all final construction, cleanup work, incidentals to the project site(s), and administrative work required to secure the project for termination and acceptance by the Engineer, including, but not limited to the following:

1. Satisfactory completion of Finishing Roadway in accordance with Section 22 "Finishing Roadway" of the Standard Specifications.
2. Removal of all temporary facilities, temporary utilities, plant, equipment, surplus material, construction debris and similar from project limits and adjacent property, as required and as directed by the Engineer.
3. Restoration of all temporary roads and haul routes and construction storage and office areas, etc. to original or better condition.
4. Completion of record of drawings (as-builts), to the satisfaction of the Engineer.
5. Submission of final Disadvantaged Business Enterprise report to the Engineer.
6. Submission of final certified payroll documents to the Engineer.
7. Submission of property owner releases, as required by the Engineer.
8. Completion of the requirements of permits issued by other agencies.
9. Satisfactory completion of punch list items, all construction and administrative items of work.

De-Mobilization shall include the satisfactory completion of all items of work, but shall not be interpreted as being a separate payment for work that is paid under separate contract items. The contract item for De-Mobilization is intended for project close-out activities.

Payment
Payment for De-Mobilization will be made on a lump-sum basis in the amount of the fixed bid price after satisfactory completion of the above listed items. Payment for De-Mobilization will be included in the final pay estimate and payment. No progress payments will be made for De-Mobilization.

00-1.25 TRAFFIC CONTROL SYSTEM / PUBLIC CONVENIENCE / PUBLIC SAFETY:

County is providing construction staging plans for this project. Contractor shall prepare and traffic control plans for review and approval by the Transportation Department and City of Jurupa Valley.

Proposed plans shall be submitted by the Contractor for review and approval by the Transportation Department and the City of Jurupa Valley at least two weeks prior to the start of construction. The traffic control plans shall be prepared, signed and stamped by a Civil Engineer or Traffic Engineer who is registered as such in the State of California, unless otherwise specifically allowed by the Engineer. The Contractor shall revise and implement the plans as directed by the Construction Engineer. Construction shall not begin until the Engineer provides Contractor with County approval of the plans.

Traffic control plans shall be in accordance with the appropriate standards and specifications for construction staging, detour roads, traffic control, including the State of California Highway Design Manual, the 2012 California Manual of Uniform Traffic Control Devices (MUTCD), the 2010 Standard Plans and Standard Specifications, and the Work Area Traffic Control Handbook (WATCH), as published by Building News, Inc. Any requests for deviation from the established design standards or specifications are to be submitted to the Construction Engineer for review and approval prior to submission of the required plans.

With regard to the preparation and implementation of the plans, attention is especially directed to Sections 7-1.02K(6), 7-1.03, 7-1.04, 5-1.36, 7-1.05, 7-1.06, and Section 12 of the State of California Standard Specifications. Section 12-2.03 "Flagging Cost" of the Standard Specifications is deleted.

Maintaining traffic shall conform to the provisions in 5-1.37B "Load Limits", 7-1.02K(6) "Occupational Safety and Health Standards", 7-1.03 "Public Convenience", 7-1.04 "Public Safety", and 12-3.04 "Portable Delineators" of the Standard Specifications, the Manual on Uniform Traffic Control Devices 2012 Edition, the corresponding California Supplement, and subsequent modifications as adopted by the State of California Department of Transportation, the Section of these contract documents entitled "Insurance - Hold Harmless", and these Special Provisions.

All existing traffic control signs and street name signs shall be maintained in visible locations as directed by the Engineer.

All warning lights, signs, flares, barricades and other facilities for the sole convenience and direction of public traffic shall be furnished and maintained by the Contractor. All traffic control devices shall conform to and be placed in accordance with the 2012 California Manual of Uniform Traffic Control Devices (MUTCD), the corresponding California Supplement, and subsequent modifications as adopted by the State of California Department of Transportation.

All construction signs shall be either covered or removed when not required by the nature of the work or if no present hazard to the motorist exists.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but not limited to, the following:

Notification Center	Telephone Number

Underground Service Alert-Southern California (USA)	1-800-422-4133 1-800-227-2600 or 811

Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed post holes.

No payment for extra work will be allowed for work performed as specified in Section 12-2.03 (Flagging Costs) of the Standard Specifications. Flagging costs will be borne entirely by the Contractor.

The Contractor shall be responsible to distribute an information letter pertaining to the planned work to all affected residences and businesses, at least one week prior to commencing work adjacent to those residences and businesses. It shall be the responsibility of the Contractor to design the information letter, obtain design approval from the Engineer, print sufficient copies, and distribute the letter. The Transportation Department logo and City of Jurupa Valley logo shall be included on the letter. A computer file of the logo may be obtained from the Engineer in .WPG, .DXF, .DGN or .DWG format. The letter shall be similar to the sample provided by the Engineer, and shall include a project description, the scope of work, the anticipated construction schedule, and other information as appropriate.

The Contractor shall post temporary no parking signs on affected streets 24 hours prior to work on those streets. The temporary no parking signs shall state the anticipated dates and hours of work on those streets.

Payment

Full compensation, except as otherwise provided herein, for conforming to the requirements of this article, including furnishing, installing and maintaining all traffic control devices shown on the construction staging and traffic control plans, including construction area signs, channelizers, portable changeable message signs, temporary pavement markers, temporary traffic stripes, shall be considered as included in the contract lump sum price paid for Traffic Control System, and no additional compensation will be allowed therefor.

DIVISION I GENERAL PROVISIONS

2 BIDDING

Note No.1 Refer to "Instruction to Bidders" and "General Conditions" sections for bidding information

Note No2: Section 2 "Bidding" of standard Specifications does not apply except the section listed below.

Add to section 2-1.06B:

The County of Riverside makes the following supplemental project information available during advertisement period for free download on County's website address below:
http://www.tlma.co.riverside.ca.us/trans/con_bid_advertisements.html

Supplemental Project Information

Means	Description
Included in the Information Handout	Engineering and Geotechnical Reports
Available for inspection at RCTD offices	Engineering and Geotechnical Reports Cross Sections
	Drainage Report Pothole information Environmental Clearance C&M Agreement Geotechnical Report Pump Test Report

Note No.1 Refer to "Instruction to Bidders" and "General Conditions" sections for bidding information

NoteNo2: Section 2 "Bidding" of standard Specifications does not apply, except above referenced section. Refer to Note No.1 above for bidding requirements for this project.

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4 SCOPE OF WORK
Add to section 4-1.03 Work Description

Attention is directed to Section 00-1.01 PROJECT DESCRIPTION of these Special Provisions

A. DESCRIPTION OF BRIDGE WORK

The bridge work to be constructed consists, in general, of constructing the following structure along with retaining walls as shown on the plans, and briefly described as follows:

Clay Street Underpass
Bridge No. 56C-xxxx
DOT Crossing No. 906015V

The structure is a two span precast prestressed concrete "I" girder bridge approximately 105 feet long and 60 feet wide.

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5-CONTROL OF WORK

Add to section 5-1.20C "Railroad Relations" with the following "Railroad Specifications":

Railroad Specifications

GENERAL

The term "Railroad" in this Section shall be understood to mean the Union Pacific Railroad Company. It is expected that the Railroad will cooperate with the Contractor to the end that the work may be handled in an efficient manner. However, except for the additional compensation provided hereinafter for delays

in completion of specific units of work to be performed by the Railroad, and except as provided in Public Contracts Code Section 7102, the Contractor shall have no claim for damages, extension of time, or extra compensation in the event his work is held up by any of the work to be performed by the Railroad.

The Contractor must understand the Contractor's right to enter Railroads property is subject to the absolute right of Railroad to cause the Contractor's work on Railroad's property to cease if, in the opinion of Railroad, Contractor's activities create a hazard to Railroad's property, employees, and/or operations. The Contractor will be required to sign and submit to the Railroad the Contractor's Endorsement, in the form attached hereto.

All employees and representatives of the Contractor and its sub-contractors that are expected to be physically within the right-of-way of the Railroad shall be safety trained and certified. Additionally, any employees or representatives of the Contractor who perform operations which have the potential to foul the tracks shall be safety trained and certified. Such training and certification will be provided by the Union Pacific Railroad or by a recognized provider such as "e-railsafe" and at Contractor's expense.

Number of trains per day: Freight = 13
Passenger =21

For additional Railroad information and requirements not addressed in the construction documents. The Contractor shall refer to the Railroad web address:
http://www.uprr.com/aboutup/operations/specs/index.shtml

RAILROAD REQUIREMENTS

The Contractor shall notify the Railroad and the Engineer, in writing, at least 90 calendar days, 60 calendar days, and again in 30 calendar days before performing any work on, or adjacent to, the property or tracks of the Railroad.

The Contractor shall cooperate with the Railroad where work is over or under the tracks, or within the limits of Railroad property, in order to expedite the work and to avoid interference with the operation of railroad equipment.

The Contractor shall comply with the rules and regulations of Railroad or the instructions of its representatives in relation to the proper manner of protecting the tracks and property of Railroad and the traffic moving on such tracks, as well as the wires, signals and other property of Railroad, its tenants or licensees, at and in the vicinity of the work during the period of construction.

The Contractor shall perform its work in such manner and at such times as shall not endanger or interfere with the safe operation of the tracks and property of Railroad and traffic moving on such tracks, as well as wires, signals and other property of Railroad, its tenants or licensees, at or in the vicinity of the work.

The Contractor shall take protective measures necessary to keep railroad facilities, including track ballast, free of sand or debris resulting from his operations. Any damage to railroad facilities resulting from Contractor's operations will be repaired or replaced by Railroad and the cost of such repairs or replacement shall be deducted from the Contractor's progress and final pay estimates.

The Contractor shall contact the Railroad's "Call Before You Dig" at least 48 hours prior to commencing work, at 1-800-336-9193 (a 24 hour number) to determine location of fiber optics. If a telecommunications system is buried anywhere on or near railroad property, the Contractor will co-ordinate with the Railroad and the Telecommunication Company(ies) to arrange for relocation or other protection of the system prior to beginning any work on or near Railroad Property.

The Contractor shall not pile or store any materials nor park any equipment closer than 25' 0" to the centerline of the nearest track, unless directed by Railroad's representative.

The Contractor shall also abide by the following temporary clearances during the course of construction:

12' 0" horizontally from centerline of track

21' 0" vertically above top of rail

The temporary vertical construction clearance provided above will not be permitted unless authorized by the Railroad. In the event authorization is not received by the time specified, and, if in the opinion of the Engineer, the Contractor's operations are delayed or interfered with by reason of authorization not being received by the said time, the County will compensate the Contractor for such delay to the extent provided in Section 8 "PROSECUTION AND PROGRESS," of the Standard Specifications and not otherwise.

Walkways with railing shall be constructed by Contractor over open excavation areas when in close proximity of tracks, and railings shall not be closer than 8' 6" horizontally from centerline of the nearest track, if tangent, or 9' 6" if curved.

Any infringement on the above temporary construction clearances due to the Contractor's operations shall be submitted to the Railroad by way of Engineer, and shall not be undertaken until approved by the Railroad. No extension of time or extra compensation will be allowed in the event the Contractor's work is delayed pending Railroad approval.

When the temporary vertical clearance is less than 22' 6" above top of rail, Railroad shall have the option of installing other protective devices that the Railroad deems necessary for protection of Railroad trainmen or rail traffic.

Four sets of plans, in 11" x 17" format, and two sets of calculations showing details of construction affecting the Railroad's tracks and property not included in the contract plans, including but not limited to shoring and falsework, shall be submitted to the Engineer for review prior to submittal to Railroad for final approval. Shoring and falsework design shall be in accordance with the "Guidelines for Design and Construction of Grade Separation Underpass Structures", latest edition, issued by the Railroad's Office of Chief Engineer and Caltrans "Trenching and Shoring Falsework Manual," latest edition, issued by the Office of Structure Construction. Shoring and falsework plans and calculations shall be prepared and signed by a registered professional engineer. This work shall not be undertaken until such time as the Railroad has given such approval; review by Railroad may take up to 12 weeks after receipt of all necessary information.

The Contractor shall notify the Engineer in writing, at least 25 calendar days but not more than 40 days in advance of the starting date of installing temporary work with less than permanent clearance at each structure site. The Contractor will not be permitted to proceed with work across railroad tracks unless this requirement has been met. No extension of time or extra compensation will be allowed in the event that the Contractor's work is delayed because of his failure to comply with the requirements in this paragraph.

No blasting will be permitted by Contractor unless approved by the Railroad.

The Contractor shall, upon completion of the work covered by this contract to be performed by Contractor upon the premises or over or beneath the tracks of Railroad, promptly remove from the premises of Railroad all of Contractor's tools, implements and other materials, whether brought upon said premises by said Contractor or any subcontractor, employee or agent of Contractor or of any sub-contractor, and cause said premises to be left in a clean and presentable condition.
All under track pipeline installations shall be constructed in accordance with Railroad's current standards which may be obtained from Railroad. The general guidelines are as follows:

Edges of jacking or boring pit excavations shall be kept a minimum of 20 feet from the centerline of the nearest track. Pipe crossings shall be encased unless plans for the uncased crossing are reviewed and approved by the Railroad. The top of the steel pipe casing shall be at least 66 inches below base of rail. Installation of any pipe or conduit under Railroad's existing tracks is to be done by dry bore and jack method. No hydraulic jacking or boring will be permitted. Care is to be exercised so as not to damage any underground facilities of Railroad.

SAFETY AND WORK AROUND RAILROAD OPERATIONS

The provisions specified herein are specific Railroad requirements.

SAFETY

Safety of personnel, property, rail operations and the public is of paramount importance in the performance of the work. As reinforcement of overall safety measures to be observed by the Contractor (and not by way of limitation), the following special safety rules shall be followed in the railroad vicinity:

A. The Contractor shall keep the job site free from safety and health hazards and ensure that its employees are competent and adequately trained in all safety and health aspects of the job. The Contractor shall promptly notify Engineer and the Union Pacific Railroad of any U.S. Occupational Safety and Health Administration reportable injuries to any person that may arise during the work performed on the job site. The Contractor shall be responsible that its employees, while on the job site or any other property of the Railroad, shall not use, be under the influence of, or have in their possession any alcoholic beverage or illegally obtained drug, narcotic or other substance.

B. The employees of the Contractor shall be suitably dressed to perform their duties safely and in a manner that will not interfere with their vision, hearing or free use of their hands or feet. Only waist length shirts with sleeves and trousers that cover the entire leg are to be worn. If flare-legged trousers are worn, the trouser bottoms shall be tied to prevent catching. The employees shall wear sturdy and protective footwear. Employees shall not wear boots (other than work boots), sandals, canvas-type shoes or other shoes that have thin soles or heels that are more than two inches high. In addition, the Contractor shall require its employees to wear personal protective equipment as specified by Union Pacific Railroad's rules, regulations or Railroad officials overlooking the work at the job site. In particular, the protective equipment to be worn shall be:

   1. Protective head gear that meets the latest provisions of ANSI Z89.1, "Personnel Protection - Protective Headwear for Industrial Workers - Requirements." All hard hats shall be affixed with the Contractor's or sub-contractor's company logo or name and shall be affixed with safety training certificates.
   2. Eye protection that meets the latest provisions of ANSI Z87.1, "Practice for Occupational and Educational Eye and Face Protection." Additional eye protection must be provided to meet specific job situations such as welding, grinding, burning, etc.
   3. Hearing protection that affords enough attenuation to give protection from noise levels that will be occurring on the job site.

C. All heavy equipment provided or leased by the Contractor shall be equipped with audible back-up warning devices.

D. If, in the opinion of the Engineer or the Railroad's Representative, any of the Contractor's or any of its sub-contractor's equipment is unsafe for use on the Railroad's right-of-way, the Contractor, at the request of the Engineer or the Railroad's Representative, shall immediately remove such equipment from the Railroad's right-of-way.

WORK NEAR THE TRACK

Except as authorized by the Railroad through the Engineer, the Contractor shall not work within 25 feet of the centerline of any track, and shall locate all equipment, devices and materials at a sufficient distance from any track to ensure that no apparatus or part of any piece of equipment, device or material, such as the boom of a crane or a dragline, could under any circumstances reach closer than 25 feet to the centerline of any track. When the Contractor is required to work within 25 feet of the centerline of any track, the Railroad will provide flagmen at the Contractor's expense. The Contractor shall notify the Railroad and the Engineer at least 10 days in advance of the date the Contractor wishes to commence working within 25 feet of the centerline to provide the flagmen called for herein. The Contractor shall also notify the Railroad and the Engineer at least 8 days in advance of the date the Contractor will cease work within 25 feet of the centerline of any track.

CROSSINGS

Except as authorized by the Railroad through the Engineer, the Contractor shall not construct temporary crossings over any track at any location. Where temporary crossings are needed or desired, the Contractor shall make arrangements directly with the Engineer and the Railroad. Temporary crossings required by the Contractor for his convenience shall be constructed and later removed at the Contractor's expense. If the Contractor must cross tracks with cleated or crawler type equipment, then the track shall be protected with a temporary surfacing approved by the Engineer and the Railroad. The Railroad will provide flagmen at temporary crossings, provided however, that all flagging charges will be at the Contractor's expense. The Contractor shall notify the Railroad and the Engineer at least 10 days in advance of the date the Contractor wishes to commence using a temporary crossing. The Contractor shall also notify the Engineer at least 8 days in advance of the date the Contractor will cease using a temporary crossing.

EQUIPMENT

The Contractor's equipment shall be in good operating condition. The Engineer, the County, and the Railroad are not responsible for equipment failure. The Engineer, the City, and the Railroad will not be responsible for the Contractor's equipment which is stolen or vandalized.

INSPECTION

A representative of the Railroad will, at all times, have access to the work on Railroad property, wherever it is in progress. Except for emergencies or other railroad safety concerns, orders from the Railroad representative will be issued through the Engineer.

The Engineer shall decide all questions which may arise as to the quality or acceptability of materials furnished and the work performed; and the Contractor shall make any adjustments necessary as directed by the Engineer.

USE OF PREMISES

The Contractor shall confine construction equipment, the storage of materials and the operations of its workers to limits indicated by laws, ordinances, permits or directions of the Engineer, and shall not unreasonably encumber the premises with its materials. The Contractor shall enforce the Engineer's instructions regarding signs, advertisements, fire, and smoking.

COORDINATION OF WORK

The work involves construction and operations on the Railroad's right-of-way, and the Contractor will be required to coordinate its activities with the activities of the Railroad as well as others not party to the Contract.

The safe operations of the Railroad's trains shall take precedence over all work, and nothing shall be done or suffered to be done by the Contractor that will endanger the Railroad's operations.

The Contractor shall comply with the Railroad's rules and regulations concerning protection of persons and property, and Contractor shall consult with the Engineer concerning the Railroad's rules and regulations. Any questions arising about coordination of work between Contractor and the Railroad or between Contractor and others shall be taken up with the Engineer and a method of coordination agreed upon before the work is commenced.

The method of work will be left to the discretion of Contractor but shall in all cases be subject to the approval of the Engineer. Approval of the method of work shall not make the County, the Engineer or the Railroad responsible or liable in case of accident.

RAILROAD TRACKWORK CONSTRUCTION

This section covers construction of new ballasted track as shown on the plans and as specified.

All trackwork shall be continuously welded rail (CWR) except at compromise joints and insulated joints.

REFERENCES

The Contractor shall comply with the requirements of the reference standards noted in this section, except where more stringent requirements may be required by the Contract Documents. Applicable portions of the latest editions of the following codes and standards shall apply:

A. Union Pacific Railroad Common Standards and Standard Drawings.

B. American Railway Engineering and Maintenance-of-Way Association (AREMA), Manual for Railway Engineering, Volumes I and II:

Chapter 3, Part 5 - The Handling of Ties from the Trees into the Track
Chapter 4, Part 1 - Rail Drillings, Bar Punching, and Track Bolts
Chapter 4, Part 2 - Thermite Welding
Chapter 5, Part 4 - Specifications for Track Construction
Chapter 5, Part 5 - Track Maintenance - Laying and Maintenance of Continuous Welded Rail
Chapter 5, Part 6 - Specifications and Plans for Track Tools
Chapter 27, Part 2 - Specifications for On-Track Roadway and Machines and Work Requirements

C. American Society for Testing and Materials (ASTM):

D1248	Standard Specification for Polyethylene Plastics Molding and Extrusion Materials
D2240	Standard Specification for Rubber Property - Durometer Hardness
D4397	Standard Specification for Polyethylene for Construction, Industrial, and Agricultural Applications
E10	Standard Test Method for Brinell Hardness of Metallic Materials
E142	Standard Test Method for Controlling Quality of Radiographic Testing
E164	Standard Practice for Ultrasonic Examination of Weldments
E709	Practice for Magnetic Particle Examination

SUBMITTALS

Trackwork Plans

The Contractor shall submit a comprehensive work plan for all trackwork to the Railroad and the Engineer 30 calendar days after receipt of Notice to Proceed. The work plan shall be fully coordinated with delivery schedule for railroad-furnished materials, with milestones and delivery periods identified for each material. The plan shall define the Contractor's work sequence, schedule, methods and procedures to accomplish the required work, and shall:

A. Designate the rails that will be used as line and profile rails.
B. Establish a method for handling all ballast.
C. Include a continuous welded rail (CWR) utilization work plan. The CWR Utilization Work Plan shall be fully coordinated with City's rail delivery schedule and shall describe the following features:

1. Layout of CWR strings by length and type for main tracks.
2. Description of CWR laying operation, including equipment, fastening, anchoring and ballasting procedures.
3. Description of temperature adjustment and anchoring of CWR, including charts, tables, and field instructions on heating, cooling, and stretching.
4. Schedule and coordination milestones.
5. Plan of laydown areas and facilities.

D. Include rail end hardening process.

E. Establish detailed welding procedures, qualification test result reporting, and welding crew qualification test result reporting. The procedure shall cover a step-by-step process to be employed in making field thermite welds, and a similar procedure for electric flash-butt pressure welding, if used. A complete description of each of the following items and any other essential characteristics shall be included in the procedure:

1. Manufacturer's trade name for welding process.
2. Method used for cutting and cleaning of rail ends.
3. Minimum and maximum gap between rail ends.
4. Method and equipment used for maintaining rail gap and alignment during welding.
5. Method used for preheating including time and temperature.
6. Tapping procedure including minimum time required to cool weld under the mold insulation.
7. Method used, including a description of special tools and equipment, for removing gates and riser and finishing weld to final contour.

F. Establish a method for production welding test result reporting and providing field welding records.

G. Include a method for reporting temperature records for CWR track anchoring.

H. Include detailed procedures for insulated rail joint installation. Procedures shall include, at a minimum, the following items:

1. Care and storage of materials;
2. Rail end preparation;
3. Weather and temperature restrictions;
4. Mixing and application of glue;
5. Installation of D-bars and bolts;
6. Curing of glue including time required prior to resumption of traffic;
7. Detection of glue bond failure; and
8. Continuity test.

I. Include detailed procedures for unloading and storing cross ties, including laydown areas for ties delivered before the roadbed is ready for tie placement.

J. Include track installation inspection procedure.

K. Include track installation inspection records.

Any changes in the work plan shall be submitted, in writing, for the Engineer and the Railroad's review 10 days prior to the institution of that change.

Construction Equipment Maintenance Standards

When requested by the Engineer, the Contractor shall submit manufacturer's recommended maintenance standards for tools and equipment to be used by the Contractor for track construction.

Quality Control

The Contractor shall provide field quality control. The Contractor shall perform and document inspections during installation of trackwork and verify that all work conforms to the plans and these special provisions. The Contractor shall verify the following items are in compliance with the plans and these special provisions requirements:

A. Material storage and handling.
B. Timber cross ties and switch ties.
C. Rail laying, placement and anchoring.
D. Rail welding and finishing.
E. Precast concrete at grade road crossings.
F. Compromise joint bars and bolts.
G. Insulated rail joints.

CONTRACTOR-FURNISHED ITEMS

The Contractor shall furnish all labor, tools, equipment and incidentals required to complete the work, including all off-loading equipment, welding equipment, rail welding kits and supplies, and all testing equipment specified. The following materials shall be furnished by the Contractor:

A. Timber ties for shoofly track
B. Compromise rail joints and insulated rail joints.
C. Rail fasteners, rail anchors, tie plates, tie pads, spikes, and track bolts required for the installation.

RAILROAD-INSTALLED TRACKWORK ITEMS

The following items will be installed by the Railroad:

A. Tie-ins between the existing tracks to a point 13 feet clear of the track as shown on the plans.
B. Railroad signaling system and signs.
C. Reconnect main line track.

ITEMS TO BE REMOVED AND SALVAGED BY UNION PACIFIC RAILROAD

A. Track.
B. Cross ties in good condition, as determined by Union Pacific Railroad.
C. Rail fasteners, rail anchors, and tie plates.
D. Railroad signal equipment as determined by Union Pacific Railroad.
E. Railroad Crossing Gates
F. Relay House

REMOVAL AND SALVAGE OF MATERIALS FROM EXISTING FACILITIES

After salvage of items by Union Pacific Railroad as specified above, the Contractor shall remove and salvage or dispose of the following materials not taken out by the Railroad. Items to be removed at the following general locations include communications poles, cutoff at ground level, wire, insulators, cross arms, signs, ties and other track material remaining after the Railroad's salvage operations shall become the property of the Contractor and, at the Contractor's option, shall be salvaged or disposed of off-site. Full compensation for the removal, salvage or disposal of railroad facilities shall be paid at the lump sum price for Clearing and Grubbing, and no additional compensation will be allowed therefore.

TRACKWAY EXCAVATION, EMBANKMENT

This work shall consist of the removal of excavated material, the placement of embankment, the tests required for moisture, density, and classification of soils to meet the requirements of construction shown on the plans, the Standard Specifications and these special provisions.
Unsatisfactory soil materials shall be removed and disposed of in a proper manner and suitable materials shall be used in embankments. Embankment material shall be constructed of soil materials free from organic matter, and harmful, or noxious substances. Fill material shall be subject to the approval of the Engineer and/or the independent soils laboratory. Fill shall be removed for excavation or from borrow areas approved by the Engineer.

Embankment materials shall be classified as follows:

A. Granular Fill - Granular fill shall consist only of gravel from alluvial deposits or any material of which not more than 10 percent by weight will pass through a wetted No. 200 sieve. The maximum size of granular fill materials and maximum lift thickness shall be 12 inches.
B. Random Fill - Random fill shall consist only of material containing more than 50 percent by weight which will pass through a No. 4 sieve and shall not have more than 35 percent by weight which will pass through a No. 200 sieve. The maximum lift thickness shall be 6 inches.

Lift thickness as stated can be varied upon authorization by the Engineer. Lift thickness shall mean the height of uncompacted embankment material prior to compaction.

The Contractor shall examine the areas and conditions under which work of this section will be performed and shall correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected and approved by the Engineer.

Unless shown to be removed, the Contractor shall protect active utility lines shown on the plans or otherwise made known to the Contractor prior to excavating. If damaged, repair or replace at no additional cost to Railroad. If active utility lines are encountered, and are not shown on the plans or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted. If service is interrupted as a result of work under this section, immediately restore service by repairing the damaged utility at no additional cost to the Railroad. If existing utilities are found to interfere with the permanent facilities being constructed under this section, immediately notify the Engineer and secure his instructions. Do not proceed with permanent relocation of utilities until written instructions are received from the Engineer.

Trackway Excavation

The Contractor shall perform excavation of every type of material encountered within the limits of the work to the lines, grades, and elevations indicated and specified herein.

Before excavation begins, the area shall be cleared and grubbed as specified elsewhere in these special provisions. The Contractor shall perform all excavation of the elevation and grade shown on the plans, as specified herein, or as otherwise staked in the field. Excavation shall be in a manner and sequence that will provide proper drainage at all times.

The Contractor shall utilize all satisfactory excavated materials in the formation of embankment. Where excess excavation materials or unsatisfactory material exists, such materials will be disposed of in areas on the right of way approved by the Engineer or off the right of way in a legal and proper manner.

The Contractor shall excavate all materials including rock and common materials which must be removed to accomplish the excavation as shown on the Plans. All excavated materials will be used in the formation of Embankments, Roadbeds, and other earthwork so long as such excavation material is satisfactory for such use.

In cut sections the Contractor shall scarify the 6 inches of material below the Subgrade, adjust the moisture content, and recompact such scarified material to not less than 95 percent of maximum density. If the Contractor excavates below the established grade without the Engineer's prior approval and authorization, the Contractor will at his own expense be required to reconstruct the grade with materials designated by the Engineer.

Trackway Embankment

Trackway embankments shall be constructed and compacted to the lines and grades set forth in the plans.

If the quantity of materials required for construction of embankments exceeds the quantity of materials removed from excavation necessary to complete the project, additional embankment material shall be obtained from borrow areas within the right of way, if available, or from borrow areas outside the right of way as directed by the Engineer. All borrow areas Shall be cleared and grubbed. Materials must be tested by an independent testing laboratory and/or approved by the Engineer prior to placement.

Except as otherwise permitted, borrow pits and other excavation areas shall be excavated in such a manner as will afford adequate drainage. After borrowing operations are completed, areas shall be left in a neat, orderly condition with uniformly shaped slopes not steeper than 2-foot horizontal on 1-foot vertical. Borrow areas of fine grained material subject to blowing shall be stabilized or seeded, as required. The Contractor shall ensure that the excavation of material from any source results in minimum detrimental effects on natural environmental conditions.

Preparation of Foundations for Embankments

Before construction of embankments is started, the foundation for embankments and the sub grade of excavations shall be cleared and grubbed by removing and disposing of all trees, brush, vegetation, fences, posts and other similar debris. Embankments which are to be constructed on sloping ground, the surface of the ground under the embankment shall be deeply plowed, benched or merge stepped as approved by the Engineer.

Placement and Compaction of Embankment

The Contractor shall provide sufficient compaction equipment to properly place and compact the material being used to construct the embankment. Equipment used for towing shall not be considered as compaction equipment. The material used to construct the Embankment shall be placed in successive horizontal lifts, in a depth or lift thickness specified in Table "A", and each lift shall extend the full width of the embankment before another lift is started. Each layer shall be adjusted for moisture content and shall be thoroughly mixed by discing or other means approved by the Engineer. Each lift shall be leveled before compacting and shall be compacted by distributing the travel of the compaction equipment uniformly over the entire length and width of the embankment.

Only equipment approved by the Engineer and/or listed in Table A shall be used for compaction. During embankment construction, continuous use of approved compaction equipment is mandatory. Tractors pulling compaction equipment may be used for minor spreading and patrolling, provided such spreading does not interfere with the continuous forward progress of the compaction equipment. Crawler-type tractors which are being used for granular fill material and which are not pulling compaction equipment may also be used for spreading.

If at any time, the Contractor has not furnished sufficient compaction equipment to compact the materials being used to construct the embankment, then placement of such embankment materials shall be reduced accordingly. The number of pieces of equipment required for compaction shall be determined by the type of embankment material, as set forth in Table "A", being placed and by the rate at which such embankment material is placed. Table "A" shall be used to determine the number of pieces of equipment required for compaction. Since the number of pieces of equipment required for compaction depends on the type and quantity of embankment material being placed, the Contractor shall carefully estimate the rate at which embankment material is placed in order to ensure that all compaction equipment required by Table "A" is available when needed.

When moving over previously compacted embankments, the Contractor's heavy earth moving equipment shall be operated over the entire area of such embankment in order to avoid uneven compaction of such embankment.

In cut sections, the Contractor shall scarify the top 6 inches of material below the top of existing ground, after cut has been completed, adjust moisture content, and compact such scarified material to not less than 95 percent of maximum density.

After the required clearing and grubbing, foundations for embankments shall be prepared by scarifying the top 6-inch layer of existing ground, adjusting the moisture content of the scarified material as specified and compacting this top 6 inches of existing ground to not less than 95 percent of maximum density.
The embankments which are to be 3 feet or less in height shall be compacted to not less than 95 percent of maximum density.

In embankments of more than 3 feet of fill and backfills, the compacted materials within 3 feet of the established subgrade (top of fill) elevation shall have a density in place of not less than 95 percent, and below said 3 feet from subgrade (top of fill) limit shall have a density in place of not less than 90 percent, of maximum density.

All compaction shall be determined using ASTM D 1556 for field test and ASTM D 1557 for moisture and density.

TABLE A
COMPACTION EQUIPMENT TABLE AND LIFT THICKNESS

(1) EQUIPMENT
(2) MAXIMUM UNCOMPACTED LIFT THICKNESS IN INCHES
(3) MAXIMUM HOURLY RATE IN CUBIC YARDS WHICH MAY BE COMPACTED BY SPECIFIED EQUIPMENT

GRANULAR MATERIAL

(1)	(2)	(3)
Rubber-Tired Roller 50-Ton	12	400
Crawler-Type Tractor	12	350
Vibratory Compactor 20-Ton	12	750
Vibratory Compactor 9-Ton	12	350
Self-Propelled Rubber-Tired Roller	12	350

RANDOM FILL

(1)	(2)	(3)
Rubber-Tired Roller 50-Ton	8	400
Tamping roller *	8	350
Self-Propelled Rubber-Tired Roller	8	350
Vibratory Compactor 20-Ton Equipped with Tamping Feet	8	750
Vibratory Compactor 9-Ton Equipped with Tamping Feet	8	350

* Permitted only when material is predominantly fine grained.

Unless otherwise shown on the plans, or designated by the Engineer, embankments shall be constructed with moisture and density control. Unless otherwise directed by the Engineer, the moisture content of the soil at the time of compaction shall be at the optimum moisture content or within minus 4 percentage points of the optimum moisture content as stated in ASTM D 1557 Standard and as determined by tests taken by an independent testing laboratory, in accordance with ASTM Standards, and where the materials in the embankment. Locations and the frequency of tests will be determined by the Engineer. Moisture control will not be required on gravel.

The application of water to embankments shall be done with sprinkling equipment consisting of tank trucks, pressure distributors, or other equipment designed to apply water uniformly and in controlled quantities and at variable widths. Mobile sprinkling equipment shall have adequate tractive power and shall be equipped with controls operated from the driver's seat to control the rate of water flow. The Contractor shall be required to furnish sufficient water equipment to ensure proper moisture content of all materials. Watering of embankments shall be done in such a manner that pools of water will not develop. Watering must be sufficient to provide adequate moisture for optimum compaction. The Contractor shall provide and maintain suitable drainage facilities at all locations to prevent overflow or damage to the embankment from excess water.

Finish Grading

The roadbed shall be finished to the lines and grades shown on the Plans and as staked. Finished roadbeds shall be protected from damage from all causes by the Contractor until accepted by the Railroad.

The finished grading and borrow areas shall conform with the alignment and grade set forth in the Plans. The Engineer shall furnish control for line and grade and sufficient information for the Contractor to set the required construction stakes.

Slope stakes will be set by the Contractor in accordance with the typical section on the Drawings. The Engineer shall use his judgment or soil tests to determine the stability of the materials encountered, and if the character of the materials encountered necessitates changing the slopes after an excavation has been completed, the Engineer may require the Contractor to reset the slope stakes and to steepen,

flatten, or bench the slopes. The reasonable costs of re-setting stakes in this case shall be borne by the County. The Contractor shall maintain and preserve all stakes and other marks established until authorized by the Engineer to remove them. If the Contractor removes or destroys such stakes or marks before receiving authorization from the Engineer the replacing of such stakes or marks shall be the Contractor's responsibility.

Slope Protection and Erosion Control

All reasonable precautions shall be taken to preserve the character of the material outside of the theoretical slope lines. The slope shall be finished to the lines and grades furnished by the Engineer. All loose materials shall be removed from the slopes and all materials, whether solid or loose, projecting more than one foot outside of the theoretical slope line as staked, shall be removed by the Contractor.
The Contractor shall not widen cuts or benches without the prior approval of the Engineer. Widened cut slopes or benches, if approved, must be constructed as follows:

A. In such a manner as to be at least as stable as the original cut slopes or benches.
B. To provide adequate drainage for the trackbed.
C. In accordance with the Standard Specifications these special provisions, and in the same manner as if such widened cut slopes or benches had been originally contemplated by these special provisions and the plans.

Care shall be taken to ensure drainage is diverted along or away from the toe of the slope during construction to eliminate water pockets and toe saturation.

As the work progresses, all finished grades and finished slopes both in excavation and embankments must be protected from damage by application of water as necessary until the work has been completed. The Contractor will be required to maintain all excavations, embankments, stockpiles of material sources, haul roads, permanent access roads, plant sites, waste areas, borrow areas, and all other work areas inside or outside of the physical boundaries of the work, free from dust or other materials which would violate federal, state or local air pollution standards or which would cause a hazard or nuisance to people in the vicinity of the work. Approved temporary methods of dust control, including sprinkling, chemical treatment, light bituminous treatment or similar methods will be permitted. Sprinkling must be repeated at such intervals as to keep all potential sources of dust wet at all times, and the Contractor must provide sufficient sprinkling equipment to comply with this requirement at no expense to the Railroad.

Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, reshape, and compact to the required density prior to further construction.

SHORING

SHORING shall be constructed as shown on the Plans and as staked in the field.

SUBBALLAST

This work shall consist of the loading and transportation from local stockpiles, handling and placement of Railroad-furnished subballast material at the locations shown on the plans, and as specified in the Standard Specifications and these special provisions.

Subballast material deposited on the railroad subgrade shall conform to the following grading:

	Percentage Passing by Weight
2-inch	100
1-inch	90-100
3/4-inch	76-95
3/8-inch	50-84
No. 4	36-67
No. 10	26-50
No. 40	12-30
No. 200	0-10

The subballast shall be obtained by the Contractor by excavating and hauling from stockpiles. Subballast placement shall be performed a minimum of four months after construction of railroad subgrade unless otherwise approved by the Engineer.

The Contractor shall conduct his operations such that no equipment is operated over stockpile material. Movement of subballast shall not result in excessive breakage or degradation of the subballast material. Material broken, or degraded, or both, to the extent that it is no longer usable as subballast shall be replaced by the Contractor at his expense.

Subballast handling equipment shall be clean and maintained in such a manner that the subballast material is not contaminated by the equipment.

The subgrade shall be shaped in conformance with the lines and grades and typical sections shown on the plans or established by the Engineer. All unstable or otherwise objectionable material shall be removed from the subgrade and replaced with embankment material. All holes and depressions shall be filled with embankment material. The subgrade shall be wetted with water as provided in Section 17, "Watering," of the Standard Specifications, and reshaped and rolled so as to result in a subgrade that meets compaction requirements and has no projections above the established lines and grades.

Sufficient subgrade shall be prepared in advance of the subballast placement to ensure satisfactory progression of the work.

The subballast shall be constructed in two or more layers of approximate equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 inches and shall have a relative compaction of not less than 95 percent.

The Contractor shall plan and coordinate his work in such a manner that the previously placed and compacted layers of subballast have time to cure and stabilize before vehicles or other heavy equipment are permitted on the subballast. Prior to placing the succeeding layers of material, the top of the preceding layer shall be sufficiently moist to ensure a strong bond between the layers. The edges and edge slopes of the subballast shall be bladed or otherwise dressed to conform to the lines and dimensions shown on the plans and to produce straight, neat, and workmanlike lines and slopes that are free of loose material.

Placement of subballast will be paid for by the cubic yard. Quantities of placed subballast will be calculated on the basis of the dimensions shown on the plans adjusted by the amount of any change ordered by the Engineer. No allowance will be made for subballast placed outside those dimensions unless otherwise ordered by the Engineer.

The contract price paid per cubic yard for subballast shall include full compensation for furnishing all labor, materials (except subballast), tools, equipment and incidentals, and for doing all the work involved loading, hauling, placing and finishing Railroad-furnished subballast, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BALLAST

These specifications cover the types, characteristics, property requirements, and manufacturing of mineral aggregates for processed (prepared) ballast. Processed ballast shall be hard, dense, of angular particle structure, providing sharp corners and cubical fragments, and free of deleterious materials. Ballast material shall provide high resistance to temperature changes, chemical attack, high electrical resistance, low absorption properties and free of cementing characteristics. Materials shall have sufficient unit weight (measured in pounds per cubic foot), and have a limited amount of flat and elongated particles.

The type or types and gradation(s) of processed ballast materials as covered in these specifications and testing requirements shall govern the acceptance or rejection of ballast materials by the Railroad.

Materials

A variety of materials may be processed into the railroad ballast. The following general classifications and the accompanying definitions list the most common materials. Detailed examination of the individual materials will be made to determine the specific mineralogical composition.

A. Granite is a plutonic rock having an even texture and consisting primarily of feldspar and quartz.
B. Trap rock is any dark-colored, fine-grained non-granitic hypabyssal or extrusive rock.
C. Quartzite is a granoblastic, metamorphic rock consisting mainly of quartz and formed by recrystallization of sandstone or chert by either regional or thermal metamorphism. Quartzite may also be very hard but unmetamorphosed sandstone consisting chiefly of quartz grains with secondary silica that the rock breaks across or through the grains rather than around them.
D. Carbonate rocks are sedimentary rocks consisting primarily of carbonite materials such as limestone and dolomite.

Property Requirements

Method of Sampling: Field samples shall be secured in accordance with the current ASTM Designation D 75. Test samples shall be prepared in accordance with California Test Method 201.
Sieve analysis shall be made in accordance with ASTM Designation C 136. All sieve analyses require wet sieving.

Material finer than a No. 200 sieve shall be determined in accordance with California Test Method 202. Maximum allowable shall be 0.5 percent rounded to the nearest 0.1 percent.

The bulk specific gravity and percentage of absorption shall be determined in accordance with ASTM Designation C 127. Absorption shall not exceed 1.0 percent.

Percentage of clay lumps and friable particles shall be determined in accordance with ASTM Designation C 142. Maximum allowable shall be 0.5 percent.

The resistance to degradation shall be determined in accordance with ASTM Designations C 131 or C 535 using the grading as specified in Note No. 1, Table No. 1. Materials having gradations containing particles retained on 1-inch sieve shall be tested by ASTM Designation C 535. Materials having gradations of 100 percent passing the 1-inch sieve shall be tested by ASTM Designation C 131. The Standard Mill Abrasion Test shall be made and the percentage loss in weight multiplied by 5 and added to the C 131 or C 535 Test No. 5 to obtain the degradation percentage. The Standard Mill Abrasion Test is defined as follows:

A. A representative sample is obtained and sized using current ASTM methods of test. From the course aggregate, split a representative portion into a sample consisting of 3.3 pounds passing the 1-1/2-inch sieve and retained on the 1 inch sieve, plus 3.3 pounds passing the 1 inch sieve and retained on the 3/4-inch sieve. The sample shall be washed and oven-dried in accordance with the Los Angeles Abrasion Procedure. The sample will be placed in a 1-gallon, 9-inch external diameter porcelain ball mill pot, along with 6.6 pounds of distilled water. The mill pot shall be sealed and rotated at 33 rpm for a total of 10,000 revolutions (5 hours). The sample

shall than be washed-sieved through a number 200 sieve and oven-dried before weighing. Mill abrasion shall be calculated as a percentage of loss in weight by the following formula:

Mill Abrasion = Loss in Weight x 100 Original Weight

The Abrasion Number is a number calculated with the results of the Los Angeles Abrasion Test (LAAT) and Mill Abrasion Test (MAT). The Abrasion Number shall be calculated by the following Formula:

Abrasion Number = LAAT + (5 x Mill Abrasion Test)

Sodium sulfate soundness tests shall be made in accordance with ASTM Designation C 88.
The unit weight per cubic foot shall be determined in accordance with ASTM Designation C 29.
Flat and/or elongated particles shall not exceed 5 percent when tested in accordance with ASTM Designation D 4791.

The plastic limit, liquid limit and plasticity index shall be determined in accordance with ASTM Designations D 423 and D 424. Each sample shall be tested in two ways; one test shall test the fines generated by the Los Angeles Machine, and the other test shall test the fines contained in the total sample. The portions of these samples generated by the Los Angeles Machine, and passing the #40 sieve shall be non-plastic (NP). The portion of the total sample passing the #40 sieve shall have a liquid limit of not more than 25, and plasticity index of not more than 6.

No specific chemical analysis is considered essential for the evaluation of granite, trap rocks, or quartzite type materials, provided the materials are defined by applicable method. For carbonate materials, dolomitic limestone is defined as having a magnesium carbonate content of 28 to 36 percent. Those carbonate materials indicating magnesium carbonate values above 36 percent shall be defined dolomite. Carbonate material indicating magnesium carbonate values below 28 percent shall be defined as limestone. Chemical analysis will be used in selecting or evaluating plant sites, or as directed by the Engineer. Magnesium carbonate content of carbonate material shall be tested and defined in accordance with ASTM Designation C 25.

Grading of the processed ballast shall be determined with laboratory sieves conforming to ASTM Designation E 11 and shall conform to the following gradation:

	Percentage Passing by Weight
2-inch	100
1-1/2 inch	90-100
1-inch	20-55
3/4-inch	0-15
3/8-inch	0-5
10.200	0-0.5

Production and Handling

The aggregate production facility shall be of such design to permit production and/or blending without excessive working of the materials and the facility must be approved by the Engineer. The capacity of the production facility should be adequate to efficiently produce anticipated daily loadings, providing sufficient stockpiles to facilitate the loading without delays.

The blending, stockpiling and other production handling operations shall be managed by the producer to minimize segregation of the finished product. Stockpiling operations shall minimize, as practical, breakage or excessive fall in stockpiling operations and movement of wheeled or tracked machines over stockpile material shall be limited. Processed ballast shall be washed and/or rescreened as necessary to remove fine particle contamination as defined by the specifications.

The Railroad or its representative reserve the right to visit the suppliers facility during usual business hours unscheduled for the following purposes:

A. Observe sampling and testing procedures to assure compliance with the requirements of these specifications.
B. Obtain representative samples of prepared material being produced and shipped.
C. Review plant inspection, methods, quality control procedures, equipment, and examine test results for current and previous tests. The Contractor shall provide the inspector with such assistance, materials and laboratory testing equipment as necessary to perform on production site gradation and percent passing 200 mesh sieve analysis. Performance of these tests, at the time of an unscheduled inspection visit, is the right, but not the duty, of the inspector.

Sampling and Testing

The quality of the material to be used for ballast shall be determined by the supplier prior to its acceptance by the Engineer. A series of tests by the supplier, as specified herein, shall be made at a testing laboratory approved by the Engineer to establish the characteristics of the material being tested. Once a source has been accepted to supply ballast material, periodic quality control samples shall be taken by the supplier to ensure continued compliance with the specification. A representative sample of prepared ballast shall be taken for gradation from each 5,000 tons of ballast being loaded for shipment. This sample shall be taken in accordance with ASTM Designation D 75 in the quantities as listed within that standard. The gradation report shall be prepared on each sample containing the following information: source identification, date, sample number, shipment or car number, and the sieve analysis. The gradation specification shall appear on the test form.

In event any two individual samples fail to meet gradation requirements, immediate corrective action shall be taken to restore the production process to acceptable quality. The Engineer shall be advised in writing of the corrective action being taken. In the event of repeated failures, i.e. two or more samples failing in two successive shipments, purchaser reserves the right to refuse the shipment.

A full range of laboratory testing as defined in the specification shall be performed at least six times a year or as directed by the Engineer to insure the quality of the material being produced. If the supplier changes the location of the source or encounters changes within the supply source, laboratory testing will be performed on the new material to insure compliance with these special provisions.

Prior to installation, the supplier should provide the Engineer with certified results of ballast quality and gradation as conducted by a testing laboratory acceptable to the Engineer. The supplier shall receive approval from the Engineer for the testing laboratory prior to performing tests.

NEW TRACKWORK CONSTRUCTION

The Contractor shall install new track with 141-pound continuous welded rail (CWR) as shown on the plans. The Railroad will install some trackwork items specified above in paragraph titled "Railroad-Installed Trackwork Items". The Contractor shall construct the track as shown on the plans with tie spacing, ballast, fastening pattern and anchoring pattern in open track areas constructed with 141 RE CWR on wood ties as shown on the plans.

Track Alignment and Geometry

General: Track shall be constructed to the alignment and top of rail profile indicated on the plans, within the tolerances specified.

Profile Rail: Top of low rail on all curves shall be used as grade control.
Line Rail: High rail on all curves shall be used as line rail.

Superelevation: Track superelevation shall be accomplished by maintaining the inside rail of a curve at top of rail profile and raising the outside rail to required superelevation. Runoff of superelevation shall be accomplished linearly throughout the length of the spiral transition curve unless shown otherwise on the plans.

Tolerances

Deviations from indicated gage, cross level, horizontal line, profile grade, rail offsets, misalignment, finishing and tie spacing shall conform to the following requirements:

A. Gage: Track gage shall be 4 feet 8-1/2 inches, ±1/8-inch.

B. Cross Level: Cross level, taken at top of rail, shall be ±1/8-inch from level on tangent or design superelevation on curve.

C. Deviation from Horizontal Alignment:

1. ±1/8-inch in 31 feet.
2. ±1/2-inch from the planned alignment.

D. Deviation from Horizontal Circular Curves:

1. Adjacent midordinates of 62 foot chords, with half-chord overlaps, shall not vary more than ±1/8-inch.
2. Average midordinate shall not vary by more than ±1/4-inch from theoretical midordinate.

E. Deviation from Horizontal Spiral Curves: Midordinate of 62 foot chords, with half-chord overlaps, shall not vary by more than ±1/8-inch from straight line rate of change.

F. Deviation from Top of Rail Profile Grade: Deviation from top of rail profile grade shall not exceed -l/8-inch in 31 feet and ±1/2-inch from the vertical alignment shown on the plans.

G. Horizontal Offsets: Horizontal offsets shall not exceed 0.40 inch in the head and 0.125 inch in the base.

H. Surface Misalignment Tolerance:

1. Combined vertical offset and crown camber shall not exceed 0.040 inch per foot at 60°F.
2. No dip camber will be allowed.

I. Gage Misalignment Tolerance: Combined horizontal offset and horizontal kink camber shall not exceed 0.040 inch per foot at 60°F.

J. Tie Spacing: Distance between centerline of adjacent ties shall not vary more than 4 inches from the indicated spacing. Line ends of ties shall be aligned uniformly on the same side as the designated line rail, or as shown on the plans.

Storage, Handling, and Inspection

All materials shall be stored and handled to minimize rust, corrosion and bending. All rail ends shall be protected from physical damage.

Inspection shall ensure that the welding and assembly requirements of Chapter 4 of the AREMA Manual are met.

Timber Cross Ties

Timber cross ties shall be Contractor-furnished and shall be standard 7" x 9'-0" or 10'-0" ties for installation on (shoofly) mainline tracks as shown on the plans.

All ties shall be handled carefully so that the protective sheath of preservative remains intact, and to prevent exposing untreated heartwood to insect attack. Ties that are split, chipped, or both shall not be used in the work and shall, if damaged by the Contractor operations, be replaced at the Contractor's expense.

Compromise Rail Joints and Insulated Rail Joints

Compromise rail joints and insulated rail joints shall be Contractor-furnished and shall be installed at the locations shown on the plans in accordance with Union Pacific Railroad requirements and Union Pacific Railroad standard drawings. Compromise rail joints shall connect existing 112 RE to new 141 RE rail. Insulated rail joints shall be 141 RE.

Field Welding Kits

Field welding kits for 141 RE rail shall be the Contractor-furnished and shall be capable of complying with the rail welding requirements specified below.

RE Rail

Rail shall be Railroad-furnished in 1,440-foot CWR strings, 39-foot or 78-foot lengths. Rail shall be new and conform to the requirements of Chapter 4 of the AREMA Manual and the Railroad.

The Contractor shall field weld the 1,440-foot strings into continuous welded rail (CWR) lengths which shall be shown on the Contractor's trackwork staging plan.

Rail Welding: All field welds shall use exothermic methods conforming to the requirements of the AREMA Specifications for Thermite Welding Rail Joints, or electric butt welding in accordance with Section 4-2.6.1 of the AREMA Specifications for Fabrication of Continuous Welded Rail, as approved by the Engineer. Field welding shall not be performed during inclement weather. Field welds shall be in accordance with the following restrictions:

A. Field welds in opposite rails shall be staggered at least 10 feet except where closer spacing is required by field conditions and approved by the Engineer.
B. Field welds shall not be located within 19 feet of a bolted rail joint.
C. Field welds shall not be positioned within three inches from the edge of a tie plate.
D. Field welds shall not be located within 8 feet of a plant weld.

Placement of Rail and Fastenings on Timber Cross Ties

Ties shall be placed in the track with the wide surface nearest the heart down and square to the line of the rail. When necessary the ties shall be added to get a full and even bearing for the tie plate. Excessive adzing shall be avoided. All newly adzed surfaces shall be coated with an approved preservative.

Tie plates shall be used under running rails on all tracks. Tie plates shall be free of dirt and foreign material when installed. Care shall be exercised to see that canted tie plates are applied so as to cant the rail inward. Tie plates shall be placed square with the rail and centered on the tie. Particular care shall be given to see that the tie plate shoulders are never under the base of the rail and that the tie plates are well seated on the ties and the rail properly seated on the tie plate.

Ties shall be spiked with two rail-holding spikes on each rail and with additional rail-holding and plate-holding spikes as specified by the Railroad. Other fastening devices may be used as approved by the Railroad. All cut spikes shall be started and driven vertically and square with the rail and so driven as to allow a 1/8-inch to 3/16-inch space between the underside of the head of the spike and the top of the base of the rail. In no case shall be spikes be overdriven, or straightened while being driven. Spikes on gage side of running rail shall be placed across from each other and spikes on the field side of the running rail shall be placed across from each other. This pattern shall be held consistently.

Tools and Equipment

On-track equipment shall conform to AREMA "Specifications for On-track Roadway Machines and Work Equipment."

Wheel profile shall conform to AAR G-4, 1963, as shown in AREMA "Axle Wheel and Hub Specifications for Work Equipment."

Tools used in track construction shall conform to AREMA "Specifications and Drawings for Track Tools," or equal. All tools shall be calibrated as appropriate for the use.
Equipment shall be maintained to the manufacturer's standards and shall be subject to inspection by the Engineer.

Rail Laying

Continuous Welded Rail (CWR): CWR strings shall be handled, unloaded, and installed in accordance with the requirements in "Laying and Maintenance of Continuous Welded Rail," of Chapter 5, Part 5, "Track Maintenance," of the AREMA Manual of Railway Engineering, except as modified herein.

Temperature Adjustment: Track shall be fully fastened, ballasted sufficiently to prevent tie movement, and lined and surfaced prior to final rail adjustment and anchoring. CWR shall be anchored after rail is adjusted to zero thermal stress at a rail temperature of 100°F, +10°F, -5°F. The Contractor may heat, cool or stretch the rail to meet this requirement.

A. Rail Temperature: Rail temperature shall be determined during rail anchoring by means of a standard AREMA rail thermometer. The Contractor shall furnish the Engineer with five rail thermometers at the Contractor's expense. The temperature of rail shall be determined by placing the rail thermometer on the shaded side of the rail base next to the web, and the thermometer shall remain in that position until no change in its reading is detected. In no case shall the thermometer be removed in less than five minutes.

B. Temperature Records: Information to be recorded shall be:

   1. Date and time for each string installed.
   2. Location by station, left or right rail, and string length. Rail temperature, air temperature, and weather conditions.
   3. Rail gap to nearest 1/16-inch.

C. Rail Cuts and End Preparation: Rails shall be cold-sawed, square across the rail, with maximum l/32-inch deviation from square. All burrs shall be removed and ends made smooth. Beveling of rail ends is required at all bolted joints, conforming to Plan No. 1005 in the AREMA Portfolio of Trackwork Drawings. After cutting and beveling, rail ends shall be end hardened by a hardening process proposed by the Contractor which will provide a uniform hardness pattern across the top surface of the rail head for two inches from the end. The Brinell hardness number when tested in conformance with ASTM E10, shall be between 300 and 350, starting 1/4 inch from the end, and shall decrease uniformly to the hardness of the untreated rail two inches from the end. The Contractor shall submit a test sample made by the proposed hardening process, for each type of rail required to be end hardened. Brinell hardness of the samples will be tested by the Engineer's laboratory. Tests will be made on the rail centerline and 3/4 inch on each side of the centerline, starting at l/4 inch from the end, and at three other cross sections 4 inches, two inches, three inches and four inches from the end. If the tests do not indicate acceptable results, the procedure shall be modified, and retests made until acceptable test results are achieved. All production end hardening shall then follow the exact procedure that produced the acceptable test results. The production end hardening will be field tested by the Engineer's technicians using portable testing equipment.

D. Holes for Bolted Joints: Rail holes for bolted joints shall conform to AREMA "Rail Drillings, Bar Punchings, and Track Bolts," and shall be cylindrical, free from burrs, and sharp edges removed. Templates shall be used for rail hole drilling. The type of template shall be approved by the Engineer prior to use.

E. Alignment: Alignment of rail shall be done on the head of the rail. The ends of the rails to be welded shall be properly gapped and aligned to produce a weld which will conform to the alignment tolerances in specified above. Cutting back, or straightening, or both, of bent rail ends will be considered incidental to this work. The rail gap alignment shall be held by a hydraulic rail puller/expander and alignment jig without change during the complete field welding cycle. Vertical alignment shall provide for a flat running surface. Any difference of

height of the rails shall be in the base. Horizontal alignment shall be done in such a manner that any differences in the width of heads of rail shall occur on the field side.

F. Finishing:

1. Projections, fins and other surface irregularities shall be removed from all welds. The weld shall be finished with a rail-mounted rail head grinder specifically designed for the work. The balance of the rail section shall be finished with a hand-held grinder as required to remove notches, gouges, visible cracks and other defects. All grinding shall blend to the parent rail section and shall not overheat or blue the steel. Heavy grinding shall be completed while steel is still hot from welding.
2. Finishing Tolerances:

   a. Vertical Offset: .025 inch.
   b. Horizontal Offset: .050 inch.
   c. Horizontal kink to be checked on concave side: 0.025 inch.
   d. Vertical crown a minimum of 0.0 to a maximum of .030 inch. Inspector to have a 36-inch long straight-edge and a 0.01 to 0.150 taper gage.
   e. Railbase: Horizontal offset cannot be more than 0.100 inch.
   f. Railhead: Joints shall be smooth on the top and sides and straight in line.
   g. Rail Base: All weld joints shall be smooth on sides and bottom.

G. Weld Quality: Each completed field weld shall have full penetration and complete fusion and shall be free of cracks. The total area of internal defects such as porosity and slag inclusions projected on radiographic film shall not exceed 0.09 square inches, and the largest single porosity or slag defect permitted shall not exceed 0.180 inch diameter.

H. Surfacing and Lining: Track shall be surfaced, tamped, and lined to the tolerances indicated herein, and as follows:

1. The track shall be lifted by methods and equipment that have been inspected by the Engineer. Undue bending of rail or strain on joints shall be prevented. Both rails shall be raised at one time and as uniformly as possible.
2. Track shall be lifted in such a manner that it will be necessary to give it a final lift of not less than 4 inches nor more than two inches to bring it to grade. Track shall be raised with a minimum of two major passes plus one final surfacing pass. The final surfacing pass of the track shall be lifted by means of equipment equipped with a laser-type horizontal grade and vertical alignment control that can be set to control points.
3. Ties that have been pulled loose shall be replaced to proper position and shall have a bearing against the rail and be secured.
4. The Contractor shall exercise care during all ballast operations to prevent center binding and damage to compacted subballast.

Precast Concrete At-Grade Road Crossings

The existing At-Grade Panels on the Clay Street Crossings shall be removed by the Contractor. Removal of these existing panels shall include the rail and fasteners within the crossing length. Care shall be taken not to damage concrete panels and rubber fillers during removal and reinstallation. All work shall be scheduled with Engineer and County prior to removal of panels.

TESTING OF WELDS

Welds will be tested by radiographic, magnetic particle, and ultrasonic inspection in accordance with the following procedures. The Engineer's laboratory will perform all specified tests. All radiographs will become the property of Union Pacific Railroad. Retests due to failed tests shall be at the Contractor's expense.

Radiographic Testing Procedure

The procedure will include a minimum of four exposures: one through the rail head, one through the rail web, and one each through each of the two bottom flanges. Radiography will be performed in accordance with

ASTM E142, Controlling Quality of Radiographic Testing. Radiographic film will be Type 1 or Type 2, and exposed film density will be within the range of 1.5 to 3.8.

Magnetic Particle Testing Procedure
Magnetic particle testing will be by the coil method (longitudinal magnetization) using the dry powder method in accordance with ASTM E709 as required in welds where ultrasonic testing cannot be made.

Ultrasonic Testing Procedure
Ultrasonic testing will be in accordance with ASTM E164 and will be made on all welds.

Field Welding Qualification
The field welding procedure shall be qualified by the Contractor preparing two test sample welds in 141 RE rail, for each type of rail to be welded, in accordance with the Contractor's proposed welding procedure. The sample welds will be tested radiographically and by ultrasonic inspection, and shall meet AREMA standards for continuous welded rail.

A. Qualification of Weld Crew: All members of the weld crew shall be certified by an AWS accredited test facility. Prior to production field welding, each of the welders, including the foreman or supervisor of that crew, shall prepare a qualification weld in 141 RE rail, at the expense of the Contractor. The weld shall be prepared in accordance with the approved procedure and will be witnessed by the Engineer. The qualification weld shall be tested radiographically and by ultrasonic inspection at the Contractor's expense.
B. Test Record: The test record shall contain the names of the welders, including the foreman or supervisor of that crew, who performed the qualification weld and briefly describe their specific duties. The test record shall also show results of radiographic and ultrasonic testing. All performance qualification records shall be submitted to the Engineer at least 14 calendar days prior to production welding. Production welding shall not commence until qualification test welding records have received written approval.

Field Weld Testing
Field welds will be radiographically tested by the Engineer as follows:
A. 100 percent of the first ten welds;
B. 20 percent of the next fifty welds; and
C. 10 percent of the remaining welds.

All welds shall be inspected with ultrasonic hand test unit with 0 degree, 45 degree and 70 degree probe allowing no more than 0.18 inch diameter single deflector or defect in weld on all welds. Both sides of the weld will be cleaned and the flanges of the base will be inspected with an angle beam probe to ensure that no lack of fusion in the base is present.
Defective Welds: Upon detection of a defective weld, all welds made by welding crew which made the defective weld will be tested to ensure that all defective welding is disclosed and until the Engineer is satisfied with performance of the crew. Such additional tests will be at the Contractor's expense.
Rewelding: Rejected welds shall be cut out with a saw and rewelded, if possible, or replaced with at least a 19'-6" rail of the same type and weight, welded in its place in accordance with these special provisions. Rewelding shall be at the Contractor's expense.
Test Reports: Reports of weld testing will be prepared by the laboratory and submitted to the Contractor and the Engineer. The report shall show:
A. Weld number (assigned by the Contractor).
B. Date weld inspected.
C. Name of inspector.
D. Results of test.

Weld Numbering: Each weld shall be given a number in sequence as the welding progresses. The number shall be painted with aluminum paint two inches from the finished weld on the field side of the rail. Defective welds which are replaced shall be given a new sequential number. This number shall be recorded in the field welding records.

Field Welding Records: Field welding records shall be provided by the Contractor within five working days. The field welding records shall be continuously maintained by the Contractor to record details of field welding as follows:

A. Date and time welded
B. Weld number
C. Location by station stating track and rail
D. The Contractor's Foreman
E. The Railroad's representative
F. Weather, air and rail temperature
G. Gap prior to adjustment (required where field weld is between two anchored strings)

MEASUREMENT AND PAYMENT

Trackway excavation and embankment will be measured and paid for as specified in Section 19 of the Standard Specifications and these special provisions.

Full compensation for construction of ditches is considered incidental and shall be included in the unit contract price shoofly track excavation. The contract unit price paid per cubic yard for subballast shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in subballast, complete in place, as shown on the plans, and as specified in these special provisions.

Full compensation for ballast shall be considered as included in the contract price paid per track foot for track installation and no additional compensation will be allowed therefor.

Full compensation for 141 RE rail shall be considered as included in the contract price paid per track foot for track installation and no additional compensation will be allowed therefor.

Full compensation for timber tie and fastenings shall be considered as included in the contract price paid per track foot for track installation and no additional compensation will be allowed therefor.

The contract unit price paid per track foot for Contractor-installed track installation, measured horizontally along the centerline of each track, shall include, unless specified otherwise, preparation of subballast; furnishing, placing, consolidating, and finishing ballast; furnishing and installing ties with track fastening devices and associated hardware; furnishing and installing rail; fastening and de-stressing rail; surfacing and aligning track; and incidental work thereof.

The contract unit price paid per track foot for Railroad-installed track installation, measured horizontally along the centerline of each track, shall include, unless specified otherwise, preparation of subballast; furnishing, placing, consolidating, and finishing ballast; furnishing ties with track fastening devices and associated hardware; furnishing rail; and incidental work thereof.

The contract unit price paid per weld for thermite welds shall include the cost of furnishing material, equipment and labor necessary for performing thermite welds including weld identification, reports and testing, and replacing any defective welds as specified. Thermite welds will be counted in the field for payment.
The contract unit price paid per joint for insulated joints shall include all variation of labor and equipment required to furnish and complete the installation including welding and rail cutting, fastener spacing at joint locations, and joint testing.

The contract price paid per lineal foot for grade crossing track, measured horizontally along the centerline of each track, shall include placement of ballasted track, and removing and installation of grade crossing panels. Placement of ballasted track within the limits of grade crossing track shall be included in the measurement and payment for grade crossing track.

Removal of existing panels, rail and ties, existing pavement, asphalt concrete paving, traffic striping and markings are included in the contract unit price for grade crossing track.

PROTECTION OF RAILROAD FACILITIES

Upon advance notification of not less than 10 working days by Contractor, Railroad representatives, conductors, flagmen or watchmen will be provided by Railroad to protect its facilities, property and movements of its trains or engines. Said notice shall be made to the Railroad. At the time of such notification, Contractor shall provide Railroad with a schedule of dates that flagging services will be needed, as well as times, if outside normal working hours. Any subsequent deviation from said schedule shall also require 10 working days advance notice from the first affected date. In general, Railroad will furnish such personnel or other protective devices:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from centerline of any track on which trains may operate, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.
B. For any excavation below elevation of track subgrade if, in the opinion of Railroad's representative, track or other Railroad facilities may be subject to settlement or movement.
C. During any clearing, grubbing, grading or blasting in proximity to Railroad which, in the opinion of Railroad's representative, may endanger Railroad facilities or operations.
D. During any of Contractor's operations when, in the opinion of Railroad's representatives, Railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines or pipe lines, may be endangered.

The cost of flagging and inspection provided by Railroad during the period of constructing that portion of the project located on or near Railroad property, as deemed necessary for the protection of Railroad's facilities and trains, will be borne by the City for a period of 230 working days beginning on the date work commences on or near property of Railroad. The Contractor shall pay to the City liquidated damages in the sum of $600 per day for each day in excess of the above 230 working days the Contractor works on or near Railroad property, and which requires flagging protection of Railroad's facilities and trains.

RAILROAD REVIEW

The Contractor shall submit to Railroad the following for review and approval:

1. material certifications
2. shop drawings
3. Shoring plans

All submissions to Railroad must be approved by the County.

WORK BY RAILROAD

Railroad will furnish or cause to be furnished as necessary due to construction, labor materials, tools and equipment to perform certain works including relocation of telephone, telegraphy and signal lines and appurtenances and will perform any other work in connection therewith.
The work by Railroad will be performed by its own forces and is not a part of the work under this contract.

A. The Railroad will perform preliminary engineering inspection and flagging as specified in Section 13-1.05, "Protection of Railroad Facilities."
B. The Railroad will perform all trackwork installation above the top of subballast for the tie in areas shown on the plans.
C. The Railroad will perform all signal installation and removal.

DELAYS DUE TO WORK BY RAILROAD

A delay due to work by Railroad will be considered to occur whenever:

A. The Contractor has provided the minimum required notice, as provided herein, as to the date his work will permit the Railroad to begin work on a specific unit of work.
B. The Railroad has not completed said specific unit of work within the number of performance days listed for that unit after said date or the date when the site was made available to the Railroad, whichever is later.

C. In the opinion of the Engineer the Contractor's operations are delayed or interfered with by reason of the Railroad not completing the unit of work on time.

D. The Contractor has provided written notice to the Engineer that his operations are being delayed or interfered with by reason of the Railroad not completing the unit of work on time.

The Contractor shall notify the Engineer of the dates when the Contractor will have completed all work necessary to permit the Railroad to begin work on each of the above units of work. Such notice shall be provided, in writing, at least the number of days listed above under "Minimum required notice," in advance of said dates. If after providing said notice, it becomes apparent to the Contractor that his work will not progress to the stage necessary to permit the Railroad to begin work on the scheduled date, the Contractor shall file a corrected notice with the Engineer. Should a corrected notice not be filed in sufficient time to prevent the Railroad from unnecessarily mobilizing men and equipment, including movement to the job site, any related costs incurred by the Railroad for nonproductive work shall be borne by the Contractor and sums sufficient to cover the claims based upon bills rendered to the State by Railroad for such costs will be deducted from the progress and final pay estimates due to the Contractor.

A performance day is defined as any day on which the Railroad crew which is performing the unit of work would normally work except days on which the crew is prevented by inclement weather or conditions resulting immediately therefrom, as determined by the Engineer, from proceeding with at least 75 percent of the normal labor and equipment force for at least 60 percent of the total daily time currently spent on the unit of work.

If delays due to work by the Railroad occur, and the Contractor sustains loss which, in the opinion of the Engineer, could not have been avoided by the judicious handling of forces, equipment and plant, the amount of said loss shall be determined as provided in Section 8- of the Standard Specifications.

If a delay due to work by Railroad occurs, an extension of time determined pursuant to the provisions in Section 8 of the Standard Specifications will be granted.

LEGAL RELATIONS

The provisions of this section, "Relations with Union Pacific Railroad Company" and the provisions of "Railroad Protective Insurance," of these special provisions shall inure directly to the benefit of Railroad.

RAILROAD PROTECTIVE INSURANCE

The term "Railroad" in this Section 13-3 shall be understood to mean the Union Pacific Railroad Company.

In addition to any other form of insurance or bonds required under the terms of the contract and specifications, the Contractor will be required to carry insurance of the kinds and in the amounts hereinafter specified. City of Jurupa Valley (City), County of Riverside, City's project consultants, and their officers and employees shall be named on such insurance as additionally insured.

Such insurance shall be approved by the Railroad before any work is performed on Railroad's property and shall be carried until all work required to be performed on or adjacent to the Railroad's property under the terms of the contract is satisfactorily completed as determined by the Engineer, and thereafter until all tools, equipment and materials have been removed from Railroad's property and such property is left in a clean and presentable condition.

The insurance herein required shall be obtained by the Contractor, who shall furnish the Railroad with completed certificates, in the form attached hereto, signed by the insurance company or its authorized agent or representative, reflecting the existence of each of the policies required by 1 and 2 below including coverage for X, C and U and completed operations hazards, and the original policy of insurance (or a certified duplicate original policy) required by 3 below, to:

Nancy Savage
Union Pacific Railroad Company
Insurance Group
1400 Douglas Street, Stop 1870
Omaha, NE 68179-1870

Certificate of insurance shall guarantee that the policy under 1 and 2 will not be amended, altered, modified or canceled insofar as the coverage contemplated hereunder is concerned, without at least thirty (30) days notice mailed by registered mail to the Railroad.

Full compensation for all premiums which the Contractor is required to pay on all the insurance described hereinafter shall be considered as included in the prices paid for the various items of work to be performed under the contract, and no additional allowance will be made therefor or for additional premiums which may be required by extensions of the policies of insurance.

1. Contractor's Public Liability and Property Damage Liability Insurance

The Contractor shall, with respect to the operations he performs within or adjacent to Railroad's property, carry regular Contractor's Public Liability and Property Damage Liability Insurance providing for the same limits as specified for Railroad's Protective Public Liability and Property Damage Liability insurance to be furnished for and in behalf of Railroad as hereinafter provided.

If any part of the work within or adjacent to Railroad's property is subcontracted, the Contractor in addition to carrying the above insurance shall provide the above insurance on behalf of the sub-contractors to cover their operations.

2. Contractor's Protective Public Liability and Property Damage Liability Insurance.

The Contractor shall, with respect to the operations performed for him by sub-contractors who do work within or adjacent to Railroad's property, carry in his own behalf regular Contractor's Protective Public Liability and Property Damage Liability Insurance providing for the same limits as specified for Railroad's Protective Public Liability and Property Damage Liability Insurance to be furnished for and on behalf of Railroad as hereinafter provided.

3. Railroad's Protective Public Liability and Property Damage Liability Insurance

Railroad Protective Liability Form

_____
(Name of Insurance Company)

DECLARATIONS

Item 1. Named Insured:

Union Pacific Railroad Company
1416 Dodge Street - Mail Code 10049
Omaha, Nebraska 68179

Item 2. Policy Period: From _____to _____ 12:01 a.m., Standard Time, at the designated job site as stated herein.

Item 3. The insurance afforded is only with respect to such of the following coverage's as are indicated in Item 6 by specific premium charge or charges. The limit of the company's liability against such coverage or coverage's shall be as stated herein, subject to all the terms of this policy having reference thereto.

Coverage's		Limits of Liability	
		Each Occurrence	Aggregate
A B & C	Bodily Injury Liability Property Damage Liability and Physical Damage to Property	$2,000,000 Combined Single Limit	$6,000,000 for Coverage's A, B & C

Item 4. Name and Address of Contractor:

Item 5. Name and Address of Governmental Authority for whom the work by the Contractor is being performed:

Riverside County Transportation Department
3525 14th Street
Riverside, CA 92501

Item 6. Designation of the Job Site and Description of Work:

FOR CONSTRUCTION ON

_____
_____
_____
_____
_____
_____
_____

	Rates per $100 of Cost		Advance Premiums	
	Coverage A	Coverage's B & C	Coverage A	Coverage's B & C
Rental				

_____ _____

_____
Title

POLICY

_____
(Name of Insurance Company)

A _____ insurance company, herein called the company, agrees with the insured, named in the declarations made a part hereof, in consideration of the payment of the premium and in reliance upon the statements in the declaration made by the named insured and subject to all of the terms of this policy:

INSURING AGREEMENTS

I. Coverage A--Bodily Injury Liability.

To pay on behalf of the insured all sums which the insured shall become legally obligated to pay as damages because of bodily injury, sickness, or disease, including death at any time resulting therefrom, hereinafter called "bodily injury," either (1) sustained by any person arising out of acts or omissions at the designated job site which are related to or are in connection with the work described in Item 6 of the declarations, or (2) sustained at the designated job site by the Contractor or any employee of the Contractor, or by any employee of the Governmental Authority specified in Item 5 of the Declarations, or by any designated employee of the insured whether or not arising out of such acts or omissions.

Coverage B--Property Damage Liability.

To pay on behalf of the insured all sums which the insured shall become legally obligated to pay as damages because of physical injury to or destruction of property, including loss of use of any property due to such injury or destruction, hereinafter called "property damage," arising out of acts or omissions at the designated job site which are related to or are in connection with the work described in Item 6 of the declarations.

Coverage C--Physical Damage to Property.

To pay for direct and accidental loss of or damage to rolling stock and their contents, mechanical construction equipment, or motive power equipment, hereinafter called "loss," arising out of acts or omissions at the designated job site which are related to or are in connection with the work described in Item 6 of the declarations; provided such property is owned by the named insured or is leased or entrusted to the named insured under a lease or trust agreement.

II. Definitions.

(a) Insured.--The unqualified word "insured" includes the named insured and also includes any executive officer, director or stockholder thereof while acting within the scope of his duties as such.

(b) Contractor.--The word "contractor" means the Contractor designated in Item 4 of the declarations and includes all subcontractors of said Contractor but shall not include the named insured.

(c) Designated employee of the insured.--The words "designated employee of the insured" mean:

(1) any supervisory employee of the insured at the job site,

(2) any employee of the insured while operating, attached to or engaged on work trains or other railroad equipment at the job site which are assigned exclusively to the Contractor, or

(3) any employee of the insured not within (1) or (2) who is specifically loaned or assigned to the work of the Contractor for prevention of accidents or protection of property, the cost of whose services is borne specifically by the Contractor or by governmental authority.

(d) Contract.--The word "contract" means any contract or agreement to carry a person or property for a consideration or any lease, trust or interchange contract or agreement respecting motive power, rolling stock or mechanical construction equipment.

III. Defense, Settlement, Supplementary Payments.

With respect to such insurance as is afforded by this policy under Coverage's A and B, the company shall:

(a) defend any suit against the insured alleging such bodily injury or property damage and seeking damages which are payable under the terms of this policy, even if any of the allegations of the suit are groundless, false or fraudulent; but the company may make such investigation and settlement of any claim or suit as it deems expedient;

(b) pay, in addition to the applicable limits of liability:

(1) all expenses incurred by the company, all costs taxed against the insured in any such suit and all interest on the entire amount of any judgment therein which accrues after entry of the judgment and before the company has paid or tendered or deposited in court that part of the judgment which does not exceed the limit of the company's liability thereon;

(2) Premiums on appeal bonds required in any such suit, premiums on bonds to release attachments for an amount not in excess of the applicable limit of liability of this policy, but without obligation to apply for or furnish any such bonds;

(3) expenses incurred by the insured for such immediate medical and surgical relief to others as shall be imperative at the time of the occurrence;

(4) all reasonable expenses, other than loss of earnings, incurred by the insured at the company's request.

IV. Policy Period, Territory.

This policy applies only to occurrences and losses during the policy period and within the United States of America, its territories or possessions, or Canada.

EXCLUSIONS

This policy does not apply:

(a) to liability assumed by the insured under any contract or agreement except a contract as defined herein;

(b) to bodily injury or property damage caused intentionally by or at the direction of the insured;

(c) to bodily injury, property damage or loss which occurs after notification to the named insured of the acceptance of the work by the governmental authority, other than bodily injury, property damage or loss resulting from the existence or removal of tools, uninstalled equipment and abandoned or unused materials;

(d) under Coverage's A(1), B and C, to bodily injury, property damage or loss, the sole proximate cause of which is an act or omission of any insured other than acts or omissions of any designated employee of any insured;

(e) under Coverage A, to any obligation for which the insured or any carrier as his insurer may be held liable under any workmen's compensation, unemployment compensation or disability benefits law, or under any similar law; provided that the Federal Employers' Liability Act, U.S. Code (1946), Title 45, Sections 51-60, as amended, shall for the purposes of this insurance be deemed not to be any similar law;

(f) under Coverage B, to injury to or destruction of property (1) owned by the named insured or (2) leased or entrusted to the named insured under a lease or trust agreement.

(g) 1. Under any liability coverage, to injury, sickness, disease, death or destruction

(a) with respect to which an insured under the policy is also an insured under a nuclear energy liability policy issued by Nuclear Energy Liability Insurance Association, Mutual Atomic Energy Liability Underwriters or Nuclear Insurance Association of Canada, or would be an insured under any such policy but for its termination upon exhaustion of its limit of liability; or

(b) resulting from the hazardous properties of nuclear material and with respect to which (1) any person or organization is required to maintain financial protection pursuant to the Atomic Energy Act of 1954, or any law amendatory thereof, or (2) the insured is, or had this policy not been issued would be, entitled to indemnity from the United States of America, or any agency thereof, under any agreement entered into by the United States of America, or any agency thereof, with any person or organization.

2. Under any medical payments coverage, or under any Supplementary Payments provision relating to immediate medical or surgical relief, to expenses incurred with respect to bodily injury, sickness, disease or death resulting from the hazardous properties of nuclear material and arising out of the operation of a nuclear facility by any person or organization.

3. Under any liability coverage, to injury, sickness, disease, death or destruction resulting from the hazardous properties of nuclear material, if

(a) the nuclear material (1) is at any nuclear facility owned by, or operated by or on behalf of, an insured or (2) has been discharged or dispersed therefrom;

(b) the nuclear material is contained in spent fuel or waste at any time possessed, handled, used, processed, stored, transported or disposed of by or on behalf of an insured; or

(c) the injury, sickness, disease, death or destruction arises out of the furnishing by an insured of services, materials, parts or equipment in connection with the planning, construction, maintenance, operation or use of any nuclear facility, but if such facility is located within the United States of America, its territories or possessions or Canada, this exclusion (c) applies only to injury to or destruction of property at such nuclear facility.

4. As used in this exclusion:

"hazardous properties" include radioactive, toxic or explosive properties;

"nuclear material" means source material, special nuclear material or by-product material;

"source material", "special nuclear material", and "byproduct material" have the meanings given them in the Atomic Energy Act of 1954 or in any law amendatory thereof;

"spent fuel" means any fuel element or fuel component, solid or liquid, which has been used or exposed to radiation in a nuclear reactor;

"waste" means any waste material (1) containing byproduct material and (2) resulting from the operation by any person or organization of any nuclear facility included within the definition of nuclear facility under paragraph (a) or (b) thereof;

"nuclear facility" means

(a) any nuclear reactor,

(b) any equipment or device designed or used for (1) separating the isotopes of uranium or plutonium, (2) processing or utilizing spent fuel, or (3) handling, processing or packaging waste,

(c) any equipment or device used for the processing, fabricating or alloying of special nuclear material if at any time the total amount of such material in the custody of the insured at the premises where such equipment or device is located consists of or contains more than 25 grams of plutonium or uranium 233 or any combination thereof, or more than 250 grams of uranium 235,

(d) any structure, basin, excavation, premises or place prepared or used for the storage or disposal of waste, and includes the site on which any of the foregoing is located, all operations conducted on such site and all premises used for such operations;

"nuclear reactor" means any apparatus designed or used to sustain nuclear fission in a self-supporting chain reaction or to contain a critical mass of fissionable material;

with respect to injury to or destruction of property, the word "injury" or "destruction" includes all forms of radioactive contamination of property.

(h) under Coverage C, to loss due to nuclear reaction, nuclear radiation or radioactive contamination, or to any act or condition incident to any of the foregoing.

CONDITIONS

(The conditions, except conditions 3, 4, 5, 7, 8, 9, 10, 11 and 12, apply to all coverage's. Conditions 3, 4, 5, 7, 8, 9, 10, 11 and 12, apply only to the coverage noted thereunder.)

1. Premium.--The premium bases and rates for the hazards described in the declarations are stated therein. Premium bases and rates for hazards not so described are those applicable in accordance with the manuals in use by the company.

The term "contract cost" means the total cost of all work described in Item 6 of the declarations.

The term "rental cost" means the total cost to the Contractor for rental of work trains or other railroad equipment, including the remuneration of all employees of the insured while operating, attached to or engaged thereon.

The advance premium stated in the declarations is an estimated premium only. Upon termination of this policy the earned premium shall be computed in accordance with the company's rules, rates, rating plans, premiums and minimum premiums applicable to this insurance. If the earned premium thus computed exceeds the estimated advance premium paid, the company shall look to the Contractor specified in the declarations for any such excess; if less, the company shall return to the said Contractor the unearned portion paid.

In no event shall payment of premium be an obligation of the named insured.

2. Inspection.--The named insured shall make available to the company records of information relating to the subject matter of this insurance.

The company shall be permitted to inspect all operations in connection with the work described in Item 6 of the declarations.

3. Limits of Liability, Coverage A.--The limit of bodily injury liability stated in the declarations as applicable to "each person" is the limit of the company's liability for all damages, including damages for care and loss of services, arising out of bodily injury sustained by one person as the result of any one occurrence; the limit of such liability stated in the declarations as applicable to "each occurrence" is, subject to the above provision respecting each person, the total limit of the company's liability for all such damage arising out of bodily injury sustained by two or more persons as the result of any one occurrence.

4. Limits of Liability, Coverage's B and C.--The limit of liability under Coverages B and C stated in the declarations as applicable to "each occurrence" is the total limit of the company's liability for all damages and all loss under Coverage B and C combined arising out of physical injury to, destruction or loss of all property of one or more persons or organizations, including the loss of use of any property due to such injury or destruction under Coverage B, as the result of any one occurrence.

Subject to the above provision respecting "each occurrence," the limit of liability under Coverage's B and C stated in the declarations as "aggregate" is the total limit of the company's liability for all damages and all loss under Coverage's B and C combined arising out of physical injury to, destruction or loss of property, including the loss of use of any property due to such injury or destruction under Coverage B.

Under Coverage C, the limit of the company's liability for loss shall not exceed the actual cash value of the property, or if the loss is of a part thereof the actual cash value of such part, at time of loss, nor what it would then cost to repair or replace the property or such part thereof with other of like kind and quality.

5. Severalty of Interests, Coverage's A and B.-- The term "the insured" is used severally and not collectively, but the inclusion herein of more than one insured shall not operate to increase the limits of the company's liability.

6. Notice.--In the event of an occurrence or loss, written notice containing particulars sufficient to identify the insured and also reasonably obtainable information with respect to the time, place and circumstances thereof, and the names and addresses of the injured and of available witnesses, shall be given by or for the insured to the company or any of its authorized agents as soon as practicable. If claim is made or suit is brought against the insured, he shall immediately forward to the company every demand, notice, summons or other process received by him or his representative.

7. Assistance and Cooperation of the Insured, Coverage's A and B.--The insured shall cooperate with the company and, upon the company's request, attend hearings and trials and assist in making settlements, securing and giving evidence, obtaining the attendance of witnesses and in the conduct of suits. The insured shall not, except at his own cost, voluntarily make any payment, assume any obligation or incur any expense other than for such immediate medical and surgical relief to others as shall be imperative at the time of accident.

8. Action Against Company, Coverages A and B.--No action shall lie against the company unless, as a condition precedent thereto, the insured shall have fully complied with all the terms of this policy, nor until the amount of the insured's obligation to pay shall have been finally determined either by judgment against the insured after actual trial or by written agreement of the insured, the claimant and the company.
Any person or organization or the legal representative thereof who has secured such judgment or written agreement shall thereafter be entitled to recover under this policy to the extent of the insurance afforded by this policy. No person or organization shall have any right under this policy to join the company as a party to any action against the insured to determine the insured's liability. Bankruptcy or insolvency of the insured or of the insured's estate shall not relieve the company of any of its obligations hereunder.
Coverage C.--No action shall lie against the company unless, as a condition precedent thereto, there shall have been full compliance with all the terms of this policy nor until 30 days after proof of loss is filed and the amount of loss is determined as provided in this policy.

9. Insured's Duties in Event of Loss, Coverage C.--In the event of loss the insured shall:

(a) protect the property, whether or not the loss is covered by this policy, and any further loss due to the insured's failure to protect shall not be recoverable under this policy; reasonable expenses incurred in affording such protection shall be deemed incurred at the company's request;
(b) file with the company, as soon as practicable after loss, his sworn proof of loss in such form and including such information as the company may reasonably require and shall, upon the company's request, exhibit the damaged property.

10. Appraisal, Coverage C.--If the insured and the company fail to agree as to the amount of loss, either may, within 60 days after the proof of loss is filed, demand an appraisal of the loss. In such event the insured and the company shall each select a competent appraiser, and the appraisers shall select a competent and disinterested umpire. The appraisers shall state separately the actual cash value and the amount of loss and failing to agree shall submit their differences to the umpire. An award in writing of any two shall determine the amount of loss. The insured and the company shall each pay his chosen appraiser and shall bear equally the other expenses of the appraisal and umpire. The company shall not be held to have waived any of its rights by any act relating to appraisal.

11. Payment of Loss, Coverage C.--The company may pay for the loss in money but there shall be no abandonment of the damaged property to the company.

12. No Benefit to Bailee, Coverage C.--The insurance afforded by this policy shall not inure directly or indirectly to the benefit of any carrier or bailee, other than the named insured, liable for loss to the property.

13. Subrogation.--In the event of any payment under this policy, the company shall be subrogated to all the insured's rights of recovery therefor against any person or organization and the insured shall execute and deliver instruments and papers and do whatever else is necessary to secure such rights. The insured shall do nothing after loss to prejudice such rights.

14. Application of Insurance.--The insurance afforded by this policy is primary insurance.

15. Three Year Policy.--A policy period of three years is comprised of three consecutive annual periods. Computation and adjustment of earned premium shall be made at the end of each annual period. Aggregate limits of liability as stated in this policy shall apply separately to each annual period.

16. Changes.--Notice to any agent or knowledge possessed by any agent or by any other person shall not effect a waiver or a change in any part of this policy or stop the company from asserting any right under the terms of this policy; nor shall the terms of this policy be waived or changed, except by endorsement issued to form a part of this policy.

17. Assignment.--Assignment of interest under this policy shall not bind the company until its consent is endorsed hereon.

18. Cancellation.--This policy may be canceled by the named insured by mailing to the company written notice stating when thereafter the cancellation shall be effective. This policy may be canceled by the company by mailing to the named insured, Contractor and governmental authority at the respective addresses shown in this policy written notice stating when not less than 30 days thereafter such cancellation shall be effective. The mailing of notice as aforesaid shall be sufficient proof of notice. The effective date and hour of cancellation stated in the notice shall become the end of the policy period. Delivery of such written notice either by the named insured or by the company shall be equivalent to mailing.
If the named insured cancels, earned premium shall be computed in accordance with the customary short rate table and procedure. If the company cancels, earned premium shall be computed pro rata. Premium adjustment may be made either at the time cancellation is effected or as soon as practicable after cancellation becomes effective, but payment or tender of unearned premium is not a condition of cancellation.

19. Declaration.--By acceptance of this policy the named insured agrees that such statements in the declarations as are made by him are his agreements and representations, that this policy is issued in reliance upon the truth of such representations and that this policy embodies all agreements existing between himself and the company or any of its agents relating to this insurance.

In witness whereof, the _____ Insurance Company has caused this policy to be signed by its president and a secretary at _____, and countersigned on the declaration page by a duly authorized agent of the company.

(Facsimile of Signature)

_____
Secretary

(Facsimile of Signature)

_____
President

CERTIFICATE OF INSURANCE

This is to certify to: RAILROAD FILE NO.:

(1) Railroad Agreements Branch, MS #9
Engineering Service Center
California Department of Transportation
State of California
1801 30th Street, Sacramento, California 95816

(2) and to the following Railroad Company

that such insurance as is afforded by the policy or policies described below for bodily injury liability and property damage liability is in full force and effect as of the date of this certificate and covers the following Contractor as a named insured with respect to liability for damages arising out of operations performed by or for the named insured in connection with the contract or work described below.

1. Named Insured and Address

This is to certify that policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

2. Description of Work

Contract No. _____

3. Coverage's	Policy Expiration Date	Limits of Liability Each Occurrence	Aggregate
Contractor's Bodily Injury Liability and Property Damage Liability			
Umbrella or Excess Liability			

All of the coverages include coverage for the completed operations hazard, and X, C and U exposures.

Name of Insurance Company by Coverage

Coverage's	Company	Policy Number
Bodily Injury Liability		
Property Damage Liability		
Umbrella or Excess Liability		

4. The policy or policies described above will not be amended, altered, modified or cancelled until thirty (30) days after written notice thereof has been given by registered mail to the Railroad named as certificate holder in this certificate.

Certificate Date: _____

For _____
(Insurance Company)

By _____
(Authorized Agent or Representative)

State of California
Department of Transportation
DH-0S-A104(8-10-99)

CONTRACTOR'S ENDORSEMENT

A. As a condition to entering upon Railroad's right-of-way to perform work pursuant to this agreement, Licensee's contractor, _____, whose address is _____ (hereinafter "Contractor"), agrees to comply with and be bound by all the terms and provisions of this agreement relating to the work to be performed and the insurance requirements set forth in Section 13 of the Contract Special Provisions.

B. Before the Contractor commences any work, the Contractor will provide the Railroad with (1) a binder of insurance for the Railroad Protective Liability Insurance described in Section 13.3 of the Contract Special Provisions, and the original policy (or a certified duplicate original policy), and (2) a certificate issued by its insurance carrier providing the other insurance coverage required pursuant to Section 13.3 of the Contract Special Provisions in a policy or policies which contain the following type endorsement:

> UNION PACIFIC RAILROAD COMPANY is named as an additional insured with respect to all liabilities arising out of Insured's performance of work on behalf of the State.

C. This endorsement shall be completed and directed to:

[name & address of UP Engineer]
_____
_____
_____

_____
CONTRACTOR (print name on above line)

By: _____

Title: _____

Add to section 5-1.36D:

The utility owner will relocate a utility shown in the following table before the corresponding date shown:
The relocation coordination is the responsibility of the Contractor. Coordination shall begin at the day of the Notice to Proceed. Once every utility entity provides feedback on when they can relocate and the time duration of the relocation the Contractor shall submit a schedule for the sequence and durations to the Engineer. A copy of all coordination communications shall be submitted to the Engineer
Please contact Stan Dery at (951) 955-6785 to coordinate utility relocation window

Utility Relocation and Date of the Relocation

Utility	Location	Date
JCSD Water Line	Along Clay Street	February 1, 2014
JCSD Sewer Line	Along Clay Street	April 1, 2014
SCE	Along Clay Street	February 1, 2014
AT&T	Along Clay Street	February 1, 2014
Charter Communications	Along Clay Street	February 1, 2014
SEMPRA HP Gas Line	Near intersection of Linares and Clay	March 1, 2014
SEMPRA Distribution Gas Lines	Along Clay Street	February 1, 2014

During the progress of the work under this Contract, the utility owner will relocate a utility shown in the following table within the corresponding number of days shown. Notify the Engineer before you work within the approximate location of a utility shown. Working days shall be coordinated with the owning utility as shown below. Working days in both tables are the same working days for the necessary utility relocation work.

Utility Relocation and Department-Arranged Time for the Relocation

Utility	Location	Days
JCSD Water Line	Along Clay Street	20
JCSD Sewer Line	Along Clay Street	20
SCE	Along Clay Street	40
AT&T	Along Clay Street	20
Charter Communications	Along Clay Street	20
SEMPRA HP Gas Line	Near intersection of Linares and Clay	20
SEMPRA Distribution Gas Lines	Along Clay Street	20

Installation of the utilities shown in the following table requires coordination with your activities. Make the necessary arrangements with the utility company through the Engineer and submit a schedule:

1. Verified by a representative of the utility company
2. Allowing at least the time shown for the utility owner to complete its work

Utility Relocation and Contractor-Arranged Time for the Relocation

Utility	Utility Address	Location	Days
JCSD	11201 Harrel Street Mira Loma, CA 91752	Various locations	20 (Water) 20 (Sewer)
SCE	7951 Redwood Avenue Fontana, CA 92336	Installation of underground system on Clay Street, and removal of aerial electric system.	40
AT&T	3939 E. Coronado Street - 2nd Floor Anaheim, CA 92807	Relocation work on Clay Street, if required.	20
Charter Communications	7337 Central Ave. Riverside, CA 92504	Installation of underground system on Clay Street, and removal of aerial communication system.	20
SEMPRA Transmission	251 E. First Street Beaumont, CA 92223	Completion of relocation of transmission pipeline.	20
SEMPRA Distribution	1981 W. Lugonia Redlands, CA 92374	Relocation of facilities at intersections of Clay Street at Linares and General Dr., and any other work required.	20

Contractor will be responsible for the removal and the disposal of all abandoned utilities within the excavation limits.

Contractor shall contact the utility Companies to verify that the systems are deactivated prior to removal and disposal of abandoned facilities

The above utility construction days allowed is for utility relocation work only. In addition to the working days allowed for relocations, Edison shall be allowed access to the work site as required for the provision of electrical service associated with the project, and each utility owner shall be allowed access to the project site for maintenance and operation activities, as coordinated between the utility owner and the Contractor.

Full compensation for the removal and disposal of abandoned utility and sub-surface material, including labor, equipment, materials, necessary traffic control, and incidentals, shall be paid at the lump sum price for Clearing and Grubbing, and no additional compensation will be allowed therefor.

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7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

Add between the 18th and 19th paragraphs of section 7-1.04:

Temporary facilities that could be a hazard to public safety if improperly designed must comply with design requirements described in the Contract for those facilities or, if none are described, with standard design criteria or codes appropriate for the facility involved. Submit shop drawings and design calculations for the temporary facilities and show the standard design criteria or codes used. Shop drawings and supplemental calculations must be sealed and signed by an Engineer who is registered as a Civil Engineer in the State.

^^

8 PROSECUTION AND PROGRESS

Add to section 8-1.02A with:

The order of work shall be determined by the Contractor with due consideration given to the general sequence within the construction staging depicted on the Traffic Control Plan sheets contained in the plan set. The following is a list of some of the key items the Contractor will need to consider when developing the project critical path baseline schedule.

As a first order of work and prior to commencing any work on the project the Contractor shall apply, pay for and receive all permits and licenses required for this project.

As a first order of work, Contractor and the County's Land Surveyor shall perform the appropriate survey for setting witness monuments for existing property corners and other monuments as may be impacted by the project.

As a first order of work and prior to commencing any work on the project the Contractor shall submit to the Engineer and receive approval for the Water Pollution Control Plan (WPCP) to be used for the duration of the contract.

As a first order of work the Contractor shall install all construction area and project funding signs prior to commencing any onsite construction work on the project.

As a first order of work Contractor shall secure UPRR approval of Contractors Right of Entry Agreement and provide copy to Engineer. Refer to C&M Agreement for requirements.

As a first order of work the Contractor shall request construction staking for all right-of-way and temporary construction easements from the Engineer. Once requested staking has been completed the Contractor shall immediately set all temporary construction fencing for the entire project limits. As a first order of work and prior to commencing any work on the project the Contractor shall submit and receive approval for the Baseline Construction schedule.

As a first order of work all submittals shall be submitted within 60 working days of Award.

As a first order of work the Contractor shall design and submit complete precast concrete girder shop drawings for the Clay Street Underpass railroad bridge prior to issuance of Notice To Proceed date. Ten (10) sets of stamped and signed shop drawings shall be submitted to the Engineer. The Contractor shall

allow for eight (8) weeks for the initial submittal review process and six (6) weeks for each subsequent submittal review.

The Contractor shall be responsible for verifying the work area and that there is enough room within the right-of-way for the Contractor to store any materials required to construct the elements of this contract safely. The Contractor is required to secure whatever area outside the right-of-way deemed necessary for a yard or storage area to construct the project. If the Contractor wants to utilize the UPRR right-of-way for this purpose it is their responsibility to negotiate, execute an agreement and pay for the costs associated with the use of this parcel. No guarantee of the use of UPRR right-of-way for storage or lay down of materials is inferred in any way in this contract.

The Contractor shall supply a copy of any agreement between the Contractor and a private property owner to the Engineer prior to occupying any private property for this project other than those parcels identified in the contract documents as temporary construction easements.

All costs associated with setting up, maintaining, and removing a Contractor's yard or storage area shall be included in the various bid items of work and no additional compensation shall be allowed therefore.

The Contractor shall not access the work or perform work from private properties not specifically identified for use via a temporary construction easement. The applicable temporary construction easements are shown within the contract documents. Private properties without easements or rights of entry shown in the contract documents shall not be occupied by the Contractor at any time. The Contractor shall bid his work to work entirely within the right-of-ways and applicable temporary construction easements. All costs associated with performing all work from the right-of-ways or applicable temporary construction easements shall be included in the various bid items of work and no additional compensation shall be allowed therefore.

The Contractor shall provide written notice to the Engineer requesting UPRR to move-in and tie-in the tracks to the shoofly. The Contractor shall allow two (2) weeks for UPRR to mobilize and complete the tie-ins. Once the Stage 1 railroad bridge, and sub-ballast are completed, and approved by the Engineer, the Contractor shall notify the Engineer in writing requesting UPRR to move on to the project to complete their portion of the shoofly track and ballast work. The Contractor shall plan on UPRR to take eight (8) weeks from the Contractor's notice to the Engineer that the Stage 1 construction work is completed to move-in and construct the shoofly track and shift the trains over to the new shoofly track.

The Contractor shall be responsible for investigating with UPRR or Federal Rail Administration (FRA) the scheduled train traffic passing through the project site each and every day. The Contractor's bid shall represent it has investigated the volume of train traffic through the project and submitted its bid accordingly to accommodate for the down time of construction activities, All costs associated with construction work cessation by UPRR personnel shall be included in the various bid items of work and no additional compensation shall be allowed therefore.

Do not place the uppermost layer of new pavement until all underlying conduits and loop detectors are installed.

Before starting the traffic signal functional test at any location, all items of work related to signal control must be completed and all roadside signs, pavement delineation, and pavement markings must be in place at that location.

Payment for the above items of work shall be included in the contract unit price for the item requiring the work and shall be full compensation for furnishing all labor, materials and incidentals to complete the work. No additional compensation will be allowed.

Comply with Section 8-1.02D Level 3 Critical Path Method Schedule," of the STANDARD SPECIFICATIONS.

If you fail to complete any of the work or provide any of the schedules required by this section, the Engineer makes an adjustment in compensation as specified in Section 4-1.05, "CHANGES AND EXTRA WORK," of the STANDARD SPECIFICATIONS for the work not performed. Adjustments in

compensation for schedules will not be made for any increased or decreased work ordered by the Engineer in submitting schedules.

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9 PAYMENT

Section 9-1.11 Time Related Overhead

Time Related Overhead does not apply to this project.

Add to Section 9-1.16D Mobilization

9-1.16D MOBILIZATION

Mobilization shall conform to Section 9-1.16D of the Standard Specifications and these Special Provisions.

The second paragraph of Section 9-1.16D of Standard Specification does not apply.

Method of Payment

Full compensation for Mobilization, except as otherwise provided herein, for conforming to the requirements of this article shall be paid for on a lump sum basis and no additional compensation will be allowed therefor.

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DIVISION II GENERAL CONSTRUCTION

12 TEMPORARY TRAFFIC CONTROL

12-4 MAINTAINING TRAFFIC

12-4.02 CLOSURE REQUIREMENTS

12-4.02A General

Add to section 12-4.02A:

For grinding and grooving operations, sawcutting concrete slabs, and installing loop detectors with an impact attenuator vehicle as a shadow vehicle, closure of the adjacent traffic lane is not required.
Designated holidays are;

Designated County legal holidays are January 1st, the third Monday in January, February 12th, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, the second Monday in October, November 11th, Thanksgiving Day, the Friday following Thanksgiving Day, December 24th and 31st when they fall on Monday, December 25th, December 26th and January 2nd when they fall on Friday, When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When January 1st, February 12th, July 4th, November 11th, or December 25th fall on a Saturday, the preceding Friday shall be a designated legal holiday.

Under a 1-way reversing traffic control operation, traffic may be stopped in 1 direction for periods not to exceed 15 minutes. After each stoppage, all accumulated traffic for that direction must pass through the work zone before another stoppage is made.

During hauling and slide removal excavation operations, the road may be closed and traffic stopped for periods not to exceed 0 hours 15 minutes. After 1 closure is made, all accumulated traffic must pass through the work zone before another closure is allowed.
Personal vehicles of your employees must not be parked on the traveled way or shoulders, including sections closed to traffic.

If work vehicles or equipment are parked within 6 feet of a traffic lane, close the shoulder area with fluorescent orange traffic cones or portable delineators. Place the cones or delineators on a taper in advance of the parked vehicles or equipment and along the edge of the pavement at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. Use at least 9 cones or delineators for the taper. Use a W20-1, "Road Work Ahead," W21-5b, "Right/Left Shoulder Closed Ahead," or C24(CA), "Shoulder Work Ahead," sign mounted on a crashworthy, portable sign support with flags. The sign must be placed as ordered by the Engineer and at least 48 by 48 inches in size. If a cone or delineator is displaced or overturned, immediately restore the device to its original position or location.
A minimum of 1 paved traffic lane not less than 11 feet wide must be open for use by traffic.
Equipment and materials must not remain in a lane unless the lane is closed to traffic and is used for Contract activities.

If a lane is closed for construction activities and opening the lane becomes necessary for use by traffic, immediately stop active Contract activities and start clearing the lane.
Your vehicles are subject to the provisions under Chapter 13, "Vehicular Crossings," of the Vehicle Code.
Do not make lane closures if the atmospheric visibility is less than 1,000 feet.

Replace section 12-5 with:

12-5 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

12-5.01 GENERAL

Section 12-5 includes specifications for closing traffic lanes with stationary lane closures on 2-lane, 2-way highways. Contractor shall prepare traffic control plans including signing for the staging plans to be submitted for review and approval by the Transportation Department and City of Jurupa Valley.

12-5.02 MATERIALS
Not Used

12-5.03 CONSTRUCTION

Whenever components of the traffic control system are displaced or cease to operate or function as specified from any cause, immediately repair the components to the original condition or replace the components and restore the components to the original location.

For a stationary lane closure made only for the work period, remove the components of the traffic control system from the traveled way and shoulder, except for portable delineators placed along open trenches or excavation adjacent to the traveled way at the end of each work period. You may store the components at selected central locations designated by the Engineer within the limits of the highway.
You may use a pilot car to control traffic. If a pilot car is used for traffic control, the cones shown along the centerline need not be placed. The pilot car must have radio contact with personnel in the work area. Operate the pilot car through the traffic control zone at a speed not greater than 25 miles per hour.

12-5.04 PAYMENT
Traffic control system for lane closure is paid for as traffic control system. Flagging costs are paid for as part of traffic control system and no additional compensation shall be allowed therefore.

The requirements in section 4-1.05 for payment adjustment do not apply to traffic control system. Adjustments in compensation for traffic control system will be made for an increase or decrease in traffic control work if ordered and will be made on the basis of the cost of the necessary increased or decreased traffic control. The adjustment will be made on a force account basis for increased work and estimated on the same basis in the case of decreased work.

A traffic control system required by change order work is paid for as a part of the change order work.

12-8 TEMPORARY PAVEMENT DELINEATION

12-8.01 GENERAL
Section 12-8 includes specifications for placing, applying, maintaining, and removing temporary pavement delineation.

Temporary signing for no-passing zones must comply with section 12-3.06.
Temporary painted traffic stripes and painted pavement markings used for temporary delineation must comply with section 84-3.

12-8.02 MATERIALS

12-8.02A General
Not Used

12-8.02B Temporary Lane Line and Centerline Delineation
Temporary pavement markers must be the same color as the lane line or centerline markers being replaced. Temporary pavement markers must be temporary pavement markers on the Authorized Material List for short-term day/night use, 14 days or less, or long-term day/night use, 180 days or less. Place temporary pavement markers under the manufacturer's instructions.

12-8.02C Temporary Edge Line Delineation
On multilane roadways, open to traffic where edge lines are obliterated and temporary pavement delineation to replace those edge lines is not shown, provide temporary pavement delineation for:

1. Right edge lines consisting of (1) a solid 4-inch wide traffic stripe tape of the same color as the stripe being replaced, (2) traffic cones, or (3) portable delineators or channelizers placed longitudinally at intervals not exceeding 100 feet
2. Left edge lines consisting of (1) solid 4-inch wide traffic stripe tape of the same color as the stripe being replaced, (2) traffic cones, (3) portable delineators or channelizers placed longitudinally at

intervals not exceeding 100 feet, or (4) temporary pavement markers placed longitudinally at intervals not exceeding 6 feet

12-8.02G Temporary Pavement Marking Paint
You may use one of the types of temporary removable pavement marking tape or permanent pavement marking tape on the Authorized Material List instead of temporary pavement marking paint.

12- 8.02H Temporary Pavement Markers
Temporary pavement markers must be one of the temporary pavement markers on the Authorized Material List for long term day/night use, 180 days or less.

12-8.03 CONSTRUCTION

12-8.03A General
Wherever work activities obliterate pavement delineation, place temporary or permanent pavement delineation before opening the traveled way to traffic. Place lane line and centerline pavement delineation for traveled ways open to traffic. On multilane roadways, freeways and expressways, place edge line delineation for traveled ways open to traffic.

Establish the alignment for the temporary pavement delineation including required lines or markers. Surfaces to receive an application of paint or removable traffic tape must be dry and free of dirt and loose material. Do not apply temporary pavement delineation over existing pavement delineation or other temporary pavement delineation. Maintain temporary pavement delineation until it is superseded or you replace it with a new pattern of temporary pavement delineation or permanent pavement delineation.
When the Engineer determines the temporary pavement delineation is no longer required for the direction of traffic, remove the temporary pavement markers, underlying adhesive, and removable traffic tape from the final layer of surfacing and from the existing pavement to remain in place. Remove temporary pavement delineation that conflicts with any subsequent or new traffic pattern for the area.

12-8.03B Temporary Lane line and Centerline Delineation
Whenever lane lines or centerlines are obliterated and temporary pavement delineation to replace the lines is not shown, the minimum lane line and centerline delineation must consist of temporary pavement markers placed longitudinally at intervals not exceeding 24 feet. For temporary pavement markers on the Authorized Material List for long-term day/night use, 180 days or less, cement the markers to the surfacing with the adhesive recommended by the manufacturer except do not use epoxy adhesive to place the pavement markers in areas where removal of the markers will be required.
For temporary lane line or centerline delineation consisting entirely of temporary pavement markers on the Authorized Material List for short-term day/night use, 14 days or less, place the markers longitudinally at intervals not exceeding 24 feet. Do not use the markers for more than 14 days on lanes opened to traffic. Place the permanent pavement delineation before the end of the 14 days. If the permanent pavement delineation is not placed within the 14 days, replace the temporary pavement markers with additional temporary pavement delineation equivalent to the pattern specified or shown for the permanent pavement delineation for the area. The Department does not pay for the additional temporary pavement delineation.

Where no-passing centerline pavement delineation is obliterated, install the following temporary no-passing zone signs before opening lanes to traffic. Install a W20-1, "Road Work Ahead," sign from 1,000 feet to 2,000 feet in advance of a no-passing zone. Install a R4-1, "Do Not Pass," sign at the beginning of a no-passing zone and at 2,000-foot intervals within the no-passing zone. For continuous zones longer than 2 miles, install a W7-3a or W71(CA), "Next ___ Miles," sign beneath the W20-1 sign. Install a R4-2, "Pass With Care," sign at the end of the no-passing zone. The Engineer determines the exact location of temporary no-passing zone signs. Maintain the temporary no-passing zone signs in place until you place the permanent no-passing centerline pavement delineation. Remove the temporary no-passing zone signs when the Engineer determines they are no longer required for the direction of traffic.

12-8.03C Temporary Edge Line Delineation
You may apply temporary painted traffic stripe where removal of a 4-inch wide traffic stripe is not required.

The Engineer determines the lateral offset for traffic cones, portable delineators, and channelizers used for temporary edge line delineation. If traffic cones or portable delineators are used for temporary pavement delineation for edge lines, maintain the cones or delineators during hours of the day when the cones or delineators are being used for temporary edge line delineation.

Channelizers used for temporary edge line delineation must be an orange surface-mounted type. Cement channelizer bases to the pavement under section 85 for cementing pavement markers to pavement except do not use epoxy adhesive to place channelizers on the top layer of the pavement. Channelizers must be one of the 36-inch, surface-mounted types on the Authorized Material List.

Remove the temporary edge line delineation when the Engineer determines it is no longer required for the direction of traffic.

12-8.03E Temporary Traffic Stripe Paint
Apply 1 or 2 coats of temporary traffic stripe paint for new or existing pavement.
The painted temporary traffic stripe must be complete in place at the location shown before opening the traveled way to traffic. Removal of painted temporary traffic stripe is not required.

12-8.03G Temporary Pavement Marking Paint
Apply and maintain temporary pavement markings consisting of painted pavement markings at the locations shown. The painted temporary pavement marking must be complete in place at the location shown before opening the traveled way to traffic. Removal of painted temporary pavement marking is not required.

Apply 1 or 2 coats of temporary pavement marking paint for new or existing pavement.

12- 8.03H Temporary Pavement Markers
Place temporary pavement markers under the manufacturer's instructions. Cement the markers to the surfacing with the manufacturer's recommended adhesive, except do not use epoxy adhesive in areas where removal of the pavement markers is required.

You may use retroreflective pavement markers specified in section 85 instead of temporary pavement markers for long term day/night use, 180 days or less, except to simulate patterns of broken traffic stripe. Retroreflective pavement markers used for temporary pavement markers must comply with section 85, except the waiting period before placing pavement markers on new HMA surfacing as specified in section 85-1.03 does not apply. Do not use epoxy adhesive to place pavement markers in areas where removal of the pavement markers is required.

Temporary pavement markers must be complete in place before opening the traveled way to traffic.

12-8.04 PAYMENT
Temporary traffic stripe and temporary pavement marking are measured and paid for as specified in sections 84-3.04 for paint traffic stripe and paint pavement marking.

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13 WATER POLLUTION CONTROL

Add following to section 13-1.01 General:

WATER POLLUTION CONTROL (SANTA ANA RIVER BASIN- RISK LEVEL 1):

Throughout the term of this contract, the total land disturbance area of the project site is more than 1 acre. County will submit a Notice of Intent (NOI) to the California Regional Water Quality Board – Santa Ana Region for compliance with the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (hereafter referred to as the Construction General Permit), which is available at:

(http://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.shtml).

The Area-Wide Municipal Stormwater Permit (R8-2010-033, NPDES No. CAS618033), hereafter referred to in this section as the "Municipal Permit", issued by the California Regional Water Quality Control Board (CRWQCB) – Santa Ana Region. This permit regulates both stormwater and non-stormwater discharges associated with Contractor's construction activities. A copy of the Permit may be obtained at the office of the County of Riverside Transportation Department, 14th Street Transportation Annex, 3525 14th Street, Riverside, California, (951) 955-6780, or may be obtained on the internet at: http://www.waterboards.ca.gov/santaana/.

The Contractor shall comply with the requirements of the Construction General Permit (NPDES No. CAS000002), the Municipal Permit, and the De Minimus Permit (NPDES No. CAG998001).

Contractor's Stormwater Pollution Prevention Plan and Monitoring Program (SWPPP/MP) shall be prepared by a Qualified SWPPP Developer in accordance with the Construction General Permit Section I.M.77.

This project is a Risk Level 1 project under the Construction General Permit. Therefore, Contractor's SWPPP/MP shall also conform to Attachment C, Risk Level 1 Requirements of the Construction General Permit.

WATER POLLUTION CONTROL MEASURES

A. Work having the potential to cause water pollution shall not commence until the Contractor's SWPPP/MP has been reviewed and approved by the Engineer. The Engineer's review and approval of the Contractor's SWPPP/MP shall not waive any contractual requirements and shall not relieve the Contractor from achieving and maintaining compliance with all federal, state, and local laws, ordinances, statues, rules, and regulations. A copy of Contractor's SWPPP/MP shall be maintained onsite. When the SWPPP/MP or access to the construction site is requested by a representative of a federal, state, or local regulatory agency, Contractor shall make the SWPPP/MP available and Contractor shall immediately contact the Engineer. Requests from the public for the Contractor's SWPPP/MP shall be directed to the Engineer.

B. Contractor's SWPPP/MP shall describe the Contractor's plan for managing runoff and runon during each construction phase. Contractor's SWPPP/MP shall describe the Best Management Practices (BMPs) that will be implemented to control erosion, sediment, tracking, construction materials, construction wastes, and non-stormwater flows. BMP details shall be based upon California Stormwater Quality Association's (CASQA) 2009 California Stormwater Quality BMP Handbook Subscription Portal (http://www.cabmphandbooks.com) or the Caltrans Construction Site BMP Manual (http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm). Contractor's SWPPP/MP shall describe installation, operation, inspection, maintenance, and monitoring activities that will be implemented for compliance with the Construction General Permit and all applicable federal, state, and local laws, ordinances, statutes, rules, and regulations related to the protection of water quality.

C. Preparer of Contractor's SWPPP/MP shall have one of the following credentials:
   1. A California registered professional civil engineer;
   2. A California registered professional geologist or engineering geologist;
   3. A California registered landscape architect;
   4. A professional hydrologist registered through the American Institute of Hydrology;
   5. A Certified Professional in Erosion and Sediment Control™ (CPESC®) registered through EnviroCert International, Inc.; or
   6. A Certified Professional in Storm Water Quality™ (CPSWQ®) registered through EnviroCert International, Inc.

   Additionally, the preparer of the Contractor's SWPPP/MP shall have a Qualified SWPPP Developer (QSD) certificate in conformance with the Construction General Permit.

D. Contractor shall designate a Water Pollution Control Manager that shall have one of the certifications in the immediately preceding subsection D or one of the following certifications:
    1. A certified erosion, sediment and storm water inspector registered through EnviroCert International, Inc.; or
    2. A certified inspector of sediment and erosion control registered through Certified Inspector of Sediment and Erosion Control, Inc.

    Additionally, the Contractor's Water Pollution Control Manager shall have a QSD certificate or a Qualified SWPPP Practitioner (QSP) certificate in conformance with the Construction General Permit.

E. Contractor's Water Pollution Control Manager shall:
    1. Be responsible for all water pollution control work.
    2. Be the Engineer's primary contact for all water pollution control work.
    3. Have the authority to mobilize resources (crews, supplies, equipment, etc.) to make immediate repairs of water pollution control measures or to supplement water pollution control measures to maintain compliance with all federal, state, and local laws, ordinances, and regulations related to the protection of water quality, including the General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities.

F. Water Pollution Control Training: Contractor shall provide water pollution control training to Contractor's employees and subcontractors prior to their performing work on the work site. The water pollution control training shall be appropriate to the employee or subcontractor function and area of responsibility and shall address (as applicable):
    1. Erosion Control (water and wind)
    2. Sediment Control
    3. Tracking Control
    4. Materials & Waste Management
    5. Non-Stormwater Discharge Management
    6. Run-on and Run-off Control

G. Monitoring and Reporting: Observations and inspections conducted by the Contractor's Water Pollution Control Manager shall be documented on the Construction Site Inspection Checklist included in Contractor's SWPPP/MP. A copy of each completed Construction Site Inspection Checklist shall be submitted to the Engineer within 24 hours of conducting the inspection.

General Requirements:

In the event the County incurs any Administrative Civil Liability (fine) imposed by the California Regional Water Quality Control Board – Santa Ana River Basin Region, the State Water Resources Control Board, or EPA, as a result of Contractor's failure to fully implement the provisions of "Stormwater and Non-Stormwater Pollution Control", the Engineer, may, in the exercise of his sole judgment and discretion, withhold from payments otherwise due Contractor a sufficient amount to cover the Administrative Civil Liability including County staff time, legal counsel, consultant support costs and all other associated cost.

The Contractor shall be responsible for all costs and for any liability imposed by law as a result of the Contractor's failure to comply with the requirements set forth in "Water Pollution Control", including but not limited to, compliance with the applicable provisions of the Caltrans Handbooks, Construction General Permit, Federal, State, and local regulations. For the purpose of this paragraph, costs and liabilities include, but not limited to, fines, penalties, damages, and costs associated with defending against enforcement actions whether taken against the County or the Contractor, including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Act.

Within ten (15) working days after the award of the contract, the Contractor shall submit two (2) copies and one (1) pdf. file of the SWPPP/CSMP to the Engineer for review and approval. The Contractor shall allow five (5) working days for the Engineer to review the SWPPP/CSMP. If revisions are required as determined by the Engineer, the Contractor shall revise and resubmit the SWPPP/CSMP within three (3) working days of receipt of the Engineer's comments and shall allow five (5) working days for the Engineer to review the revisions. The Contractor shall submit four (4) copies and one (1) pdf. file of the approved SWPPP/CSMP to the Engineer prior to notice to proceed. The Contractor must have an approved

SWPPP/CSMP and a Waste Discharge Identification Number (WDID) prior to the notice to proceed. The contractor cannot start work, including equipment and material mobilization, stockpiling, clearing and grubbing or any other ground disturbance, without an approved SWPPP and the issuance of the WDID by the State Water Resources Control Board.

The Contractor's SWPPP/MP shall contain all required and applicable certifications and evidence of training for the Water Pollution Control Manager, SWPPP Developer, and all other employees working on the project receiving formal training or certification.

Unless otherwise directed by the Engineer or specified in these Special Provisions, the Contractor's responsibility for SWPPP/MP implementation shall continue throughout any temporary suspension of work ordered in accordance with Section 8-1.05, "Temporary Suspension of the Work", of the Standard Specifications.

The Engineer may withhold progress payments or order the suspension of construction operations without an extension of the contract time, if the Contractor fails to comply with the requirements of "Water Pollution Control" as determined by the Engineer.

All BMP repairs shall be implemented by the Contractor within 72 hrs. All BMP repairs shall also be implemented by the Contractor prior to a qualifying storm event, as defined in the Construction General Permit.

The Contractor shall be responsible for all the "Risk Level 1 Monitoring and Reporting Requirements" described in the General Construction Permit, which includes (but not limited to):

a. Risk Level 1 - Visual Monitoring (Inspection) Requirements for Qualifying Rain Events
b. Risk Level 1 – Monitoring Methods
c. Risk Level 1 – Non-Storm Water Discharge Monitoring Requirements
d. Risk Level 1 – Non-Visible Pollutant Monitoring Requirements
e. Risk Level 1 – Records

The Contractor shall be responsible for all of the inspection required by the General Construction Permit (weekly, pre and post storm, quarterly non-stormwater, etc). The Contractor shall be responsible for providing any information for annual reporting purposes in electronic format, including inspection reports, photos, NOI, sampling and analysis reports, etc.

The Contractor shall be responsible for obtaining coverage under latest adopted version of the De Minimus Permit for non-stormwater discharges that do no qualify for the Regional Board's Condition Waiver No. 2, and provide notification prior to a regulated discharge. Compliance with the De Minimus Permit is required by the Municipal Permit. This permit regulates non-stormwater discharges to surface waters of various types of wastes that pose an insignificant threat to water quality and includes monitoring and reporting requirements. At least 45 days before the start of a new (De Minimus Permit) discharge, the contractor shall submit an application and obtain the authorization letter from the (the Regional Board's) Executive Officer to discharge wastewater to surface waters. The types of wastewater discharges regulated under this Permit include the following discharges:

a. Construction dewatering wastes;
b. Wastes associated with well installation, development, test pumping and purging;
c. Aquifer testing wastes;
d. Dewatering wastes from subterranean seepage, except for discharges from utility vaults;
e. Discharges resulting from hydrostatic testing of vessels, pipelines, tanks, etc.;
f. Discharges resulting from the maintenance of potable water supply pipelines, tanks, reservoirs, etc.;
g. Discharges resulting from the disinfection of potable water supply pipelines, tanks, reservoirs, etc.;
h. Discharges from potable water supply systems resulting from initial system startup, routine startup, sampling of influent flow, system failures, pressure releases, etc.;
i. Discharges from fire hydrant testing or flushing;
j. Air conditioning condensate;
k. Swimming pool discharge;
l. Discharges resulting from diverted stream flows;

m. Decanted filter backwash wastewater and/or sludge dewatering filtrate water from water treatment facilities; and
n. Other similar types of wastes as determined by the Regional Water Board Executive Officer, which pose a de minimus threat to water quality yet must be regulated under waste discharge requirements.

At the direction of the Engineer, the Contractor shall conduct monitoring, sampling and analysis, and report preparation for conformance with the Construction Permit, Municipal Permit, and De Minimus Permit. The Contractor will not be compensated for sampling and analysis work due to the Contractor's failure to properly implement, inspect, maintain, and repair BMPs in conformance with the approved SWPPP/MP and any amendments thereto, or for failing to store construction materials or wastes in watertight conditions.

Each proposal shall have listed therein the name and address of a local certified laboratory within 50 miles of the project site to whom the Contractor proposes to subcontract all laboratory sampling and analysis, monitoring and report preparation necessary to comply with the Construction General Permit, De Minimus and the Municipal Permit, in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. The Contractor's attention is invited to other provisions of the Act related to the imposition of penalties for a failure to observe its provisions by using unauthorized subcontractors or by making unauthorized substitutions. The certified laboratory shall have experience with monitoring, sampling and analysis, and report preparation for the Construction General Permit and/or the De Minimus Permit and shall be certified by the State. A list of certified laboratories by the State can be found at:

http://www.cdph.ca.gov/certlic/labs/Documents/ELAPLablist.xls

Notice of Termination

Contractor shall perform all work specified within this specification and within the project SWPPP and shall remain responsible for Construction General Permit Compliance until such time the Notice of Termination (NOT) is filed and approved by the California Regional Water Quality Control Board. Within 30 days of completion of construction, the Contractor shall be responsible to collect, compile, and furnish to the County Engineer all necessary backup documentation required to submit for NOT. This documentation shall include at a minimum:

a. Final Site Map
b. Final Site Photos
c. Documents demonstrating achievement of "final stabilization".(computational).
d. Certification that all construction materials and wastes have been properly disposed.
e. Certification that all construction equipment and temporary BMPs have been removed from the site.
f. Documents indicating that all permanent BMPs (required by the MS4 Permit) have been constructed and are properly functioning. Documentation shall also indicate that a mechanism for long term maintenance of these BMPs is in place.
g. Other documentation as necessary to demonstrate that no potential exists for discharge of construction related pollutants within stormwater.

County Engineer or NPDES Coordinator will upload documentation and file the NOT in SMARTS.

Method of Payment:

Payment for Water Pollution Control shall be on a lump sum basis and shall include full compensation for the work performed, including obtaining Permit coverage, developing, preparing, revising, obtaining approval of, and amending the SWPPP/MP, implementing, installing, constructing, operating, maintaining, and removing and disposing of temporary BMPs, performing the observations, inspections, sampling, analysis, reporting, and street sweeping, achieving NOT approval and as specified in the Caltrans Handbooks, Construction General Permit, De Minimus Permit, Municipal Permit and these Special Provisions, and as directed by the Engineer.

Street Sweeping.

The following special provision regarding "Street Sweeping" is being added to the contract document.

GENERAL

Summary
This work includes street sweeping.

The Contractor's SWPPP/MP shall describe and include the use of street sweeping as a Water Pollution Control practice for sediment control and tracking control. Street sweeping shall also conform to all applicable AQMD requirements.

Submittals

At least 5 working days before starting clearing and grubbing, earthwork, or other activities with the potential for tracking sediment or debris, submit:

A. The number of street sweepers that will be used as described in the SWPPP/MP.
B. Type of sweeper technology (or technologies).

Quality Control and Assurance

Retain the following records related to street sweeping and submit weekly to Engineer:

A. Tracking Inspection Log
B. Sweeping times and locations.
C. Quantity of sweeping waste disposal.

CONSTRUCTION

Street Sweepers
Sweepers must use one of these technologies:

A. Mechanical sweeper followed by a vacuum-assisted sweeper.
B. Vacuum-assisted dry (waterless) sweeper.
C. Regenerative-air sweeper.

Operation
Street sweeping shall be conducted at:

A. Paved roads at job site entrance and exit locations.
B. Paved areas within the job site that flow to storm drains or water bodies.

Street sweeping shall be conducted, and sweeper(s) shall be available on site or within four hours at any given time , for the following:

A. During clearing and grubbing activities.
B. During earthwork activities.
C. During trenching activities.
D. During roadway structural section activities.
E. When vehicles are entering and leaving the job site.
F. After soil disturbing activities.
G. After observing offsite tracking of material.

Contractor's Water Pollution Control Manager shall inspect adjacent paved areas at job site entrances and exits and paved roadways within the job site on a minimum daily basis, and more frequently when

activities that require street sweeping are being performed. Contractor's Water Pollution Control Manager shall maintain a "Tracking Inspection Log." Street sweeping shall be conducted:

A. Within 4 hours, if sediment or debris is observed on paved areas or paved roadways.

At least one sweeper, in good working order, must be available for the job at all times when sweeping work may be required.

Perform street sweeping to minimize dust. If dust generation is excessive or sediment pickup is ineffective, water may be used but shall be contained, collected (e.g. vacuum), and properly disposed.

Material collected during street sweeping must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way" of the Standard Specifications.

Method of Payment:

Full compensation to conform with the requirements of this section shall be considered as included the contract lump sum price paid for Water Pollution Control including furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in street sweeping, including disposal of collected material, as shown on the plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer. Therefore, no additional compensation will be allowed for street sweeping

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14 ENVIRONMENTAL STEWARDSHIP

Add to section 14-2

ARCHAEOLOGICAL DISCOVERIES:

If archaeological materials, including but not limited to human skeletal material and disarticulated human bone, are discovered at the job site, protect and leave undisturbed and in place archaeological materials in accordance with the following codes and these special provisions:

1. California Public Resources Code, Division 5, Chapter 1.7 § 5097.5
2. California Public Resources Code, Division 5, Chapter 1.75 § 5097.98 and § 5097.99
3. California Code of Regulations, Title 14 § 4308
4. California Penal Code, Part 1, Title 14 § 622-1/2
5. California Health and Safety Code, Division 7, Part 1, Chapter 2, § 7050.5

Archaeological materials are the physical remains of past human activity and include historic-period archaeological materials and prehistoric Native American archaeological materials. Nonhuman fossils are not considered to be archaeological except when showing direct evidence of human use or alteration or when found in direct physical association with archaeological materials as described in these special provisions.

Historic-period archaeological materials include cultural remains beginning with initial European contact in California, but at least 50 years old. Historical archaeological materials include:

1. Trash deposits or clearly defined disposal pits containing tin cans, bottles, ceramic dishes, or other refuse indicating previous occupation or use of the site
2. Structural remains of stone, brick, concrete, wood, or other building material found above or below ground or
3. Human skeletal remains from the historic period, with or without coffins or caskets, including any associated grave goods

Prehistoric Native American archaeological materials include:

1. Human skeletal remains or associated burial goods such as beads or ornaments
2. Evidence of tool making or hunting such as arrowheads and associated chipping debris of fine-grained materials such as obsidian, chert, or basalt
3. Evidence of plant processing such as pestles, grinding slabs, or stone bowls

4. Evidence of habitation such as cooking pits, stone hearths, packed or burnt earth floors or
5. Remains from food processing such as concentrations of discarded or burnt animal bone, shellfish remains, or burnt rocks used in cooking.

Immediately upon discovery of archaeological materials, stop all work within a 18.5 meter radius of the archaeological materials and immediately notify the Engineer. Archaeological materials found during construction are the property of the State. Do not resume work within the 18.5 meter radius of the find until the Engineer gives you written approval. If, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of an archeological find or investigation or recovery of archeological materials, you will be compensated for resulting losses and an extension of time will be granted in the same manner as provided for in Section 8 1.07, "DELAYS", of the Standard Specifications.

PAYMENT

The Department may use other forces to investigate and recover archaeological materials from the location of the find. When ordered by the Engineer furnish labor, material, tools and equipment, to secure the location of the find, and assist in the investigation or recovery of archaeological materials and the cost will be paid for as extra work as provided in Section 4-1.05, "CHANGES AND EXTRA WORK", of the Standard Specifications.

Full compensation for immediately notifying the Engineer upon discovery of archaeological materials and leaving undisturbed and in place archaeological materials discovered on the job site shall be considered as included in the contract price paid for various items of work involved and no additional compensation will be allowed therefor.

Replace the 3rd paragraph of section 14-6.03A with:

The Department anticipates nesting or attempted nesting by migratory and nongame birds from March 15 to August 1.

In order to comply with MSHCP Section 6.3.2 Section 10 of the Migratory Bird Treaty, and relevant sections of the California Fish and Game Code (e.g., 3503, 3503.4, 3504, 3505, et seq.), any vegetation clearing within the project's disturbance footprint should take place outside of the avian nesting season, to the maximum extent practical. Prior to ground-disturbing activities within the project footprint, a qualified biologist1 shall conduct and submit a pre-construction burrowing owl, migratory nesting bird, and raptors survey report. The survey shall occur prior to initiation of project activities and any occupied nests occurring within or adjacent to the project's disturbance footprint will be delineated. To the maximum extent practicable, a minimum buffer zone from occupied nests shall be maintained during physical ground-disturbing activities. Once nesting has ceased, the buffer may be removed.

Limits of grading and construction activities within the project footprint should be clearly delineated.

The project footprint shall be minimized to the maximum extent feasible. Access shall be via pre-existing access routes to the greatest extent possible.
Water pollution and erosion control plans shall be developed and implemented in accordance with Regional Water Quality Control Board requirements.

To avoid attracting predators and nuisance species, the project footprint shall be clear of debris, where possible. All food-related trash items shall be enclosed in sealed containers and removed from the projects footprint on a daily basis.

Add to section 14-11.08:

The Contractor's attention is directed to the special handling and disposal requirements for the hazardous materials in these special provisions as what will be required at a minimum for the activities required under this section. These potential materials will be within the limits of the excavation for the structure elements on the project site. Yellow thermoplastic pavement markings and other types of colors of street or municipal markings may contain lead-based paint, As such, lead-based roadway pavement markings

shall be collected and tested, and if necessary, disposed of in accordance with applicable state and federal regulations.

The Contractor shall implement hazardous waste management practices when this waste is generated on the construction site.

Upon identification of hazardous materials, the Contractor shall prepare and submit to the Engineer for review and approval, an Excavation Management Plan (EMP), prepared by a firm or professional recognized for expertise in hazardous waste management, and showing evidence of preparing at least 5 Excavation Management Plans within the last 5 years in Southern California. The EMP shall at a minimum delineate the procedures and protocols for permitting, excavating, disposing and reporting the removal activities. The EMP shall be submitted within 3 calendar days after identification of the hazardous materials.

At the direction, of the Engineer and in accordance with the EMP, the Contractor shall work to uncover, excavate, quantify, and transport the impacted soil, by a certified waste hauling contractor, and dispose of at a permitted treatment, storage and disposal facility.

The Contractor shall be paid for the exact quantity of hazardous material removed from the project at the tonnage documented on the manifest report. The Engineer shall be responsible for determining the limits of the excavation for the removal of the hazardous material.

Nothing in these special provisions shall relieve the Contractor of the responsibility for compliance with federal, state, and local laws regarding storage, handling, transportation, and disposal of hazardous wastes.

The Contractor shall segregate potentially hazardous waste from nonhazardous waste at the construction site. Hazardous waste shall be handled, stored, and disposed of as required in California Code of Regulations, Title 22, Division 4.5, Section 66262.34; and in CFR Title 49, Parts 261, 262, and 263. Prior to hauling hazardous wastes from the project site, the Contractor shall be responsible for obtaining a hazardous waste generator number, completing all applications, including but not limited to the Hazardous Waste Manifest, and registering with the Department of Toxic Substances Control.

The Contractor shall store hazardous waste in sealed containers constructed and labeled with the contents and date accumulated as required in California Code of Regulations, Title 22, Division 4.5; and in CFR Title 49, Parts 172, 173, 178, and 179. Hazardous waste containers shall be kept in temporary containment facilities conforming to the provisions in "Material Storage" of these special provisions.

There shall be adequate storage volume and containers shall be conveniently located for hazardous waste collection. Containers of hazardous waste shall not be overfilled and hazardous wastes shall not be mixed. Containers of dry waste that are not watertight shall be stored on pallets. The Contractor shall not allow potentially hazardous waste to accumulate on the ground. Hazardous waste shall be stored away from storm drains, watercourses, moving vehicles, and equipment.
The Contractor shall dispose of hazardous waste within 90 days of being generated. Hazardous waste shall be disposed of by a licensed hazardous waste transporter using uniform hazardous waste manifest forms and taken to a Class I Disposal Site.

The quantity of the material removed shall be determined by the Engineer based on methods agreed upon between the Engineer and the Contractor.

The Agreed Price shall include the preparation of the Excavation Management Plan (EMP), excavation of and disposal of hazardous material in accordance with these special provisions, including all labor tools, equipment and incidentals as specified and no additional compensation shall be allowed therefore.

NOTE: Contractor's attention is directed to possible impact such hazardous materials may have on the project schedule. It is the intent of these special provisions to provide the Contractor with the necessary warnings to assure that a proper response will occur should the findings of such materials occur. It is assumed that the Contractor has made provisions prior to encountering such materials and that there will be no impact on the project schedule. Therefore, no allowance for additional working days is anticipated

for the removal of hazardous materials within the estimated quantity of work stipulated in the allowance bid item on the proposal.

Replace the 1st paragraph of section 14-8.02 with:

Do not exceed 86 dBA LMax at 50 feet from the job site activities from 9:00 p.m. to 6:00 a.m. except you may perform the following activities during the hours and for the days shown in the following table:

Noise Restriction Exceptions

Activity	Hours		Days	
	From	To	From	Through
Driveway approaches to business along Clay Street, General Drive, and Linares Avenue	10:00 p.m.	6:00 a.m.	TBD	TBD
Final Striping of Clay Street, General Drive, and Linares Avenue	10:00 p.m.	6:00 a.m.	TBD	TBD

Do not operate construction equipment or run the equipment engines from 7:00 p.m. to 7:00 a.m. or on Sundays except you may operate equipment within the project limits during these hours to:

1. Service traffic control facilities
2. Service construction equipment

Working days are from Monday through Friday and working hours are from 7:00 a.m. through 6:00 p.m.

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15 EXISTING FACILITIES

15-2 MISCELLANEOUS FACILITIES

Add to section 15-2.01 General

Removals of all items as described on the project plans shall conform to Section 15-2.02 "REMOVE,"of the STANDARD SPECIFICATIONS.

Full compensation for conforming to the requirements of this section including furnishing labor, tools, equipment, and materials necessary for accomplishing the work, saw cutting, disposal of removed materials shall be considered as included in the price bid for each item and no additional compensation will be allowed therefore.

Remove Chain Link Fence

As directed by the Engineer and shown in the contract plans, where existing chain link fence is in conflict with construction activities and obstructing the completion of this project, the chain link fence shall be removed and disposed of outside the right-of-way.

The Contractor will be solely responsible for the removal and proper disposal of chain link fence panels, post footings, posts, fabric, permanent attachments, signs, gates, locks, or any other item that may exist on the chain link fence that is to be removed. Included in this bid item is the backfill and compaction of post holes to the satisfaction of the Engineer.

No chain link fencing shall be removed until the Engineer is satisfied that the Contractor will secure the project site and or adjacent to private properties prior to the conclusion of the work day. Areas where fencing is removed shall be secured with new fencing (temporary or permanent) prior to the Contractor vacating the immediate area where the fencing was removed.

Remove Asphalt Concrete

Removal of asphalt concrete shall be done in accordance with the STANDARD SPECIFICATIONS and these special provisions. Removal shall be performed within the areas designated on the plans and or as directed by the Engineer. Work areas where asphalt concrete removals are being performed shall be protected from traffic in accordance with the traffic control plans and these special provisions.

Existing pavement shall be full depth sawcut to the limits of removal, and reconstructed to join existing conditions to provide a smooth transition, as directed by the Engineer. Included in this pay item shall be the removal and disposal of base section to the depth of the new roadway structural section or 6 inches below the existing grade, whichever is greater.

Contractor shall dispose of all bituminous materials outside the project right of way and in accordance with the STANDARD SPECIFICATIONS and the applicable local jurisdictions' requirements and regulations.

Remove Concrete (Curb And Gutter)
Contractor shall remove all concrete curb and gutter sections as noted on the plans and dispose of the materials outside the project right of way and in accordance with the STANDARD SPECIFICATIONS and these special provisions. Contractor shall assure that the removal of curb sections shall not adversely affect the roadbed or adjacent private property from drainage damage to either. Contractor shall also assure that the curb sections removed are protected from adjacent traffic and that no incursion from the traffic will occur within the area of the removed curb. Concrete curb and gutter shall be removed to the nearest joint. Included in this pay item shall be the removal and disposal of base section to the depth of the new roadway structural section or 6 inches below the existing grade, whichever is greater.

Remove PCC Sidewalk and Curb Ramps
Contractor shall remove all concrete sidewalk and curb ramps as noted on the plans or as required for the roadway construction and dispose of the materials outside the project right of way and in accordance with the STANDARD SPECIFICATIONS and these special provisions. Contractor shall assure that proper signing is in place for redirecting pedestrians around the work area where sidewalks are removed. Concrete sidewalks shall be removed to the nearest joint.

Remove Irrigation Facilities
Contractor shall remove existing irrigation facilities within the limits of excavation while maintaining irrigation to the vegetation outside the limits of excavation.

Remove Bus Stop Bench and sign
Contractor shall coordinate with RTA for the relocation of the existing bus stop bench and signs

Remove Tree
Contractor's attention is directed to Section 5-1.36B "LANDSCAPE" of the STANDARD SPECIFICATIONS.

Full compensation removing or replacing trees required for construction is included in the lump sum paid for CLEARING AND GRUBBING and shall include furnishing labor, tools, equipment, and materials necessary for accomplishing the work as described above, and for complying with all Federal, State and local requirements for recycling construction materials shall be considered as included in the price bid for each item and no additional compensation will be allowed therefore.

Regulatory Requirements
Attention is directed to Federal Migratory Bird Treaty Act (15 USC703-711) 50 CFR Part 21 and 50CFR Part 10, and the California Department of Fish and Game Code Sections 3503, 3513, and 3800, that protect migratory birds, their occupied nests, and their eggs from disturbance or destruction.
Construction

Ground disturbance, tree, shrub and/or vegetation removal that occurs between March 1st and September 15th will not commence until a preconstruction survey for nesting birds has verified that no active nests have been located or the Engineer has approved the beginning of work. If an active nest is located, construction within 500 feet of the nest must be avoided until the nest has been vacated and the young are independent of their parents.

Between March 15st and August 1st, the Contractor shall notify the Engineer 10 working days prior to beginning work disturbing structures, the ground or vegetation. The Engineer will approve the beginning of work disturbing the ground or vegetation between March 15st and August 1st.
The Contractor shall use exclusion techniques directed by the Engineer to prevent migratory birds from nesting in trees within the project limits.

If evidence of bird nesting is discovered, the Contractor shall not disturb the nesting birds or nests until the birds have naturally left the nests. If evidence of migratory bird nesting is discovered after beginning work, the Contractor shall immediately stop work within 500 feet of the nests and notify the Engineer. Work shall not resume until the Engineer provides a written notification that work may begin at or adjacent areas of the discovered bird nest locations.

Attention is directed to Section 8-1.06, "Suspensions" of the Standard Specifications.
Nothing in this section shall relieve the Contractor from providing for public safety in conformance with the provisions in Section 7-1.04, "Public Safety" of the Standard Specifications.

Method of Payment
Full compensation for tree removal shall be considered as included in the Lump Sum bid price paid for Clearing and Grubbing include furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in tree removal as directed by the Engineer and no additional compensation will be allowed therefor.

Relocate Business sign structure
Contractor shall be responsible for the relocation business signs to location that is visible to the public or as directed by the Engineer.

Add to section 15-8 Relocate Water Facilities

Existing water facilities within the project site may require relocation. Jurupa Community Services District will be responsible for the relocation of their facilities including pipes, fire hydrant, meters, and valves. Contractor shall coordinate the removal of such facilities with Jurupa Community Services District.

Add section 15-9 Relocate Warning Sign

The utility Companies will be responsible for the relocation of the utility warning sign. The Contractor shall inform the Engineer and coordinated the removal and re-installation of the utility warning signs with the various utility companies.

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DIVISION III GRADING

16 CLEARING AND GRUBBING

Clearing and Grubbing shall conform with Section 16 "CLEARING AND GRUBBING" of the STANDARD SPECIFICATIONS and these special provisions.

Areas within Temporary Construction Easements (TCE) are for the convenience of the Contractor and the Contractor is responsible for restoring all TCE's that were disturbed by the Contractors operations to their pre-construction condition.

The Contractor is required to visit and document the construction site and is responsible for the removal of all existing surface facilities not specifically covered under individual bid items that are necessary to construct the project. This shall include such items as miscellaneous concrete features, fencing, railroad ties, broken concrete, utility poles, miscellaneous asphalt, etc.

Contract Lump Sum price paid for CLEARING AND GRUBBING shall include all labor, equipment, materials, hauling, disposal, and incidentals, including the removal of all miscellaneous items not specifically covered under individual bid items, as shown on the plans, as specified in the STANDARD SPECIFICATIONS and these special provision, and as directed by the Engineer, and no additional compensation will be allowed therefore.

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17 WATERING

Watering shall conform with Section 17 "Watering" of the STANDARD SPECIFICATIONS. Watering shall consist of developing a water supply and furnishing and placing all water required for work done in the contract. All construction water shall be dispensed from a City of Jurupa Valley water meter at a location(s) as designated by the City.

Full compensation for conforming to the requirements of watering shall be considered as included in the various items of work involved and no additional compensation will be allowed therefore.

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18 DUST PALLIATIVE

Blank

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19 EARTHWORK

Add to section 19-2 Roadway Excavation

Roadway excavation shall be done in accordance with Section 19-2 "ROADWAY EXCAVATION" of the STANDARD SPECIFICATIONS and these special provisions.

Replace the 2nd, 3rd, and 4th paragraphs of section 19-2.03B with:

Dispose of surplus material. Ensure enough material is available to complete the embankments before disposing of it.

Full compensation for this item of work shall be paid by the cubic yard bid and shall include all labor, equipment, materials, hauling, street sweeping, disposal, and incidentals, and no additional compensation will be allowed therefore.

Payment for ROADWA EXCAVATION shall include removal of existing driveways, and drainage inlets and under sidewalk drains.

Add to section 19-3 Structure Excavation and Backfill

STRUCTURE EXCAVATION (BRIDGE), STRUCTURE EXCAVATION (TYPE D) (BRIDGE), STRUCTURE EXCAVATION (RETAINING WALL), STRUCTURE EXCAVATION (TYPE D) (RETAINING WALL), STRUCTURE BACKFILL (BRIDGE), and STRUCTURE BACKFILL (RETAINING WALL) shall conform to the provisions set forth in Section 19-3 "Structure Excavation and Backfill" of the STANDARD SPECIFICATIONS. Excavations shall be properly shored, braced and/or sheeted in conformance with Cal-OSHA requirements and as necessary to protect all adjacent structures, sub-structures, UPRR tracks, UPRR facilities, private properties, utilities and properly complete the work.

Excavated native material approved by the Engineer, and meeting the Standard Specification requirements may be used as structure backfill or fill, as case may be, and all unsuitable and excess material shall become the property of the Contractor and shall be disposed of outside the right-of-way at the end of each working day. Full compensation for the disposal of said material shall be considered as paid for in the unit price for the item requiring this work and shall include all labor, material, equipment, transporting and disposal and for performing all work involved.

Contractor shall excavate to the lines and grades shown on the Contract Plans. The Contractor shall be careful not to disturb the subgrade beyond the lines indicated and shall be responsible for shoring, slope stability and protection of the open excavation.

All excavations shall be backfilled as soon as permitted under the specifications so that when the job is closed for the day, the open excavation will be kept at minimum and adjacent utilities, UPRR tracks, and UPRR facilities will receive a maximum backfill support. All open trenches shall be covered with steel plates at the end of each work shift.

Add to section 19-3.01A(1):

Structure backfill includes constructing the geocomposite drain. Geocomposite drain must comply with section 68-7.

Replace the 2nd paragraph of section 19-3.01A(2)(b) with:

For cofferdams on or affecting railroad property, allow 21 days for review By UPRR.

Replace "Reserved" in section 19-3.03A with:

Cement treated base with waterproofing membrane is utilized below the bridge footings and roadway section as shown on the plans.

Cement treated base with waterproofing membrane is utilized at certain locations below the retaining wall footings.

For footings at locations with structure excavation (Type D), ground or surface water is expected to be encountered but seal course concrete is not specified. Where shown on the plans, cement treated base with waterproofing membrane is utilized below the bridge footings.

Delete the 1st paragraph of section 19-3.03B(2).

Add to section 19-3.04:

Cement Treated Base and Geomembrane Waterproofing placed below footings is paid for as their respective separate pay items.

Structure excavation for footings at locations not shown as structure excavation (Type D) and where ground or surface water is encountered is paid for as structure excavation (bridge).

Pervious backfill material placed within the limits of payment for retaining walls is paid for as structure backfill (retaining wall).

Replace the 2nd sentence in the 8th paragraph of section 19-3.04 with:

Full compensation for the completion of the various types of structure excavation and structure backfill will be at the final pay item quantity. The cubic yard prices will include all labor, tools, equipment, hauling and disposal of all excess or unsuitable material, shoring, sheeting, and costs due to complying with the requirements outlined above, within the contract plans, standard plans, and standard specifications and as directed by the Engineer.

Railroad Earthwork

Track Excavation for shoofly and mainline construction shall be performed in accordance with 19-2 "ROADWAY EXCAVATION" of the STANDARD SPECIFICATIONS and Appendix G, of these special provisions, excluding specific backfill requirements for bridge and structural walls and other specific items of work noted in these special provisions.

Track Backfill for shoofly and mainline construction shall be performed in accordance with 19-6 EMBANKMENT CONSTRUCTION" of the STANDARD SPECIFICATIONS and Appendix G, of these special provisions of these special provisions, excluding specific backfill requirements for bridge and structural walls and other specific items of work noted in these special provisions.

Dewatering

Dewatering shall comply with section 19-3.03D "WATER CONTROL AND FOUNDATION TREATMENT" of the STANDARD SPECIFICATIONS and these special provisions. Dewatering is expected be necessary for construction of the bridge and retaining wall foundations, for roadway construction, and for utility and storm drain construction.

Contractor shall review the Geotechnical Report and Pump Test Report as a guide in determining the ground volume that may be encountered during construction. Ground water elevation fluctuates from season to season and varies from one location to another, and varies after excavation. Therefore, data provided in the Pump Test Report are reflective of the time and location of the pump test. It is the responsibility of the Contractor to determine the type and method of dewatering and discharging of ground water. The discharge shall meet County permit and Santa Ana Regional Quality Control Board requirements. Dewatering plans shall be submitted to the Engineer for review.

Contractor's staging plans and allocation of time and work space for 3rd party utility work shall take into account the potential need for dewatering during those activities.

During dewatering operation, Contractor shall monitor adjacent structures and facilities for settlement. If settlement occurs during the dewatering, Contractor shall stop the dewatering operation and consult with the Engineer for corrective action.

Installation of pumping equipment for dewatering shall conform to Section 74 of the Standard Specification.

Installation of wells for dewatering shall conform to section 76 of the Standard Specification. Compensation for conforming to the requirements of dewatering is paid for as Dewatering.

Payment for pumping ground water, disposing of ground watering, permitting, and monitoring the adjacent structures and facilities for signs of settlements, are included in the payment for dewatering.

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20 LANDSCAPE

Replace section 20-3.01D(2) with:

20-3.01D(2) Plastic Pipe Irrigation Lines
Polyethylene pipe must show no evidence of failure when tested. For each test, use 6 randomly selected 10 inch long test samples. Insert a 10 percent oversized barbed fitting into 1 end of each test sample. The barbed fitting must have an outside diameter which is 10 percent greater than the maximum outside barb diameter specified in Table 1 of ASTM D 2609 for the pipe size being tested. Place the test samples in a 10 percent IGEPAL CO-630 solution at 122 degrees F for a 24 hour period. After 24 hours examine the test samples for failure.

Replace section 20-3.02B(4) with:

20-3.02B(4) Backflow Preventer Assembly Enclosure
Fabricate enclosure of stainless steel angles and flattened expanded metal to comply with the following requirements:

1. Expanded metal sides, ends and top panels must be fabricated from 9-gauge minimum thickness Stainless steel sheet. The flattened expanded metal openings must be approximately 3/4 by 1-3/4 inch in size.
2. Expanded metal panels must be attached to the 3/16-inch thick steel frames by a series of welds that are not less than 1/4 inch in length and spaced not more than 4 inches on center, along the edges of the enclosure.
3. Lock guards must be Type 304 stainless steel with a minimum thickness of 12 gauge.
4. Nuts must be hexagonal and washers must be lock type.

The padlock is furnished by the Engineer.

Add to section 20-3.02F:

Filter cartridges must be threaded plastic rings attached to one another to produce a reusable cylindrical form filter. Filters must be capable of 140 mesh size filtration.

Replace the 5th item in the 1st paragraph of section 20-3.02H(1) with:

5. Each station must have a variable or incremental timing adjustment with a range from a maximum of 90 minutes to a minimum of 1 minute.

Add to section 20-3.02I:

Irrigation controller enclosure cabinet dimensions for a single irrigation controller must be 12 inches high by 7.5 inches wide by 4.5 inches deep.

Irrigation controller enclosure cabinets must be fabricated of stainless steel.

Door locks for the irrigation controller enclosure cabinets must be a removable-core mortise cam cylinder door lock that receives the Department's lock core. The Department's lock core is a "Best" construction core. Keys must be removable from the locks in the locked position only. Install door locks in conformance with the manufacturer's written instructions and recommendations. Deliver 2 keys for each door lock to the Engineer.

Fabricate mounting panels with stainless steel metal sheets with a minimum thickness of 0.157 inch. Rain sensors are not required.

Replace section 20-3.02M(3)(b) with:

20-3.02M(3)(b) Plastic Pipe Irrigation Lines

Plastic pipe irrigation lines used for drip emitters must be polyethylene pipe and comply with ASTM D 2737, Type 1, Class C. Pipe must withstand a 60-minute hydrostatic pressure of 50 psi when tested under ASTM D 1598.

Wall thickness of polyethylene pipe must comply with the following requirements when tested under ASTM D 2122:

Pipe size, nominal (inch)	Minimum wall thickness[a] (inch)	Maximum wall thickness[a] (inch)
1/2	0.050	0.070
5/8	0.055	0.075
3/4	0.060	0.080

[a]As measured at any point on the cross-section

The polyethylene pipe must provide leak-free, non-separating connections suitable for the purpose intended when connected to the fittings specified.

Utility grade polyethylene is not allowed for the irrigation line.

Fittings for polyethylene pipe must be compression type and recommended by the manufacturer of the polyethylene pipe. Fittings must have female sockets with an internal barb to provide a positive pipe-to-fitting connection that will not separate at the designed pressure.

Add to section 20-3.02R(1):

Ball valves must be 2-piece brass body.

Add to section 20-3.02R(3)(b):

Remote control valves must be brass.

Add to section 20-3.02R(3)(b):

Valves must be straight pattern as shown.

Add to section 20-3.02(R)(7):

Pressure relief valves must be preset at the factory for relief at 80 psi.

Replace section 20-3.03C(1)(c) with:

20-3.03C(1)(c) Directional Boring

Notify the Engineer 2 working days before starting directional bore operations. Perform directional bore operations in the presence of the Engineer.

Conduits installed by the directional bore method must be PVC Schedule 40 and comply with section 20-3.02M(3)(a).

The diameter of the boring tool for directional boring must be only as large as necessary to install conduit. Only use mineral slurry or wetting solution to lubricate the boring tool and to stabilize the soil surrounding the boring path. Mineral slurry or wetting solution must be water based and environmentally safe. Dispose of residue from directional boring operations.

The direction bore equipment must have directional control of the boring tool and an electronic boring tool location detection system. During operation the directional bore equipment must be able to determine the location of the tool both horizontally and vertically.

You must have direct charge and control of the directional bore operation at all times.

Add to section 20-3.03E(2):

Apply 1 application of a preemergent pesticide to trenched areas in existing ground cover areas and to trenched areas adjacent to fences, curbs, dikes and shoulders. The Engineer determines when the preemergent pesticide must be applied.

Replace the 5th paragraph of section 20-3.03E(2) with:

Replacement of ground cover that is removed or rototilled is not required.

Replace the last paragraph in section 20-3.03E(2) with:

Dispose of removed ground cover and prunings or reduce to chips and spread within the job site. Spread chipped material at locations determined by the Engineer. Chipped material must not be substituted for mulch, nor must the chipped material be placed within areas to receive mulch.

Add to section 20-3.03E(3):

Dispose of removed existing turf sod. Install new turf sod of a variety similar to the existing lawn over the backfilled trenches. Replacing sod must comply with the following:

1. Backfill, compact and grade trenches so that the finished grade of the replacement sod matches the elevation of the adjacent existing sod. Trench settlement must be corrected through Contract acceptance.
2. Water sodded trench areas as often and in sufficient amounts as conditions may require to keep the soil and plant roots moist through Contract acceptance. If mowing is ordered, mowing is change order work.
3. Replace lawn damaged by your operations outside the 12 inch removal limit.

Add to section 20-3.03F(1):

Pipe supply lines installed between water meters and backflow preventer assemblies must be installed not less than 1.5 feet below finished grade measured to the top of the pipe.

Add to section 20-3.03F(3):

Plastic pipe supply line mains must be installed not less than 1.5 feet below finished grade measured to the top of the pipe.

Plastic pipe supply line laterals must be installed not less than 1.5 feet below finished grade measured to the top of the pipe.

Replace Section 20-3.03H(4)(c) with:

ELECTRIC AUTOMATIC IRRIGATION COMPONENTS

Irrigation Controllers (Solar)

The solar automatic irrigation controller shall conform to the following:

A. Photovoltaic 12-station irrigation controller, photovoltaic power system, computer with lockable, waterproof, vandal resistant case, shall be manufactured as one complete unit.
B. All power will be provided by an internal photovoltaic system. Power shall be available for continuous 24-hour operation under the minimum light equivalent to 25 percent of ambient light at 55 degrees latitude.
C. The computer liquid-crystal display will be powered by a 9-volt battery key mechanism.
D. The irrigation controller shall have an output digital control pulse at 3.5-volts which will operate a valve solenoid actuator within 300 meter distance.

E. Irrigation controller shall be fully automatic and capable of operating a complete one day to 90 day cycle, scheduling up to 32 totally independent programs, each having its own start time, day cycle, assigned stations, duration, and program time. Each station shall be capable of one minute to 24 hours in one minute increments with separate setting for hours and minutes.
F. Irrigation controller shall have an emergency program backup system with a user-defined fail-safe program and system parameters which are stored in non-erasable memory.
G. Irrigation controller shall be installed on a vertical mounting tube, mounted as shown on the plans and in accordance with the manufacturer's specifications.
H. Low voltage control and neutral conductors and splice connectors shall be manufactured by the same company.
I. The watering time of each station shall be displayed on the face of the control panel.

The Irrigation controller shall be enclosed in a stainless steel enclosure with inside mounted hinges and an inside mounting clamp. The enclosure shall be equipped with a stainless steel lock. Prior to acceptance of the contract, 2 keys shall be delivered to the Engineer. The enclosure cover shall be a poly carbonate product, shall be highly resistant to crazing, staining, discoloration, creep, warping, and the long range deleterious effects of vehicle fumes, direct sunlight, heat (up to 90°C), water, oils, and aging. The enclosure cover shall allow sufficient ambient light into the enclosure to operate the controller.

Electric Remote Control Valves
Electric remote control valves shall conform to the provisions in Section 20-3.02R(3), "Control Valves," of the Standard Specifications and the following:
A. Valves shall be glass filled nylon or brass construction.
B. Valves shall be straight pattern (side inlet) as shown on the plans.

Pull Boxes
Pull box installations shall conform to the provisions in Section 20-3.02E(4), "Pull Boxes," of the Standard Specifications.

Conductors
Low voltage, as used in this section "Conductors," shall mean 36 V or less.

Irrigation controller enclosure cabinets will be measured by the unit as determined from actual count in place.

The lump sum contract price for IRRIGATION SYSTEM shall include irrigation controller enclosure cabinet and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in fabricating and installing irrigation controller enclosure cabinets, complete in place, including constructing foundations, pads and conduits to pull box adjacent to cabinets, and installing equipment within the cabinets, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Add to section 20-3.03L(6):

Replace the 5th paragraph of section 20-3.03N with:

Pipe supply lines on the discharge side of the valve must be tested in conformance with Method B only. Testing by Method A is not allowed.

Pipelines installed by trenching and backfilling and pipelines that are completely visible after installation must be tested by Method B. All other pipelines, including those installed in the ground by methods other than trenching and backfilling must be tested by Method A.

Add to section 20-3.04:

Payment for disposing of existing turf sod and furnishing and placing new turf sod is included in the payment for the various sizes of plastic pipe supply line.

Replace the 2nd paragraph of section 20-7.01B(1) with:

At least 30 days before planting the plants, submit a statement from the vendor that the order for the plants required for this Contract, including sample plants used for inspection, has been received and accepted by the vendor. The statement from the vendor must include the names, sizes, and quantities of plants ordered and the anticipated delivery date.

Add to section 20-7.02C(5):

Turf sod must be a single variety and be healthy field grown sod containing not more than 1/2-inch-thick thatch. The age of turf sod must not be less than 8 months or more than 16 months.

Replace section 20-7.02D(1)(d) with:

Organic fertilizer must be one of the following and comply with the requirements of the following table:

Organic Fertilizer

Product	Guaranteed chemical analysis (N-P-K) (%)	Company
Biosol Mix®	7-2-3	Rocky Mountain Bio-Products Denver, CO
Fertil-Fibers™	6-4-1	Quattro Environmental, Inc. Coronado, CA
Sustane®	5-2-4	Sustane Natural Fertilizer, Inc. Cannon Falls, MN
Or equal[a]	(N) 5 to 7 (P) 1 to 5 (K) 1 to 10	--

[a]Or equal must be pelleted or granular and be within the ranges shown for N-P-K. The cumulative (N) release rate must be no more than 70 percent the first 70 days after incubation (86 degrees F) with 100 percent at 350 days or more.

Delete item 1 of the 3rd paragraph of section 20-7.02D(3).

Replace section 20-7.02D(7) with:

20-7.02D(7) Root Barrier

Root barrier must be an injection molded or extruded modular component made of high-density polypropylene or polyethylene plastic.

Panel must have a minimum thickness of 1/16 inch. Each panel must have a minimum of 4 molded vertical ribs and a locking strip or integral male/female sliding lock. Panel must be a minimum of 2 feet wide and 2 feet in depth.

Joining mechanism for panels must be designed to resist slippage between panels.
Vertical root-deflecting ribs or channels must be from 0.5 to 0.8 inch high, perpendicular to the panel and from 6 to 8 inches apart.

Add between the 3rd and 4th paragraphs of section 20-7.03B(1):

Reduce removed existing plants to chips and spread within the job site. Spread chipped material at locations determined by the Engineer. Chipped material must not be substituted for mulch, nor must the chipped material be placed within areas to receive mulch.
Dispose of removed existing plants outside of the job site.

Add to section 20-7.03B(2):

Weeds must be killed within the highway, except for existing planting areas to be maintained, and excluding median areas, new and existing pavement, curbs, sidewalks, and other surfaced areas.
Existing ground cover must be killed and removed from within an area 6 foot in diameter centered at each plant location within existing ground cover areas.

Replace the 1st paragraph in section 20-7.03B(2) with:

Dispose of weeds killed during the initial roadside clearing.

Replace the 2nd paragraph in section 20-7.03B(3) with:

Dispose of mowed material and weeds killed during the after initial roadside clearing.

Add to section 20-7.03C:

Plants adjacent to drainage ditches must be located so that, after construction of the basins, no portion of the basin wall is less than 10 feet from the flow line of graded ditches or less than 10 feet from the edge of paved ditches.

Replace section 20-7.03I(12) with:

Root barriers must be installed between trees and concrete sidewalk or curb as shown. Panels must be installed flush with the finished grade and joined with locking strips or integral male/female sliding locks. Barriers must be installed with root deflectors facing inward.

Add to section 20-7.03I(14):

When the turf sod has reached a height of 4 inches the turf must be mowed to a height of 2.5 inches. The turf sod edges adjacent to edging, sidewalks, and other paved borders and surfaced areas, must be trimmed to a uniform edge not extending over those items. Trimming must be repeated whenever the edge of turf extends 1 inch beyond the edge of the edging, sidewalks, and other paved borders and surfaced areas. Mowed and trimmed growth must be removed.

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DIVISION IV SUBBASES and BASES

25 AGGREGATE SUBBASES

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26 AGGREGATE BASES

Add to section 26 Aggregate Base

Aggregate base shall be 3/4" maximum Class 2 aggregate base per Section 26-1.02A "Class 2 Aggregate Base," of the Standard Specifications. Aggregate base shall be tested for R-value, sand equivalent, and sieve analysis at a minimum of every 500 cubic yards, or at least once every 1000 tons at the job site and not at the plant.

No change from one gradation to another shall be made during the progress of the work unless permitted in writing by the Engineer.

Aggregate base shall be delivered to the roadbed as a uniform mixture. Segregation shall be avoided and the base shall be free from pockets of coarse or fine material. The use of motor graders will be permitted during depositing, spreading and compacting operations, except when self-propelled spreaders are required.
Tailgate spreading of aggregate base from dump trucks will not be permitted, except for spot dumping or in areas not readily accessible to approved spreading devices as approved by the Engineer.
Placing Aggregate Base shall be in accordance with the following:

1. Do not deposit aggregate base upon any portion of the sub-grade until the sub-grade has been approved by the Engineer.
2. Place aggregate base in thin lifts to avoid segregation.
3. Spread aggregate base on the prepared sub-grade to such a depth that when thoroughly compacted it will conform to the grades called for in the project's plans.
4. Uniformly moisture condition and compact aggregate base to 95 percent relative compaction.

The finished sub-grade shall be smooth, hard, consistent, and true to line and grade.

Full compensation for the complete placement of aggregate base will be at the price of cubic yard of Aggregate Base. The price bid will include labor, tools, equipment, and incidentals as specified in the contract plans, standard plans, STANDARD SPECIFICATIONS, and by the Engineer. This payment shall also be full compensation for furnishing and placing all aggregate base used.

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27 CEMENT TREATED BASES

Replace section 27-3 with:

27-3 CEMENT TREATMENT

27-3.01 GENERAL
Section 27-3 includes specifications for mixing in-place material, cement and water, and spreading and compacting the mixture.

27-3.02 MATERIALS
The cement content of the completed mixture must be 6 percent by weight of the dry material.

27-3.03 CONSTRUCTION
Material to be treated must be scarified and thoroughly broken up by means of equipment constructed and operated to leave an undisturbed plane at a uniform depth below the surface shown. Precautions

must be taken to avoid forming furrows of loosened material below the referenced plane and to obtain a uniform condition of the material for the full width to be treated.

Material other than rock must be broken-up so that the broken pieces will pass a 1-inch sieve.
Before the addition of cement and water to the material, rocks greater than 2-1/2 inches in size must be removed and the cost of removing rocks will be paid for as Change Order work as provided in section 4-1.05.

The material must then be shaped and sized for the addition of cement. The windrow or blanket must be limited to the size of material that can be passed through the mixing machine at each operation.

The tops of windrowed material must be flattened or slightly trenched to receive the cement. Cement must not be spread upon the prepared material more than 4 hours ahead of the road-mixing operation.
Cement must be uniformly spread by mechanical equipment in the amount necessary to meet the cement content requirements.

The rate of cement spread per linear foot of windrow or blanket must not vary more than 10 percent from the designated rate.

No traffic other than the mixing equipment is allowed to pass over the spread cement until after completion of mixing.

The resulting mixture must be uniform and more than one pass of the equipment through the material may be required. If equipment is used that requires more than one pass and cement is applied in a dry state, at least one pass must be made before mixing water is added to the material.

The cement content of samples taken from time to time from the mixtures spread on the roadbed must not vary above or below the specified cement content more than 1 percent of the weight of the dry material determined under California Test 338.

The treated mixture must be spread to the required planned width, grade and cross section. The mixture may be spread and compacted in 1 layer.

Cement treated material must be compacted to a relative compaction of not less than 95 percent.

Not more than 2 hours can elapse between the time water is added to the material and cement and the time of completion of initial rolling. Not more than 3 hours can elapse between the time water is added to the material and cement and the time of completion of final compaction after trimming.
Compacting equipment must be adequate to produce the required compaction within the operation time limits specified.

Rolling must be performed in such a manner that the finished surface is true to the required grade and cross section within the surface tolerance specified.

Areas inaccessible to rollers must be compacted to the required compaction by other means satisfactory to the Engineer.

The finished surface of cement treated material must not vary more than 0.08 foot above or below the grade established by the Engineer. The thickness of cement treated material must not be more than 0.05 foot thinner than the planned thickness at any point.

Areas where cement treatment has been performed must be cured in conformance with the provisions in section 90-1.03B. Water used to keep the surface moist must be applied without driving equipment over the cement treated material. If you elect to use the curing compound method for curing the cement treated areas, the curing compound must conform to the requirements in AASHTO Designation: M 148, Type 1-D, Class A or Class B, except that the loss of water in the water retention test must not exceed 0.040 gram per square centimeter of surface.

No equipment or traffic is permitted on the cement treated material during the first 3 days after applying the curing compound, unless otherwise permitted.

Areas where cement treatment has been performed must be cured as provided for cement treated base in section 27-2.03I.

No equipment or traffic is permitted on the cement treated material during the first 3 days after applying the curing seal, unless otherwise permitted.

The quantity of liquid asphalt curing seal to be paid for will be determined under section 93.

27-3.04 PAYMENT

Cement treatment will be measured by the square yard. The area in square yards will be determined from measurement of the finished surface of cement treated material. The measurement will be made parallel to the ground slope.

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29 TREATED PERMEABLE BASES

Add to section 29-1.01:

Treated permeable base must be asphalt treated.

Add to section 29-1.02B:

The type of asphalt binder to be mixed with aggregate for ATPB must be Grade PG 64-10.

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DIVISION V SURFACINGS AND PAVEMENTS

39 HOT MIX ASPHALT

This work includes producing and placing hot mix asphalt (HMA) **Type A**. Comply with the specifications for HMA under Section 39, "Hot Mix Asphalt" of the Standard Specifications and these Special Provisions.

The type of hot mix asphalt will be shown on the plans or specified in the Special Provisions.

Asphalts

Asphalt shall conform to the provisions in this Section, "Asphalts." Section 92, "Asphalts" of the Standard Specifications shall not apply.

Asphalt shall consist of refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt, prepared from crude petroleum. Asphalt shall be:

1. Free from residues caused by the artificial distillation of coal, coal tar, or paraffin;
2. Free from water;
3. Homogeneous.

The Contractor shall furnish asphalt in conformance with the State of California Department of Transportation's "Certification Program for Suppliers of Asphalt". The Department maintains the program requirements, procedures, and a list of approved suppliers at http://www.dot.ca.gov/hq/esc/Translab/ofpm/fpmcoc.htm or the State of California Department of Transportation's METS web site.

The Contractor shall ensure the safe transportation, storage, use, and disposal of asphalt.

The Contractor shall prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.

The grade for asphalt binder shall be **PG 64-10**.

Grades

Performance graded (PG) asphalt binder [and PG polymer modified asphalt binder] shall conform to the following table[s]:

Performance Graded Asphalt Binder

Property	AASHTO Test Method	Specification Grade		
		PG 64-10	PG 64-16	PG 70-10
Original Binder				
Flash Point, Minimum °C	T48	230	230	230
Solubility, Minimum %[b]	T44	99	99	99
Viscosity at 135 °C, Maximum, Pa·s	T316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T315	64 1.00	64 1.00	70 1.00
RTFO Test[e], Mass Loss, Maximum, %	T240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T315	64 2.20	64 2.20	70 2.20
Ductility at 25 °C Minimum, cm	T51	75	75	75
PAV[f] Aging, Test Temperature, °C	R28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*/sin(delta), kPa	T315	31[d] 5000	28[d] 5000	34[d] 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, Mpa Minimum M-value	T313	0 300 0.300	-6 300 0.300	0 300 0.300

Notes:

a. Not used.

b. The Engineer will waive this specification if the supplier is a Quality Supplier as defined by Department's "Certification Program for Suppliers of Asphalt".

c. The Engineer will waive this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.

d. Test the sample at 3 °C higher if it fails at the specified test temperature. G*sin(delta) shall remain 5000 kPa maximum.

e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T240 or ASTM Designation: D2827.

f. "PAV" means Pressurized Aging Vessel.

Performance Graded Polymer Modified Asphalt Binder[a]

Property	AASHTO Test Method	Specification Grade		
		PG 58-34 PM	PG 4-28 PM	PG 6-22 PM
Original Binder				
Flash Point, Minimum °C	T 48	230	230	230
Solubility, Minimum % [b]	T 44[c]	98.5	98.5	98.5
Viscosity at 135°C, [d] Maximum, Pa·s	T 316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 1.00	64 1.00	76 1.00
RTFO Test , Mass Loss, Maximum, %	T 240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Minimum G*/sin(delta), kPa	T 315	58 2.20	64 2.20	76 2.20
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum (delta), %	T 315	Note e 80	Note e 80	Note e 80
Elastic Recovery[f], Test Temp., °C Minimum recovery, %	T 301	25 75	25 75	25 65
PAV[g] Aging, Temperature, °C	R 28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C Maximum G*sin(delta), kPa	T 315	16 5000	22 5000	31 5000
Creep Stiffness, Test Temperature, °C Maximum S-value, MPa Minimum M-value	T 313	-24 300 0.300	-18 300 0.300	-12 300 0.300

Notes:

a. Do not modify PG Polymer Modifier using acid modification.
b. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt".
c. The Department allows ASTM D5546 instead of AASHTO T44.
d. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.
e. Test temperature is the temperature at which G*/sin(delta) is 2.2 kPa. A graph of log G*/sin(delta) plotted against temperature may be used to determine the test temperature when G*/sin(delta) is 2.2 Kpa. A graph of (delta) versus temperature may be used to determine delta at the temperature when G*/sin(delta) is 2.2 kPa. The Engineer also accepts direct measurement of (delta) at the temperature when G*/sin(delta) is 2.2 kPa.
f. Test without a force ductility clamp may be performed.
g. "PAV" means Pressurized Aging Vessel.]

Aggregate

Aggregates shall be clean and free from decomposed materials, organic material, and other deleterious substances. Coarse aggregate is material retained on the No. 4 sieve and fine aggregate is material passing the No. 4 sieve. Supplemental fine aggregate is added fine material passing the No. 30 sieve including, but not limited to, cement and stored fines from dust collectors.

The aggregate grading of the different types of hot mix asphalt shall conform to the following, unless otherwise specified on the plans:

HMA Type	Grading
A	3/4-inch and/or 1/2-inch

The combined aggregate and quality characteristics for the [¾-inch and ½-inch] aggregate[s] for use in HMA Type A, prior to addition of asphalt binder, shall conform to the requirements of Section 39-1.02E, "Aggregate" of the Standard Specifications.

Aggregate Quality

Quality Characteristic	Test Method	Requirement
Percent of crushed particles [a]	CT 205	
Coarse aggregate (% min.)		
Two fractured faces		95
Fine aggregate (Passing No. 4 sieve and retained on No. 8 sieve.) (% min)		
One fractured face		90
Los Angeles Rattler (% Max.) [a]	CT 211	
Loss at 100 rev.		12
Loss at 500 rev.		40
Sand equivalent [a, b] (min.)	CT 217	47
Fine aggregate angularity (% min.) [a]	CT 234	45
Flat and elongated particles (% max. by weight @ 5:1).) [a]	CT 235	10

Note:
[a] Combine aggregate in the JMF proportions.
[b] Reported value must be the average of 3 tests from a single sample.]

Lift Thickness

Hot mix asphalt shall be spread and compacted in the number of layers of the thicknesses indicated in the following table:

Total Thickness Shown on Plans[a]	Minimum No. of Layers	Top Layer Thickness (ft)		Next Lower Layer Thickness (ft)		All Other Lower Layer Thickness (ft)	
		Min.	Max.	Min.	Max.	Min.	Max.
0.24-foot or less	1	-	-	-	-	-	-
0.25-foot	2[b]	0.12	0.13	0.12	0.13	-	-
0.26 - 0.46 foot	2	0.12	0.21	0.14	0.25	-	-
0.47-foot or more	3 or more	0.15	0.21	0.15	0.25	0.17	0.25

[a] When pavement reinforcing mat is shown to be placed between layers of asphalt concrete, the thickness of asphalt concrete above the pavement reinforcing mat shall be considered to be the "Total Thickness Shown on Plans."

[b] One layer of 0.25 foot thick may be placed as approved by the Engineer. When the Traffic Index specified is 5.5 or below, two layers shall be placed.

Reclaimed Asphalt Pavement

The use of reclaimed asphalt pavement (RAP) in HMA production shall comply to Section 39-1.02F, "Reclaimed Asphalt Pavement" of the Standard Specifications, and this Section. Use of RAP in HMA Type C will not be allowed unless otherwise approved by the Engineer.

HMA Mix Design

The HMA mix design shall conform to Section 39-1.03B, "Hot Mix Asphalt Mix Design" of the Standard Specifications and the provisions of this Section, "HMA Mix Design." The mix design process consists of performing California Test 367 and laboratory procedures in combinations of aggregate gradations and asphalt binder contents to determine the optimum binder content (OBC) and HMA mixture qualities. The results become the proposed job mix formula (JMF).

The Contractor shall submit records of aggregate quality and mix design data. Test data shall be within one year from the last test performed.

The Contractor shall submit the HMA mix design using the *"COUNTY OF RIVERSIDE TRANSPORTATION DEPARTMENT, CONTRACTOR JOB MIX FORMULA PROPOSAL"* form to present the JMF. Formats other than the referenced form will not be accepted.

The final HMA mix design shall be signed and stamped by a Civil Engineer registered in the State of California.

The HMA mix design for Type A shall comply with the following requirements:

HMA Type A Mix Design Requirements

Quality characteristic	Test method	HMA type
		A
Air void content (%)	California Test 367	4.0
Voids in mineral aggregate (% min.) 1/2" grading 3/4" grading	California Test 367	 14.0 13.0
Voids filled with asphalt (%) 1/2" grading 3/4" grading	California Test 367	 65.0–75.0 65.0–75.0
Dust proportion 1/2" and 3/4" gradings	California Test 367	 0.6–1.3
Stabilometer value (min.) [b] 1/2" and 3/4" gradings	California Test 366	 37

[a] Not used.
[b] California Test 304, Part 2.13.
[c] Not used.

Sampling

The Contractor or the Contractor's representative shall provide a sampling device in the asphalt feed line connecting the plant storage tanks to the asphalt weighing system or spray bar. The sampling device shall be accessible between 24 and 30 inches above the platform. The Contractor shall provide a receptacle for flushing the sampling device.

The sampling device shall include a valve:

1. With a diameter between 1/2 and 3/4 inches;

2. Manufactured in a manner that a one-quart sample may be taken slowly at any time during plant operations;

3. Maintained in good condition.

The Contractor shall replace failed valves.

In the presence of the Engineer, the Contractor shall take 2 one-quart samples per operating day. The Contractor shall provide round friction top containers with one-quart capacity for storing samples.

Prime Coat

Liquid asphalt for prime coat shall conform to the provisions in Section 93, "Liquid Asphalts" of the Standard Specifications and shall be **Grade SC-70**. Prime coat shall be applied only to those areas designated by the Engineer. The application rate shall be 0.20 gallon per square yard of surface covered. The exact rate and number of applications will be determined by the Engineer.

Tack Coat

Asphaltic emulsion for paint binder (tack coat) shall conform to the provisions in Section 94, "Asphaltic Emulsion" of the Standard Specifications for the rapid-setting or slow-setting type and grade approved by the Engineer. **Grade SS1h** shall be used if not otherwise specified. Tack coat shall be applied to all vertical surfaces of existing pavement, curbs, gutters, and construction joints in the surfacing against which additional material is to be placed, to a pavement to be surfaced, and to other surfaces designated in the Special Provisions. The application rate shall

be from 0.02 to 0.10 gallon per square yard of surface covered. The exact rate and number of applications will be determined by the Engineer.

Control of Materials

All proposed materials for use in HMA shall be furnished in conformance with the provisions of Section 6, "Control of Materials" of the Standard Specfications and this Section. All materials to be used in producing the hot mix asphalt shall be supplied from a single source for each material unless approved by the Engineer. Materials to be used in HMA will be subject to inspection and tests by the Engineer. The Contractor shall furnish without charge sample of materials as may be required.

The Contractor shall furnish the Engineer a list of the Contractor's sources of materials and the locations at which those materials will be available for inspection. The Contractor shall assure that the Engineer has free access or entry at all times to the material or production of the material to be inspected, sampled, and tested. It is understood that the inspections and tests made at any point shall, in no way, be considered as a guaranty of acceptance of the material nor continued acceptance of the material presumed to be similar to that upon which inspections and tests have been made, and that inspection and testing performed by the Engineer shall not relieve the Contractor of responsibility for quality control.

All materials which the Engineer has determined defective or do not conform to the requirements of the plans and specifications will be rejected whether in place or not. Under the provisions of this Section, the Engineer will have authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any moneys due or to become due the Contractor.

Utility Covers

Except as otherwise provided herein, the Contractor shall adjust to finish grade any valve covers encountered within the project limits, as required, for those utility valves that are provided with slip cans and are adjustable without the replacement of part or the removal of concrete collars. In cases where the owning utility company insists upon upgrades in the standards, or when additional parts or the removal of concrete collars are required for the adjustment, said adjustment will be the responsibility of the owning utility company.

The Contractor shall lower manholes and valves when and as necessary for the protection of the traveling public during construction, and shall coordinate all work on said facilities with the owning utility companies. Final adjustment to grade will be the responsibility of the owning utility company, except as provided herein.

Placing HMA

Asphalt paving equipment shall be in conformance with the provisions of Section 39-1.10, "Spreading and Compacting Equipment" of the Standard Specifications. Spreading and Compacting shall be in accordance with this Section and the provisions in Section 39-1.11, "Transporting, Spreading, and Compacting" of the Standard Specifications, except QC/QA construction process and rubberized HMA do not apply.

When placing asphalt concrete to the lines and grades established by the Engineer, the automatic controls shall control the longitudinal grade and transverse slope of the screed. Grade and slope references shall be furnished, installed, and maintained by the Contractor. Should the Contractor elect to use a ski device, the minimum length of the ski device shall be 30 feet. The ski device shall be a rigid one piece unit and the entire length shall be utilized in activating the sensor.

When placing the initial mat of asphalt concrete on existing pavement, the end of the screed nearest the centerline shall be controlled by a sensor activated by a ski device not less than 30 feet. The end of the screed farthest from centerline shall be controlled by an automatic transverse

slope device set to reproduce the cross slope designated by the Engineer, by a sensor activated by a similar ski device or as directed by the Engineer.

When paving contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to the grade of the previously placed mat and will reproduce the grade in the new mat within a 0.12 inch tolerance. The end of the screed farthest from the previously placed mat shall be controlled in the same way it was controlled when placing the initial mat.

Should the methods and equipment furnished by the Contractor fail to produce a layer of asphalt concrete conforming to the provisions, including straightedge tolerance, of Section 39-1.11, "Transporting, Spreading, and Compacting" of the Standard Specifications or elsewhere in these Special Provisions, the paving operations shall be discontinued and the Contractor shall modify the equipment or methods, or furnish substitute equipment.

Should the automatic screed controls fail to operate properly during a day's work, the Contractor may manually control the spreading equipment for the remainder of that day. However, the equipment shall be corrected or replaced with alternative automatically controlled equipment conforming to the provisions in this section before starting another day's work.

Construction Process of HMA

The HMA construction process shall comply with the provisions of Section 39 of the Standard Specification, the provisions of these Special Provisions, and shall include one or more of the following:

1. Standard
2. Method

Standard

When the total HMA is more than 3,000 tons, the Standard construction process shall be followed as specified in Section 39-2, "Standard Construction Process" of the Standard Specification.

When the total paved HMA thickness is at least 0.15 foot and the individual layer is more than 0.15 foot, the Contractor shall determine the in-place density and relative compaction of HMA pavement in accordance with the procedures of California Test 375. The Contractor shall use California Test 308, Method A, in determining in-place density of each density core instead of using the nuclear gauge in Part 4, "Determining In-Place Density by the Nuclear Density Device." The Contractor shall use California Test 309 to determine the maximum theoretical density instead of calculating test maximum density in Part 5, "Determining Test Maximum Density" and shall be at the frequency specified for Test Maximum Density under California Test 375, Part 5D. Relative compaction is required for HMA Type A [and Type C] and shall be reported at various pave thicknesses as listed in the following table:

HMA Relative Compaction Requirements

HMA Type	Minimum Pave Thickness (ft)	Relative Compaction (%)
A (1/2-inch)	0.15	91-97
A (3/4-inch)	0.15	91-97
C (3/4-inch)	0.15	91-97
C (1-inch)	0.25	91-97

The Contractor shall perform sampling and testing at the specified frequency for the quality characteristics shown in the following table:

Quality characteristic	Test method	Minimum sampling and testing frequency	HMA type	
			A	C
Aggregate gradation[a]	California Test 202	1 per 750 tons and any remaining part	JMF ± Tolerance[b]	JMF ± Tolerance[b]
Sand equivalent (min)[c]	California Test 217		47	47
Asphalt binder content (%)	California Test 379 or 382		JMF ± 0.45	JMF ± 0.45
HMA moisture content (%, max)	California Test 226 or 370	1 per 1,500 tons but not less than 1 per paving day	1.0	1.0
Percent of maximum theoretical density (%)[d, e]	QC plan	1 per day's production (min.)	91–97	91–97
Stabilometer value (min)[c, f]	California Test 366	One per 1,500 tons or 2 per 5 business days, whichever is greater		
No. 4 and 3/8" gradings			30	30
1/2" 3/4" 1" gradings			37	37
Air void content (%)[c, g]	California Test 367		4 ± 2	5 ± 2
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants[h]	California Test 226 or 370	2 per day during production	--	--
Percent of crushed particles coarse aggregate (%, min)	California Test 205	As designated in the QC plan. At least once per project.		
One fractured face			90	90
Two fractured faces			75	95
Fine aggregate (%, min) (Passing no. 4 sieve and retained on no. 8 sieve.)				
One fractured face			70	90
Los Angeles Rattler (%, max)	California Test 211			
Loss at 100 rev.			12	12
Loss at 500 rev.			45	40

Flat and elongated particles (%, max by weight @ 5:1)	California Test 235	As designated in the QC plan. At least once per project.	Report only	10
Fine aggregate angularity (%, min)	California Test 234		45	45
Voids filled with asphalt (%)[i] 1/2" grading 3/4" grading 1" grading	California Test 367		 65.0–75.0 65.0–75.0	 60.0–70.0
Voids in mineral aggregate (% min)[i] 1/2" grading 3/4" grading 1" grading	California Test 367		 14.0 13.0	 13.0
Dust proportion[i] 1/2" and 3/4" gradings 1" grading	California Test 367		 0.6–1.3	 0.6–1.3
Smoothness	Section 39-1.12	--	12-foot straight-edge, must grind, and PI_0	12-foot straight-edge, must grind, and PI_0

[a] Determine combined aggregate gradation containing RAP under California Test 367.
[b] The tolerances must comply with the allowable tolerances in section 39-1.02E.
[c] Report the average of 3 tests from a single split sample.
[d] Required for HMA Type A and Type C if the specified paved thickness is at least 0.15 foot.
[e] Determine maximum theoretical density (California Test 309) at the frequency specified for Test Maximum Density under California Test 375, Part 5.D.
[f] California Test 304, Part 2.13.
[g] Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[h] For adjusting the plant controller at the HMA plant.
[i] Report only if the adjustment for the asphalt binder content TV is less than or equal to ±0.3 percent from OBC value.
[j] Not Used.

When the total paved HMA thickness is at least 0.15 foot and the individual layer is less than or equal to 0.15 foot, the Contractor shall determine the percent of maximum theoretical density from density cores taken from the final layer measured at the full depth of the total paved HMA thickness.

Method

When the total HMA is less than 3,000 tons and the total paved HMA thickness is less than 0.15 foot, the Method construction process shall be followed as specified in Section 39-3, "Method Construction Process" of the Standard Specification.

The requirements for HMA Type C using the Method process shall be similar to the requirements for HMA Type A as specified in Section 39-3, "Method Construction Process" of the Standard Specification.

HMA Acceptance and Payment Factor

Acceptance of placed HMA shall be based on a single defined lot of HMA. A lot is defined as having 1,000 tons of paved HMA, except if a quantity of HMA paved at day's end is greater than 500 tons, this quantity of paved HMA shall be considered a lot. If a quantity of HMA paved at

day's end is less than 500 tons, this quantity of HMA shall be included in the previous lot's test result for payment evaluation.
For percent of maximum theoretical density, the Engineer shall determine a deduction for each lot's test result outside the specifications using the following reduced payment factors:

Reduced Payment Factors for Percent of Maximum Theoretical Density

HMA Type A and C percent of maximum theoretical density	Reduced payment factor	HMA Type A and C percent of maximum theoretical density	Reduced payment factor
91.0	0.0000	97.0	0.0000
90.9	0.0125	97.1	0.0125
90.8	0.0250	97.2	0.0250
90.7	0.0375	97.3	0.0375
90.6	0.0500	97.4	0.0500
90.5	0.0625	97.5	0.0625
90.4	0.0750	97.6	0.0750
90.3	0.0875	97.7	0.0875
90.2	0.1000	97.8	0.1000
90.1	0.1125	97.9	0.1125
90.0	0.1250	98.0	0.1250
89.9	0.1375	98.1	0.1375
89.8	0.1500	98.2	0.1500
89.7	0.1625	98.3	0.1625
89.6	0.1750	98.4	0.1750
89.5	0.1875	98.5	0.1875
89.4	0.2000	98.6	0.2000
89.3	0.2125	98.7	0.2125
89.2	0.2250	98.8	0.2250
89.1	0.2375	98.9	0.2375
89.0	0.2500	99.0	0.2500
< 89.0	Remove and replace	> 99.0	Remove and replace

Density Cores

The Contractor shall take and test density cores to determine the percent of maximum theoretical density of the paved HMA. For Standard construction process projects, 4- or 6-inch diameter density cores shall be taken from each 500 tons of HMA production.

The Contractor shall determine the percent of maximum theoretical density from the average density of 3 density cores taken from every 500 tons of production or part thereof divided by the maximum theoretical density. The location of the density cores shall be randomly selected by the Engineer and shall be performed in the Engineer's presence. Density holes shall be backfilled and compacted with material approved by the Engineer. Density cores shall be marked with the density core's location and layer number and shall be placed in a protective container. If a density core is damaged, it shall be replaced and re-cored within 1 foot longitudinally from the original density core.

Straightedge

The straightedge for smoothness determination on the top layer of HMA pavement shall conform to the tolerance specified in Section 39-1.12B, "Straightedge" of the Standard Specifications.

Profilograph

In addition to the straightedge provisions in Section 39-1.12B, "Straightedge" of the Standard Specifications, HMA concrete pavement shall conform to the surface tolerances specified in this Section, "Profilograph."

When directed by the Engineer, the uppermost layer of asphalt concrete surfacing shall be profiled in the presence of the Engineer using a California Profilograph or equivalent in conformance with California Test 526, Section 39-1.12C, "Profilograph" of the Standard Specifications, and as specified in these Special Provisions.

The California Profilograph or equivalent will not be required for the following areas of the pavement surface but shall conform to the straightedge requirements in Section 39-1.12B, "Straightedge" of the Standard Specifications:

1. Pavement with a total thickness less than 0.24 foot;

2. Pavement on horizontal curves with a centerline curve radius of less than 1,000 feet and the pavement within the superelevation transition on those curves;

3. Pavement placed in a single lift when required by the Special Provisions;

4. Pavement with extensive grade or cross slope correction which does not receive advance leveling operations in conformance with the provisions in Section 39-6.02, "Spreading" of the Standard Specifications;

5. Pavement for ramps and connectors with steep grades and high rates of superelevation, as determined by the Engineer;

6. Shoulders and miscellaneous areas.

The Contractor shall conform to California Test 526, except a zero (null) blanking band shall be used for determining the Profile Index. Prior to beginning profiles, the profilograph shall be calibrated in the presence of the Engineer. Two profiles shall be obtained within each traffic lane, 3 feet from and parallel with the edges of the lane.

Pavements profiled shall conform to the following Profile Index requirements:

1. Pavement on tangent alignment and pavement on horizontal curves having a centerline curve radius of 2,000 feet or more shall have a Profile Index of 0.16 foot or less for each 330 feet section profiled;

2. Pavement on horizontal curves having a centerline curve radius of 1,000 feet or more but less than 2,000 feet, including the pavement within the superelevation transition of these curves, shall have a Profile Index of 0.32 foot or less for each 330 feet section profile;

3. Pavement within any 330 feet section, containing high point areas with deviations in excess of 0.025 foot in a length of 25 feet or less, when tested in conformance with the requirements in California Test 526, shall be corrected by the Contractor regardless of the Profile Index.

The Contractor shall complete initial runs of the profilograph prior to opening the pavement to public traffic. If initial profiles cannot made prior to opening the pavement to public traffic, the initial runs of the profilograph shall be made the next day that traffic control is permitted for the area to be profiled.

Areas of the top surface of the uppermost layer of asphalt concrete pavement that do not meet the specified surface tolerances shall be brought within tolerance by abrasive grinding.

Abrasive grinding shall be performed to reduce individual deviations in excess of 0.025 foot, and to reduce the Profile Index of the pavement to be within the specified tolerance. Areas which have been subjected to abrasive grinding shall receive a seal coat. Deviations in excess of 0.025 foot which cannot be brought into specified tolerance by abrasive grinding shall be corrected by either (1) removal and replacement or (2) placing an overlay of asphalt concrete. The corrective method for each area shall be selected by the Contractor and shall be approved by the Engineer prior to beginning the corrective work. Replacement or overlay pavement not meeting the specified tolerances shall be corrected by the methods specified above. Corrective work shall be at the Contractor's expense. The Contractor shall run profilograms on the areas that have received abrasive grinding or corrective work until the final profilograms indicate the Profile Index of the area is within the specified tolerance.

When abrasive grinding is used to bring the top surface of the uppermost layer of asphalt concrete surfacing within the specified surface tolerances, additional abrasive grinding shall be performed as necessary to extend the area ground in each lateral direction so that the lateral limits of grinding are at a constant offset from, and parallel with, the nearest lane line or pavement edge, and in each longitudinal direction so that the grinding begins and ends at lines normal to the pavement centerline, within a ground area. Ground areas shall be neat rectangular areas of uniform surface appearance.

The original of the final profilograms that indicate the pavement surface is within the Profile Index specified shall become the property of the County and shall be delivered to the Engineer prior to acceptance of the contract.

Method of Payment

The contract bid price paid per ton for Hot Mix Asphalt (HMA) for the type shown in bid proposal shall include full compensation for furnishing all labor, tools, materials, equipment, and incidentals, and for doing all the work involved including the sampling and testing of HMA quality characteristics, sampling and testing of density cores, and furnishing and applying asphaltic emulsion (paint binder/tack coat).

At road connections and at limits of asphalt paving, existing pavement shall be header cut as shown on the plans or as directed by the Engineer. Full compensation for furnishing all labor, tools and doing all the work necessary including grinding, sawcutting, Clean-out exiting pavement, and feathering new pavement to match existing shall be considered as included in the contract prices paid per ton for the various asphalt concrete items and no additional compensation will be allowed therefor.

Clean-out and feathered to match existing; How and where this item is being paid?
Full compensation for furnishing and applying asphaltic emulsion (paint binder/tack coat) shall be considered as included in the contract price paid for Asphalt Concrete.

The placing of Hot Mix Asphalt (miscellaneous area), driveways, and parking lots shall be paid for The contract bid price of square foot and shall include full compensation for furnishing all labor, tools, materials, equipment, and incidentals, and for doing all the work involved including the sampling and testing of HMA quality characteristics.

The adjustment of frames, valve covers, grates, manholes, including initial lowering of valves and manholes when required, shall be considered as included in the contract price paid for hot mix asphalt.

COMPENSATION ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS:

The provisions of this section shall apply only to the following contract items:

ITEM CODE	ITEM
390132	Hot Mix Asphalt Type A

The compensation payable for asphalt concrete will be increased or decreased in conformance with the provisions of this section for paving asphalt price fluctuations exceeding 10 percent (Iu/Ib is greater than 1.10 or less than 0.90) which occur during performance of the work.

The adjustment in compensation will be determined in conformance with the following formulae when the item of asphalt concrete and asphalt rubber hot mix are included in a monthly estimate:

A. Total monthly adjustment = AQ

B. For an increase in paving asphalt price index exceeding 10 percent:

A = 0.90 (Iu/Ib - 1.10) Ib

C. For a decrease in paving asphalt price index exceeding 10 percent:

A = 0.90 (Iu/Ib - 0.90) Ib

D. Where:

A = Adjustment in dollars per ton of paving asphalt used to produce asphalt hot mix rounded to the nearest $0.01.

Iu = The California Statewide Paving Asphalt Price Index which is in effect on the first business day of the month within the pay period in which the quantity subject to adjustment was included in the estimate.

Ib = The California Statewide Paving Asphalt Price Index for the month in which the bid opening for the project occurred.

Q = Quantity in tons of paving asphalt that was used in producing the quantity of asphalt concrete shown under "This Estimate" on the monthly estimate using the amount of asphalt determined by the Engineer.

The adjustment in compensation will also be subject to the following:

A. The compensation adjustments provided herein will be shown separately on payment estimates. The Contractor shall be liable to the State for decreased compensation adjustments and the Department may deduct the amount thereof from moneys due or that may become due the Contractor.

B. Compensation adjustments made under this section will be taken into account in making adjustments in conformance with the provisions in Section 9-1.06, "Changed Quantity Payment Adjustment" of the Standard Specifications.

C. In the event of an overrun of contract time, adjustment in compensation for paving asphalt included in estimates during the overrun period will be determined using the California Statewide Paving Asphalt Price Index in effect on the first business day of the month within the pay period in which the overrun began.

The California Statewide Paving Asphalt Price Index is determined each month on the first business day of the month by the Department using the average of posted prices in effect as posted by Chevron, ExxonMobil, and ConocoPhillips for the Buena Vista, Huntington Beach, and Midway Sunset fields.

In the event that the companies discontinue posting their prices for a field, the Department will determine an index from the remaining posted prices. The Department reserves the right to include in the index determination the posted prices of additional fields.

The California Statewide Paving Asphalt Price Index is available on the Division of Engineering Services website at: http://www.dot.ca.gov/hq/esc/oe/asphalt_index/astable.html.

Add to section 39-1.01:

Produce and place HMA Type A under the Standard construction process.

Add to section 39-1.02C:

Asphalt binder used in HMA Type A must be PG 64-10.

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DIVISION VI STRUCTURES

50 PRESTRESSING CONCRETE

Add to section 50-1.01B:

working force and working stress: Force and stress remaining in the prestressing steel after all losses, including:

1. Creep and shrinkage of concrete
2. Elastic compression of concrete
3. Creep of steel
4. Losses in post-tensioned prestressing steel due to sequence of stressing
5. Friction and take up of anchorages
6. All other losses peculiar to the method or system of prestressing

Replace the 2nd paragraph of section 50-1.01C(3) with:

For initial review, submit:
10 copies for railroad bridges if the project includes a UP Railway underpass

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51 CONCRETE STRUCTURES

Add to section 51 Concrete Structures

B. RETAINING WALLS

Retaining walls, consisting of the types shown on the plans, shall conform to the Standard Specifications, Section 51, "Concrete Structures" and these special provisions and the details shown on the plans.
All earthwork required to construct the wall to the lines and grades as shown on the plans shall be included in the item of work in accordance with Section 19, Earthwork" of the Standard Specifications.
Shoring as may be necessary to properly construct and protect the Contractor's work force shall be included in the item of work.

The contract price paid per cubic yard for STRUCTURE CONCRETE (RETAINING WALL), STRUCTURE CONCRETE (TYPE D) (RETAINING WALL) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the retaining structure, including but not limited to weepholes with pervious backfill, waterstops, strip waterstops, concrete footings, curing, surface finish, shoring, protection of utilities, complete in place, as shown on the plans, as specified in the STANDARD SPECIFICATIONS and these special provisions, and as directed by the Engineer.

C. STRUCTURAL CONCRETE

Portland cement concrete structures shall conform to the provisions in Section 51, "CONCRETE STRUCTURES," and Section 90 "CONCRETE" of the STANDARD SPECIFICATIONS and these special provisions.

Precast Concrete Girders

Contractor shall be responsible for furnishing and erecting the precast concrete girders in conformance with the project plans. The girders shall conform to Section 51, Concrete Structures and specifically Section 51-4 "PRECAST CONCRETE MEMBERS" of the STANDARD SPECIFICATIONS. Concrete for the precast girders shall be specified by compressive strength as shown on the plans.

The Contractor shall submit a girder erection plan to the Engineer for approval. The girder erection plan shall include procedures, details, and sequences for unloading, lifting, erecting, and installing temporary bracing, and shall be signed by an Engineer who is registered as a Civil Engineer in the State of California. The Contractor shall allow 20 days for the review of the girder erection plan.

The quantity of Structural Concrete for the bridge shall be considered the final quantity for the work and no deviation from these quantities shall be considered. Payment for this item shall include all labor materials and equipment, installation of waterproofing of the abutment and abutment walls as shown on the plans, and shall be included in the contract price bid for Structural Concrete and no additional compensation shall be allowed therefore.

Payment for FURNISH PRECAST SACRIFICIAL BEAM, FURNISH PRECAST I-GIRDER and ERECT PRECAST SACRIFICIAL BEAM and ERECT PRECAST I-GIRDER of the various lengths shown shall include all labor materials and equipment necessary and shall be included in the unit price bid for the item of work and no additional compensation shall be allowed therefore. The bid items for ERECT PRECAST SACRIFICIAL BEAM and ERECT PRECAST CONC I-GIRDER shall include all work involved with furnishing and installing the anchorage pipes, tapered metal plates, elastomeric bearing pads, neoprene bearing pads, bearing plates, electrical conduits cast into the beams, the angle steel, studs, and plates attached to the sacrificial beam.

The architectural treatments (Form liner) on the outside face of the sacrificial beam will be included in the contract price of FURNISH PRECAST SACRIFICIAL BEAM.

D. ARCHITECTURAL TREATMENT – FORMLINER

ARCHITECTURAL TREATMENT – FORMLINER (RETAINING WALL) AND ARCHITECTURAL TREATMENT – FORMLINER (BRIDGE) shall be in accordance with this section of these special provisions.

Form liners shall be used for textured concrete surfaces as shown on the plans at the Bridge Abutment, the Columns and Precast Concrete Fascia Beam, and retaining walls. Form liners shall be installed in conformance with the manufacturer's recommendations, unless other methods of forming textured concrete surfaces are approved by the Engineer. Form liners shall be manufactured from an elastomeric material or a semi-elastomeric polyurethane material by a manufacturer of commercially available concrete form liners. No substitution of other types of formliner material will be allowed. Form liners shall leave crisp, sharp definition of the architectural surface. Recurring textural configurations exhibited by repeating, recognizable shadow patterns shall be prevented by proper casting of form liner patterns. Textured concrete surfaces with such recurring textural configurations shall be reworked to remove such patterns as approved by the Engineer or the concrete shall be replaced.

Form liners shall have the following properties

Description	ASTM Designation	Range
Elastomeric material		
Shore A hardness	D 2240	20 to 65
Tensile strength (psi)	D 412	130 to 900
Semi-elastomeric polyurethane		
Shore D hardness	D 2240	55 to 65
Tensile strength (psi)	D 2370	2600 minimum

Cuts and tears in form liners shall be sealed and repaired in conformance with the manufacturer's recommendations. Form liners that are delaminated from the form shall not be used. Form liners with deformations to the manufactured surface caused by improper storage practices or any other reason shall not be used.

Form liners shall extend the full length of texturing with transverse joints at 8-foot minimum spacing. Small pieces of form liners shall not be used. Grooves shall be aligned straight and true. Grooves shall match at joints between form liners. Joints in the direction of grooves in grooved patterns shall be located only in the depressed portion of the textured concrete. Adjoining liners shall be butted together without distortion, open cracks, or offsets at the joints. Joints between liners shall be cleaned before each use to remove any mortar in the joint.

Adhesives shall be compatible with the form liner material and with concrete. Adhesives shall be approved by the liner manufacturer. Adhesives shall not cause swelling of the liner material.

Products and application procedures for form release agents shall be approved by the form liner manufacturer. Release agents shall not cause swelling of the liner material or delamination from the forms. Release agents shall not stain the concrete or react with the liner material. For reliefs simulating fractured concrete or wood grain surfaces the application method shall include the scrubbing method using a natural bristle scrub brush in the direction of grooves or grain. The release agent shall coat the liner with a thin film. Following application of form release agent, the liner surfaces shall be cleaned of excess amounts of agent using compressed air. Buildup of form release agent caused by the reuse of a liner shall be removed at least every 5 uses.

Form liners shall release without leaving particles or pieces of liner material on the concrete and without pulling or breaking concrete from the textured surface. The concrete surfaces exposed by removing forms shall be protected from damage.

A test panel at least 4' x 4' in size shall be successfully completed at a location approved by the Engineer before beginning work on architectural textures. The test panel shall be constructed and finished with the materials, tools, equipment, and methods to be used in constructing the architectural texture. If ordered by the Engineer, additional test panels shall be constructed and finished until the specified finish, texture, and color are obtained, as determined by the Engineer.

The test panel approved by the Engineer shall be used as the standard of comparison in determining acceptability of architectural texture for concrete surfaces.

Full compensation for ARCHITECTURAL TREATMENT – FORM LINER (RETAINING WALL) and ARCHITECTURAL TREATMENT – FORM LINER (BRIDGE) shall be paid for at the final pay item quantity per square feet and shall include all labor, materials and equipment and incidentals and no additional compensations shall be allowed therefore.

Payment for test panels is included in the payment for the items of work involved in the architectural treatment – form liner.

Payment for embossed rope texture, embossed arch, sand blast texture and other concrete textures is included in the payment for various items of work for structural concrete (bridge) and structural concrete (retaining wall).

Add to section 51-1.02B:

For the portions of structures shown in the following table, concrete must contain at least 675 pounds of cementitious material per cubic yard:

Bridge name and no.	Portion of structure
UPRR Underpass	Abutment vertical walls
Retaining Walls	Vertical walls

Add to section 51-3.02B(1):

Elastomeric bearing pads for the Clay Street railway underpass must comply with the specifications for elastomeric bearings in Chapter 15, Parts 10 and 11, of the AREMA *Manual for Railway Engineering.*

Replace the 6th paragraph of section 51-4.03B with:

Add to section 51-4.03B:

Design temporary bracing to prevent overturning and resist the lateral pressures shown in the following table.

Structure height, H (feet above ground)	Lateral pressure[a] (psf)
$0 < H \leq 30$	15
$30 < H \leq 50$	20
$50 < H \leq 100$	25
$H > 100$	30

[a]Apply the lateral pressure at the top of the girder in either direction.

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52 REINFORCEMENT

Add to section 52 Reinforcement

Reinforcement shall conform to the provisions in Section 52, "REINFORCEMENT," of the STANDARD SPECIFICATIONS and these special provisions.

Mechanical lap splices where acceptable on the project may be used from the prequalified list developed by Caltrans and found at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

The Contractor shall be responsible for the costs of all testing required for pre-qualification and production testing of service or ultimate butt splice testing.

The quantity of BAR REINFORCING STEEL (BRIDGE), BAR REINFORCING STEEL (RETAINING WALL), HEADED BAR REINFORCEMENT and BAR REINFORCING STEEL (EPOXY COATED) shall be considered the final quantity for the work.

Payment for BAR REINFORCING STEEL (BRIDGE), BAR REINFORCING STEEL (RETAINING WALL), HEADED BAR REINFORCEMENT, and BAR REINFORCING STEEL (EPOXY COATED) shall be paid in accordance with Section 9 of the STANDARD SPECIFICATIONS.

^^

54 WATERPROOFING

Add to Section 54 Waterproofing

A. DECK WATERPROOFING

Membrane waterproofing and protective cover shall be furnished and applied to the surface of the deck of the Clay Street Railroad Underpass in conformance with the details shown on the plans and the requirements of the AREMA Manual for Railway Engineering and these special provisions.

The waterproofing membrane shall be butyl rubber secured with an approved adhesive. At the option of the Contractor and subject to the requirements for butyl rubber, ethylene-propylene-diene-Monomer (EPDM) may be substituted for butyl rubber.

The butyl rubber membrane, adhesive, splicing cement, butyl gum splicing tape, anti-bonding paper, and fibered aluminum roof coating shall conform to the requirements of the AREMA Manual, Chapter 29, Part 2, "Membrane Waterproofing." Butyl rubber membrane shall be 0.060 inch thick, minimum.

The rubberized asphalt section shall be placed over the deck as shown on the plans. The section shall consist of rubberized asphalt with aggregate no greater than 3/8-inch. The minimum thickness of the section shall be 1-inch. Contractor shall provide the Engineer with the information related to the section prior to the placement of the material, i.e. mix design and proposed grades for the placement of the rubberized asphalt to maintain the cross falls shown on the plans.

The protective cover over the membrane waterproofing shall be 2 layers of asphaltic panels applied with adhesive and sealing compound to a total thickness not less than 3/4 inch. Sealing compound for joints

and edges shall be compatible with the membrane, the adhesive used to fasten the membrane to the deck, splicing cement, and the protective cover panels. All materials shall conform to the requirements of AREMA Manual, Chapter 29, and the following:

A. The individual panels shall be 3/8 inch thick. Panels shall be installed in sizes not less than 4' x 8', except as cut for closures.

Panels shall be shipped and stored on smooth, flat surfaces.

When panels are shipped with an inert material between the sheets to prevent sticking, all inert material shall be removed from the panel before installation.

Membrane waterproofing shall not be applied to any surface until the Contractor is prepared to follow its application with the placing of the protective cover within a sufficiently short time that the membrane will not be damaged by workers or equipment, exposure to weathering or from any other cause.

Concrete surfaces (including asphalt concrete) to receive the seal shall be swept or air blown clean of all dirt, dust, gravel, loose concrete particles, and other extraneous materials. Projections or depressions on the surface on which the membrane is to be applied that may cause injury to the membrane shall be removed or filled as directed by the Engineer.

There shall be no depressions or pockets in horizontal surfaces of the finished waterproofing. The membrane shall be carefully turned into drainage fittings. Special care shall be taken to make the waterproofing effective along the sides and ends of girders and decks and at stiffeners, gussets, expansion joints, offsets in ballast retainers, and other discontinuities.

The Contractor shall be responsible for preventing damage to the membrane waterproofing by workers or equipment. Construction of butyl membrane waterproofing shall conform to the following:

A. The surface shall be dry at the time of application and the membrane shall not be applied when the atmospheric temperature is below 34° F.

Butyl rubber membrane shall be fastened to the surface to be waterproofed by adhesive material.

The adhesive shall be applied by squeegee to the entire deck surfaces to be waterproofed at a rate of not less than one gallon per 100 square feet of deck surface.

Membrane sheets shall first be positioned and drawn tight without stretching. Half of the membrane shall then be uniformly rolled in a direction away from the starting edge or subsequent splice. Adhesive shall then be applied to the exposed deck area. Adhesive shall be allowed to dry to a tack free condition. The membrane shall then be unrolled and pressed firmly and uniformly in place, using care to avoid trapping of air. The same procedure shall be repeated for the remaining half of the membrane sheet. Wrinkles and buckles shall be avoided. Each succeeding sheet shall be positioned to fit the previously installed sheet and spliced.

Splices shall be tongue-and-groove type conforming to the details in Figure 2, Type No. 3 of AREMA Manual, Chapter 29. All seam, lap, and splice areas shall be cleaned with heptane, hexane, toluene, trichloroethylene or white gasoline, using a clean cloth, mop, or similar synthetic cleaning device. Splicing cement shall be spread continuously on the seam, lap, and splice areas at a uniform rate of not less than one gallon per 75 square feet based on both mating surfaces. After cement has dried to a tack free condition, apply butyl gum splicing tape to cemented area of membrane, extending tape to at least 1/8 inch beyond edges of splice and lap areas. Roll or press the tape firmly into place so as to obtain full contact. Bridging and wrinkles shall be avoided. Corner splices shall be reinforced with 2 continuous layers of rubber membrane over one layer of butyl tape.

All projections, such as pipes, conduits or sleeves, passing through the butyl rubber membrane waterproofing shall be flashed with prefabricated or field-fabricated boots or fitted coverings as

necessary to provide watertight construction. Butyl gum tape shall be used between layers of rubber membrane.

Holes in the membrane sheeting shall be patched with a minimum overlap of 4 inches and in accordance with manufacturer's instructions.

At transverse expansion joints in the bridge deck, a 12-inch wide galvanized 22-gage steel plate covered by an 18-inch wide strip of antibond paper shall be laid and centered on the joint prior to laying the membrane across the joint.

Construction of asphaltic protective cover shall conform to the following:

A. The surface of the membrane applied to the deck shall be thoroughly cleaned of dirt and other deleterious material before the protective cover is placed.

At transverse expansion joints in the bridge deck, a 12-inch wide galvanized 22-gage steel plate covered by an 18-inch wide strip of antibond paper shall be laid and centered on the joint above the membrane before the protective cover is placed.

Panels shall be laid with 2 superimposed layers. Joints in the second layer shall be offset from the joints in the first layer by approximately one-half the width of the panel.

Panels shall be laid in a coating of adhesive. The adhesive shall be applied by squeegee at a rate of not less than one-gallon per 100 square feet of deck surface. As successive panels are laid, the edges and ends of adjacent panels already laid shall be thoroughly coated with a sealing compound. Panels shall be laid tightly against those previously laid so that the sealing compound will completely fill the joints and be squeezed out at the top. After all of the panels have been laid, any void between panels shall be filled with the sealing compound.

Where edges or protrusions of asphaltic panels are exposed to prolonged sunlight exposure, exposed areas shall be coated with fibered aluminum roof coating.

Retainer-buffers and headers, including anchor bolt assemblies, shall be furnished and installed where shown on the plans. Timbers shall be No. 1 structural grade Douglas fir pressure treated in conformance with AWPA Use Category System: UC4B, Commodity Specification A, except that chromated copper arsenate shall not be used. Steel bolts, plates, and sheet metal shall be commercial quality, hot-dip galvanized.

The quantity of Deck Waterproofing for the bridge shall be considered the final quantity for the work and no deviation from these quantities shall be considered. It is the Contractor's responsibility to satisfy itself to the quantities from the plans and bid accordingly.

Membrane waterproofing and asphaltic protective cover panels will be paid for at the contract price per square foot for deck waterproofing. The quantity of waterproofing and cover will be computed from measurements, along the slopes including timber retainers and headers, of the actual areas placed.

The contract price per square foot for deck waterproofing shall include full compensation for furnishing all labor, materials (including galvanized sheet metal, timber retainers and headers, and steel bolts and plates), tools, equipment, and incidentals, and for doing all the work involved in furnishing and applying membrane waterproofing and protective cover, asphalt concrete, complete in place, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

E. WATERPROOFING MEMBRANE

Membrane waterproofing and protective cover shall conform to the provisions in Section ion 54 "WATERPROOFING" of the STANDARD SPECIFICATIONS and these special provisions.

A preformed membrane waterproofing system shall be furnished and applied. Preformed membrane waterproofing shall consist of reinforced or unreinforced tri-polymer membrane consisting of polyvinyl

chloride (PVC), ethylene interpolymer alloy, and polyurethane or comparable polymer. The preformed membrane shall be applied according to the manufacturer's specifications and these special provisions. A Certificate of Compliance conforming to the provisions in Section 6-3.05E "CERTIFICATES OF COMPLIANCE" of the STANDARD SPECIFICATIONS shall be furnished for the preformed membrane sheet. The Certificate of Compliance shall indicate the following information: (1) type of preformed membrane sheet, and (2) the conditioner or primer application rate.

A Manufacturer's Warranty shall be furnished for the preformed membrane sheet and shall indicate that the material furnished will be free of defects in materials and workmanship at the time of construction against deterioration due to the effects of ozone, ultraviolet, liquid hydrocarbon, and normal weathering for a minimum of 75 years from the date of installation.

The preformed membrane waterproofing system shall consist of an adhesive, conditioner or primer applied to a prepared surface; a preformed membrane sheet; mastic or tape of sealing the edges of the sheet; and a protective covering over the sheet held by an adhesive.

The preformed membrane shall be resistant to spilled liquid hydrocarbons, including gasoline, diesel fuel, kerosene, hydraulic fluid, methanol, ethanol, mineral spirits, and naptha. The membrane shall be sufficiently flexible to cover and closely conform to 90 degree edges and corners at ambient temperatures as low as 45 degrees Fahrenheit without application of heat.

The preformed membrane sheet shall be either permanently applied to a polyethylene film or reinforced with a polypropylene mesh fabric, polyester/polypropylene fabric, or a fiberglass mesh fabric. The membrane sheet shall conform to the following requirements:

Property	Test	Requirement	
		Polyethylene Film	Fabric Reinforced
Tensile Strength (min) (1)	ASTM D 882 (2)	20 lb/in (3)	20 lb/in (3)
Percent Elongation at break (min) (4)	ASTM D 882 (2)	150 percent (3)	25 percent (3)
Pliability	ASTM D 146 (5)	No Cracks	No Cracks
Thickness (min) (6)	-	.06 in	.06 in
Rubberized Asphalt Softening Point (min)	AASHTO T 53	165 deg (F)	165 deg (F)
Polymer Modified Bitumen Softening Point (min)	AASHTO T 53	210 deg (F)	210 deg (F)
Unleaded Gasoline Permeability	ASTM D 814	1300 g/SF max per 24 hrs	1300 g/SF max per 24 hrs
Puncture Resistance (Ball Tip)	ASTM D 751	800 lbs minimum	800 lbs minimum
Cold Crack Resistance (1 in mandrel, 4 hrs)	ASTM D 2138	Pass at 1.4 deg (F)	Pass at 1.4 deg (F)

Notes:
(1) Breaking factor in machine direction.
(2) Method **A,** average 5 samples.
(3) At 23°C +/- 2°C
(4) Machine direction.
(5) 180 degree bend over a 25-mm mandrel at – 12 degree C
(6) Total thickness of preformed membrane sheet and polyethylene film or fabric reinforcement.

Factory produced seams shall have a minimum bonded width of 1 inch. and shall have minimum shear strength of 320 lbs tested in accordance with ASTM D 751 (Modified per NSF Standard No. 54).

Adhesives, conditioners, primers, mastics and sealing tapes shall be manufactured for use with the respective preformed sheet materials and shall be applied according to the manufacturer's recommendations.

Protective covering shall be 0.12 inch minimum thickness geo-membrane. Backfill material and equipment shall not cut, scratch, depress or cause any other damage to the preformed membrane sheets or protective covering.

Surfaces designated to receive preformed membrane waterproofing shall be thoroughly cleaned of dirt, dust, loose or unsound concrete, and other extraneous material and shall be free from fins, sharp edges, and protrusions that would, in the opinion of the Engineer, puncture or otherwise damage the membrane. Sharp corners to be covered shall be rounded (outside) or chamfered (inside).

Where the preformed membrane waterproofing is placed on compacted grading plane, the graded surface shall be clear of vegetation and a soil sterilant shall be applied.
Surfaces shall be dry when components of the preformed membrane waterproofing system are applied.
Preformed membrane waterproofing shall not be applied to any surface until the Contractor is prepared to follow its application with the placing of the protective covering and backfill within a sufficiently short time that the membrane will not be damaged by workers or equipment, exposure to weathering, or from any other cause. Construction equipment shall not be operated directly on the preformed membrane without proper protective covering of the preformed membrane as recommended by the manufacturer. Materials, equipment or other items shall not be dragged across the surface or be allowed to slide down slopes of the preformed membrane. All personnel walking or working on the preformed membrane materials shall wear soft-soled shoes. Damaged membrane or protective covering shall be repaired or replaced by the Contractor at the Contractor's expense.

Any repairs made to the preformed membrane with a patch and with approval from the Engineer, shall be patched with the same preformed membrane material. Patches shall be cut with rounded corners and shall extend a minimum of 4 inches in each direction from the damaged area. The entire surface of the patch shall be bonded to the membrane material in accordance to the manufacturer's recommendations.
All projecting pipe, conduits, sleeves or other facilities passing through the preformed membrane waterproofing shall be flashed with prefabricated or field-fabricated boots, fitted coverings or other devices as necessary to provide watertight construction.

All conditioner or primers shall be thoroughly mixed and continuously agitated during application. Conditioner, primers or adhesive shall be allowed to dry to a tack free condition prior to placing membrane sheets.

The surfaces shall be recoated if membrane sheets are not placed over primer, conditioner or adhesive within the time recommended by the manufacturer.
The preformed membrane sheet shall not be applied in wet or foggy weather, nor when the ambient temperature is below 40°F.
Preformed membrane material shall be placed starting at the bottom and lapped by a minimum of 6 inches at splices and at repairs to holes or tears.

Field seams shall be used to put preformed membrane sheets together in the field per manufacturer's instructions. The contact surfaces of the sheets shall be wiped clean of all dirt, dust, moisture and other foreign matter. Extreme care should be taken throughout the work to avoid fishmouths, wrinkles, folds or pleats in the seam area. Any necessary repairs to the membrane shall be done in accordance with manufacturer's instructions.

Before installation of preformed membrane, the Contractor shall demonstrate to the Engineer that the equipment, techniques, and personnel proposed for the installation of field seams can produce vapor-tight seams under similar weather and work conditions near the job site. A field test seam shall be submitted by the Contractor and tested in accordance with ASTM D 751(Modified per NSF Standard No. 54). If a test seam fails the design specifications, then additional test seam samples are required until the Engineer approves the test.

Exposed edges of membrane sheets shall have a toweled bead of manufacturer's recommended mastic or sealing tape applied after the membrane is placed.

Only those preformed membrane sheets that can be anchored and seamed together the same day shall be unpacked and placed into position. The leading edge of the preformed membrane shall be secured at all times with sandbags sufficient to hold it down during high winds. The leading edges of the membrane material left exposed after the day's work shall be anchored to prevent damage or displacement due to wind.

The surface of the preformed membrane shall be cleaned free of dirt and other deleterious material before the protective covering is placed.

The protective covering shall be placed on a coating of adhesive of a type recommended by the manufacturer. The adhesive shall be applied at a rate sufficient to hold the protective covering in position until the backfill is placed.
Upon completion of the preformed membrane waterproofing installation, all seams shall be visually inspected for compliance with these special provisions. In addition to visual inspection, all field seams shall be checked using an air lance nozzle directed on the upper edge and surface to detect any loose edges or riffles indicating unbonded areas within the seam (per ASTM D 4437). Any repairs shall be performed in accordance to the manufacturer's recommendations.

Preformed membrane stored at the job site shall be stored in accordance with the manufacturer's recommendations.

Preformed membrane waterproofing will be measured and paid for by the square foot as GEOMEMBRANE WATERPROOFING. The measurement will be determined from the area covered by the preformed membrane waterproofing as shown on the plans or as directed by the Engineer.
The contract price paid per square feet for GEOMEMBRANE WATERPROOFING shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in applying the necessary to install the membrane waterproofing as shown on the plans, as specified in these special provisions and as directed by the Engineer.

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59 PAINTING

Add following to section 59-8 Anti-Graffiti Coating
59-8-01(A) GRAFFITI REMOVAL AND CLEANING:

The Contractor shall remove existing graffiti within the project limits and any new graffiti produced during the construction period of the project.

Contractor shall submit a method of graffiti removal plan to the Engineer for approval. Sand blasting will not be allowed. Methods may include but not limited to power washing, solvent washing, and painting over graffiti, as appropriate for the surface to be cleaned.

All graffiti shall be completely removed or obliterated and the area feathered out to hide any imperfections.

Graffiti shall be removed from, but not limited to, the surfaces listed as follows: bricks, cinder blocks, concrete sidewalks, pavement, bridge under passes, overhead structures, drainage channels, roadside signs, temporary construction signs, barricades, k-railing, traffic control devices, all types of poles, and other objects within the project limits as directed by the Engineer. Painting of k-railing for the purposes of graffiti removal shall not be considered as repainting as outlined in paragraph one of Section 12-3.08 and shall not be paid for as extra work.

Graffiti to be removed may include, but shall not be limited to: paint, signs, wood, metal, plastic, decals, gum, markers, crayons, ropes, chains, strings, wires, and tapes of any kind on an as needed basis.

All painting over graffiti must be done with exact color matches, so as not to show any blocking or shadowing of colors. Painting over graffiti is the preferred option on previously painted surfaces, and where solvents are unsuccessful at removing graffiti. Painting services shall be done on an as needed basis on the following types of surfaces, but not limited to: walls, hardscapes, poles, fences, bollards, railings, and buildings.

Paint shall be exact color match. Paint types may include oil base, water base and enamels as approved by the Engineer. Graffiti cover-up by paint will be allowed with appropriate type of paint at locations where graffiti cannot be removed only upon direction by the Engineer. All paint applications shall adhere to the manufacture's recommendations. All material and solutions shall be safe and biodegradable and approved by the Engineer.

Regional Water Quality Control Board (RWQCB) and Air Quality Management District (AQMD) regulations, as well as all NPDES required best management practices shall be complied with and followed.
The Contractor shall so conduct his operation as to cause the least possible obstruction and inconvenience to public traffic. The Contractor shall provide, erect and maintain barricades, lights, danger signals, and warning signs as deemed appropriate by the Engineer.

When necessary, the Contractor shall provide and erect safe and adequate scaffolding and equipment, barriers, and masking, required for the proper execution of the work. All scaffolding shall be properly braced and erected to insure the safety of the workmen and meet all appropriate OSHA regulations.
The Contractor shall respond and provide manpower for any urgent graffiti removal and cleaning notifications within two (2) working days.

When the contract does not include a bid item for Construction Site Management, full compensation for conformance with these Graffiti Removal and Cleaning requirements, including labor, equipment, materials, necessary traffic control, and incidentals, shall be paid at the lump sum price for Traffic Control System, and no additional compensation will be allowed therefor.

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DIVISION VII DRAINAGE

61 CULVERT AND DRAINAGE PIPE JOINTS

Add to section 61 Culvert and Drainage Pipe Jionts

Earthwork

Earthwork associated with the construction of all storm drain elements and other drainage features shall be done in accordance with the STANDARD SPECIFICATIONS and these special provisions.

Shoring and Trench Shoring

Shoring and Trench Shoring for the work in this section shall conform to the provisions in the STANDARD SPECIFICATIONS and these Special Provisions. Contractor shall conform to CAL-OSHA requirements for trenching and shoring.

The Contractor is required to submit a shoring/bracing plan for review and approval by the Engineer prior to excavating any trench requiring shoring/bracing.
Engineer's review of the shoring drawings or shoring inspection performed by the Engineer will in no way relieve the Contractor of responsibility for adequacy and safety of the shoring.
Full compensation for conforming to these requirements shall be considered as included in the price bid for the various items of work requiring shoring and no additional compensation will be allowed therefore.

Replace the 11th paragraph of section 61-1.01D(2)(a)(i) with:

Perform final leakage testing of culverts and drainage pipes from 30 to 45 days after you install the pipe and complete backfilling unless a different time period is authorized.

Replace the 1st sentence of item 2, paragraph 1 of section 61-1.01D(2)(a)(ii) with:

Leakage must not be greater than 600 gallons per inch of nominal pipe diameter per mile of pipe per day with a minimum test pressure of 6 feet of water column above the pipe crown at the upper end of the pipe or above the active groundwater table, whichever is higher.

Leakage must not be greater than 200 gallons per inch of nominal pipe diameter per mile of pipe per day with a minimum test pressure of 6 feet of water column above the pipe crown at the upper end of the pipe or above the active groundwater table, whichever is higher.

^^

64 PLASTIC PIPE

Add to section 64 Plastic Pipe

Plastic Pipe shall conform to Section 64, "PLASTIC PIPE" of the STANDARD SPECIFICATIONS, these Special Provisions, and as directed by the Engineer.

The pipe shall conform to the type as specified on the plans. The plastic pipe applications identified are:

3" Slotted Plastic Pipe
4" Plastic Pipe

Full compensation for providing all labor tools, materials, equipment and incidentals including excavation, backfill, pipe, fittings, filter fabric, rock, and other incidentals shall be considered as included in the unit price bid for these items of work and no additional compensation shall be allowed therefore.

^^

65 CONCRETE PIPE

Add to section 65 Concrete Pipe

Reinforced Concrete Pipe shall conform to Section 65, "CONCRETE PIPE" of the STANDARD SPECIFICATIONS, these Special Provisions, and as directed by the Engineer.

The price paid per linear foot for reinforced concrete pipe shall include the removal of existing drainage facilities and placing of asphalt concrete to original grade within existing street.

Compaction equipment or methods which may cause excessive displacement or may damage structures, such as sleeve tapers or other drop-weight type equipment, shall not be used.

Full compensation for conforming to these requirements and including excavation, shoring, furnishing and laying pipe, collars, flared end sections, bedding, backfill, bracing and protecting existing utilities, placing and removal of temporary A.C. surfacing in roadway areas, all other labor, equipment and material incidental to the pipe shall be considered as included in the contract price bid for RCP and no additional compensation will be allowed therefore.

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70 MISCELLANEOUS DRAINAGE FACILITIES

Add to Section 70 Miscellaneous Drainage Facilities

Risers

Corrugated metal pipe for pipe riser shall conform to Section 70, "MISCELLANEOUS DRAINAGE FACILITIES" of the STANDARD SPECIFICATIONS, these Special Provisions, and as directed by the Engineer.

Corrugated metal pipe for pipe risers as called for on the plans shall conform to Section 207-11 Corrugated Steel Pipe and Pipe Arches of the STANDARD SPECIFICATIONS and these special provisions.

The pipe risers shall be installed as shown on the plans taking care not to crush or damage the riser when placing fill material in and around the risers.

Full compensation for providing all labor tools, materials, equipment and incidentals including excavation, backfill, filter fabric, and other incidentals shall be considered as included in the unit price bid for Corrugated Steel Pipe of work and no additional compensation shall be allowed therefore.

Concrete Drainage Structures

Concrete drainage structures shall conform to Section 70, "MISCELLANEOUS DRAINAGE FACILITIES" of the STANDARD SPECIFICATIONS, these Special Provisions, and as directed by the Engineer.
The items of work involved with this subsection shall include but not necessarily be limited to:

- Concrete Collar
- Under Sidewalk Drain
- Concrete Bulkhead
- Catch Basins (W=6.4", 6.7', 20.2' and 27.1')
- Type G1 & G2 Inlet
- Manhole Numbers 1, 2 and 4
- Transition Structure Number 3

Full compensation for providing all labor tools, materials, equipment and incidentals including excavation, backfill, concrete, reinforcing steel, miscellaneous iron and steel, curb cuts, curb coring and curb or curb and gutter replacement, concrete aprons, steps, drainage pipe connections including monolithic catch basin connection and other incidentals shall be considered as included in the unit price bid per each for these items of work and no additional compensation shall be allowed therefore.

Catch Basins
Catch basins shall be as detailed on the project plans, and shall be constructed at locations shown on the plans.

Full compensation for conforming to these requirements including furnishing all labor, tools, equipment and materials necessary for accomplishing the work complete and in place, including excavation, fill, reinforcing steel, manhole frame and cover, and other incidentals to complete the structure shall be considered as included in the price bid per each and no additional compensation will be allowed therefore.

Connection to Existing Catch Basin
Contractor is required to attach drainage elements to various existing catch basins. The details for the installation are generally depicted on the plans. The Contractor is required to verify the dimensions of the catch basin being connected to.

Full compensation for conforming to these requirements including furnishing all labor, tools, equipment and materials necessary for accomplishing the work complete and in place, including excavation, fill, reinforcing steel as may be needed, coring of existing concrete, mortar, and other incidentals to complete the connection shall be considered as included in the price bid for lineal feet of pipe and no additional compensation will be allowed therefore.

Frame and Grate Access Cover
All metal frame and grate access covers shall conform to section 75 Miscellaneous Iron of the STANDARD SPECIFICATIONS, and as may be amended by the County of Riverside Standard Plans and Standard Specifications.

Full compensation for conforming to these requirements including furnishing all labor, tools, equipment and materials necessary for accomplishing the work complete and in place, including excavation, fill, reinforcing steel, and other incidentals to complete the cover shall be considered as included the unit price bid per each for the items of work listed under "Concrete Drainage Structures" of these special provisions and no additional compensation shall be allowed therefore.

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DIVISION VIII MISCELLANEOUS CONSTRUCTION

73 CONCRETE CURBS AND SIDEWALKS

Add to Section 73 Concrete Curbs and Sidewalks

F. ROADWAY MISCELLANEOUS CONCRETE CONSTRUCTION

The items of work described in this section shall be performed in accordance with Section 73 CONCRETE CURBS AND SIDEWALKS of the STANDARD SPECIFICATIONS and these special provisions.

Concrete Curb and Gutter
Construction of the concrete curb and gutters of the various types specified shall be done as shown on the plans. Contractor shall note the requirements of these special provisions to assure that no adverse drainage impacts the placement of the new curb and gutter as well as damage to the existing roadbed and adjacent private properties.

Transition sections between two different types of curb and gutter sections shall be included in the quantity of curb for the larger size curb and gutter between the two adjoining sections.

Concrete Curb
Construction of the concrete curb of the various types specified, including modified curbs, shall be done as shown on the plans. Contractor shall note the requirements of these special provisions to assure that no adverse drainage impacts the placement of the new curb as well as damage to the existing roadbed and adjacent private properties.

Transition sections between two different types of curbs shall be included in the quantity of curb for the larger size curb between the two adjoining sections.

Concrete Sidewalk/Island
Construction of the concrete sidewalks shall be done as shown on the plans. Contractor shall protect the sidewalk from any damage or scoring to the newly placed concrete. Upon curing of the concrete, Contractor shall continue to maintain the new appearance of the concrete through the duration of the project. Any graffiti, vandalism, cracking, or spawling adversely affecting the sidewalks appearance shall require the Contractor to replace those panels of concrete sidewalk prior to completion of the project and no additional compensation will allowed.

Curb Ramps
Concrete curb, or access ramps of the types called for on the plans, shall be constructed with the requirements noted in this section related to concrete curb and concrete curb and gutter.
Included in this bid price is all work involved with furnishing and installing all required ADA concrete scoring and truncated domes. Included in this bid item price is all work involved with raising to grade and working around all existing utility pull boxes, hand holes, and vaults. The Contractor shall be responsible for making all curb ramp modifications necessary to make the curb ramp not only fit in the designated area but also ensure it complies with all ADA requirements.

Driveways
Concrete driveway construction of the types shown on the plans shall be scheduled with the Engineer 7 days in advance of the proposed construction activity. Contractor shall prepare a plan depicting the schedule for driveway construction and detail the limitations that may be created by this sequence of construction. The Engineer and the Contractor shall review the plan and options and meet with the impacted property owner prior to commencing the work.

Upon approval of the Engineer, the Contractor shall notify the property owner 48hours in advance of the impact to their property.

Included in this bid item price is all work involved with raising driveways to grade and working around all existing utility pull boxes, hand holes, and vaults. Included in this bid item price is all work involved with constructing the driveways one half at a time to keep them open for public access at all times.

^^

75 MISCELLANEOUS METAL

Add to Section 75-1.03D Bridge Deck Drainage System

G. BRIDGE DECK DRAINAGE SYSTEM

Bridge deck drainage systems shall conform to the provisions for miscellaneous bridge metal in Section 75, "Miscellaneous Metal," of the STANDARD SPECIFICATIONS and these special provisions.

The work involved with the installation of the bridge deck drainage system shall include the work involved with setting the piping from the bridge deck to its outlet point through Drainage Inlet. The contractor shall provide a working drawing for the layout of the piping and shall identify any specific hangers, inserts or other attachment devices necessary to install the piping system.

Self-tapping screws used for sleeve connections shall be hex-head stainless steel, installed in holes drilled to fit the self-tapping screws, conforming to the requirements of ASTM Designation: A 276, Type 304.

Full compensation for BRIDGE DECK DRAINAGE SYSTEM shall include temporary timber barrier and installation of deck drain. The lump sum price shall include all labor, materials and equipment and incidentals and no additional compensations shall be allowed therefore.

H. PICKET RAILING

Picket Railing shall conform to the requirements of Section 75, "MISCELLANEOUS METAL" and Section 83 "RAILINGS AND BARRIERS" of the STANDARD SPECIFICATIONS.

Type of Picket Railing (Fence) shall be per plans. Contractor shall submitt shop drawings of Picket Railing and its connection to bridge and retaining wall for approval by the Engineer.

All new metal surfaces shall be cleaned and painted in accordance with the provisions in Sections 59-2, "Painting Structural Steel," and 91, "Paint," of the Standard Specifications and these special provisions.

All new metal surfaces shall be dry blast cleaned in accordance with the provisions of Surface Preparation Specification No. 10, "Near White Blast Cleaning," of the Steel Structures Painting Council. Blast cleaning shall leave all surfaces with a dense, uniform, angular, anchor pattern of no less than 1 ½ mils as measured in accordance with ASTM Designation: D 4417.

All blast cleaned surfaces shall receive a single undercoat and, unless otherwise specified, a minimum of 2 finish coats of an exterior grade waterborne acrylic enamel paint supplied by the manufacturer of the primer.

The single undercoat shall consist of a waterborne inorganic zinc primer conforming to the provisions of AASHTO Designation M 300, Type II, except that the first 3 sentences of Section 4.7, "Primer Field Performance Requirement," and the entire Section 4.7.1 of the AASHTO Specification shall not apply. The inorganic zinc primer shall be listed on the qualified products list, which may be obtained from the Transportation Library, (916) 227-7000.

Inorganic zinc primer shall be used within 12 hours of initial mixing.

Application of inorganic zinc primer shall conform to the provisions for applying zinc-rich primer in Section 59-2, "PAINTING STRUCTURAL STEEL," of the STANDARD SPECIFICAITONS.

Inorganic zinc primer shall not be applied when the atmospheric or surface temperature is less than 45o F, nor more than 100o F, nor when the relative humidity exceeds 85 percent.

The single undercoat of inorganic zinc primer shall be applied to the required dry film thickness in 2 or more applications within 4 hours after blast cleaning.

The total dry film thickness of all applications of inorganic zinc primer, where finish coats are specified, shall not be less than 4 mils nor more than 8 mils.

All areas where mud cracking occurs in the inorganic zinc primer shall be blast cleaned and repainted with inorganic zinc primer to the specified thickness.

Inorganic zinc primer shall have a minimum adhesion to steel of 4140 kPa when measured at no more than one location per typical railing module shown on the plans or 2.6 m railing section in accordance with ASTM Designation: D 4541. The locations of adhesion tests will be determined by the Engineer. The Contractor at his expense shall: (1) verify compliance with the adhesion requirements, (2) furnish test results to the Engineer, and (3) repair the coating after testing.

All exposed area of primed surfaces shall be thoroughly rinsed with fresh water and allowed to dry. First finish coat shall be applied within 24 hours of the fresh water rinse.

Except as approved by the Engineer, a minimum curing time of 48 hours shall be allowed between application of primer and fresh water rinse.
The finish coat paint shall be formulated for application to inorganic zinc primer and shall conform to the following:

Property	Value	ASTM
Pigment content, percent	24 max.	D 3723
Nonvolatile content, wt. percent	49 min.	D 2369
Viscosity, KU	75min. to 90 max.	D 562
Fineness of grind, Hegman	6 min.	D 1210
Drying time at 77o F, 50% RH, 4 mil wet film Set to touch, minutes Dry through, hours	 30 max. 1 max.	D 1640
Adhesion	4A	D 3359, Procedure A

The finish coat paint color shall be as specified per plan or as directed by the Engineer and shall be furnished with written instructions for preparing inorganic zinc primed surfaces for finish coating with acrylic enamel paint. The Contractor shall furnish the Engineer with copies of these instructions 48 hours prior to application of finish coat.

No visible color change, chalking, or change in gloss in the finish coats shall occur when tested according to ASTM Designation: G 23 using FS 40 UV-B bulbs for a minimum of 38 cycles. The cycle shall be 4 hours of ultraviolet (UV) exposure at 60o C. and 4 hours of condensate exposure at 40o C.

The vehicle shall be an acrylic or modified acrylic copolymer with a minimum of necessary additives.
The first finish coat shall be applied in 2 applications. The first application shall consist of a mist application. The second application shall be applied after the mist application has dried to a set to touch condition. The total dry film thickness of both applications of the first finish coat shall be less than 2 mils.

Except as approved by the Engineer, a minimum drying time of 12 hours shall be allowed between finish coats.

The total dry film thickness of all applications of the second finish coat shall be not less than 2 mils.
The 2 finish coats shall be applied in 3 or more applications to a total dry film thickness of not less than 4 mils nor more than 8 mils.

The total dry film thickness of all applications of inorganic zinc primer and finish coat paint shall be not less than 8 mils nor more than 14 mils.

The contract price paid per Linear feet for METAL RAILING [PICKET RAILING] shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing bridge mounted and retaining wall mounted picket railing, complete in place, including cleaning and painting, as shown on the plans, as specified in the STANDARD SPECIFICATIONS and these special provisions, and as directed by the Engineer.

High strength grout, with a minimum compressive strength of 3,000 psi at 24 hours, to fill the post pocket of the picket fence railing shall conform to the requirements of Section 40-1.02J "Non-shrink Hydraulic Cement Grout" of the STANDARD SPECIFICATIONS.

Payment for metal wagon wheels and high-strength non-shrink hydraulic cement grout to fill post pockets as shown on the plans is included in the payment for picket fence railing.

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80 FENCES

Add to section 80 Fences

All chain link fences and gates shall be constructed in accordance with Section 80 "FENCES", of the STANDARD SPECIFICATIONS.

These special provisions shall include all work for installation of permanent and temporary chain link fence.

In areas where existing fencing is removed, new fencing shall be constructed within the immediate work area where the fencing is removed to provide the same security to the project right of way and adjacent properties as existed prior to the removal of the fencing. No more fencing can be removed than what can be re-installed in the course of one work day.

Payment for FENCES shall be paid in accordance with Section 9 of the STANDARD SPECIFICATIONS

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DIVISION IX TRAFFIC CONTROL FACILITIES

86 ELECTRICAL SYSTEMS

86-1 GENERAL

Add following to Section 86-1 General

TRAFFIC SIGNAL AND HIGHWAY LIGHTING SYSTEM

General
Furnishing and installing traffic signal and highway lighting systems, and payment shall conform to the provisions in Section 86, "Electrical Systems", of the latest edition Standard Specifications, amendments to the Standard Specifications, and these Special Provisions.

Start of Work
Location where signalization and highway lighting work is to be performed:

	Location	Area
1.	Clay St & Linares Ave (Signal)	Jurupa Valley
2.	Clay Street (Lighting)	Jurupa Valley
3.	General Drive	Jurupa Valley

County Furnished Equipment

County is not providing any material for this project. Contractor is responsible for providing all needed material in conformance with the plans, Standard Specifications and these Special Provisions.

Equipment Orders
The Contractor shall furnish all equipments and materials specified in the plans and these special provisions. All equipment shall be new and purchased by the Contractor for this project only.

Submittals and issuance of Notice to Proceed

Within twenty one (21) calendar days after the award of the contract, the Contractor shall submit equipment and materials submittals to the Engineer for review and approval. The Contractor shall allow fourteen (14) calendar days for the Engineer to review the equipment and materials submittals. If revisions are required as determined by the Engineer, the Contractor shall revise and resubmit the equipment and materials submittals within seven (7) calendar days of receipt of the Engineer's comments and shall allow seven (7) working days for the Engineer to review the revisions. Once the submittals are approved by the Engineer, the Contractor must order equipment and materials and then submit a copy of each vendor Equipment and Material Purchase Order within (7) calendar days to the Engineer.

The Contractor must have copies of approved Equipment and Material submittal(s) and Purchase Order(s) prior to the coordination and issuance of the Notice to Proceed. Delay in equipment delivery shall not be considered as justification for the suspension of the construction contract.

Liquidated Damages:

In addition to the liquidated damages set forth in Special Provision section "Liquidated Damages" of these contract documents, the Contractor shall pay to the County of Riverside the sum of **$800.00 per day** for each and every calendar day delay in receiving all of the equipment furnished by the Contractor, onto the job site or the Contractor's storage facility, and available for installation, within sixty (60) calendar days of the contract award date. Required material is shown on the plans.

Equipment List and Drawings
Equipment list and drawings shall conform to the provisions in Section 86-1.04, "Equipment List and Drawings", of the Standard Specifications and these Special Provisions.

The Contractor shall furnish four complete cabinet wiring diagrams for each furnished controller assembly, battery backup system, video detection system, and emergency vehicle preemption system. The cabinet wiring diagram shall include an approximately 6 inches x 8 inches or larger schematic drawing of the project intersection on a separate 8 ½" x 11" sheet of paper, which shall include the following information, at a minimum:

1. North arrow
2. Street names
3. Pavement delineation and markings
4. Signal poles
5. Traffic signal heads with phase designations
6. Pedestrian signal heads with phase designations
7. Loop detectors with input file designations

Warranties, Guaranties, Instruction Sheets, and Manuals
Warranties, guaranties and instruction sheets shall conform to these Special Provisions.

1. LED modules shall have five (5) years of manufacturer warranty.
2. Battery Backup System (BBS) shall have five (5) years of manufacturer warranty. The first three (3) years shall be termed the "Advanced Replacement Program". Under this program, the manufacturer will send out a replacement within two business days of the call notifying them of an issue. The replacement unit may be either a new unit or a re-manufactured unit that is up to the latest revision. The last two years of the warranty will be factory-repair warranty for parts and labor on the BBS.

3. Video Detection System shall have three (3) years of manufacturer warranty. During the warranty period, technical support from factory-certified personnel or factory-certified installers shall be available via telephone within four (4) hours of the time when a service call is made.

4. Edge Lit LED internally illuminated street name sign shall have two (2) year of manufacturer warranty.

5. All other equipment and systems shall have at least one (1) year of manufacturer warranty.

Furnish the manufacturer's standard written warranty pertaining to defects in materials and workmanship for all equipment, and two (2) sets of user, operation, and maintenance manuals, written in English, on all equipments and components for the traffic signal and highway lighting system to the Engineer.

Maintaining Existing and Temporary Electrical Systems

Maintaining existing and temporary electrical systems shall conform to the provisions in Section 86-1.06 "Maintaining Existing and Temporary Electrical Systems", of the Standard Specifications and these Special Provisions. Attention is also directed to Section 86-7 "Removing, Reinstalling or Salvaging Electrical Equipment" of the Standard Specifications.

Existing parking lot lighting of adjacent properties and existing traffic signals and lighting shall be maintained and operational at all times, unless specifically allowed by the Engineer. In the event that power sources must be disconnected, the provision of power to existing parking lot lights, signals and lighting shall be furnished by the Contractor, including arrangements, fees and monthly expenses.

Traffic signals shall be provided with full traffic actuation for all lanes and all approaches of traffic. Arrangements, fees and monthly expenses for temporary or re-routed power sources for temporary traffic signals and / or lighting shall be the responsibility of the contractor.

The Contractor shall request prior authorization from the Engineer for each traffic signal system shutdown. Traffic signal system shutdown shall be coordinated through the Engineer, and shall be kept to a minimum, as determined by the Engineer.

The Contractor may request authorization from the Engineer to use temporary overhead conductors for temporary traffic signal operation. Statutory line-height requirements shall be maintained at all times.

Traffic signal system shutdowns, if allowed, shall be limited to periods between the hours of 9:00 A.M. and 4:00 P.M., or as otherwise allowed by the Engineer.

The Contractor shall submit plans or details for temporary traffic signals, or temporary alterations to traffic signals, to the Engineer for approval at least 7 calendar days in advance of the intended date of implementation.

The Contractor shall place "Stop Ahead" and "Stop" signs to direct vehicle and pedestrian traffic through the intersection during traffic signal shutdown. Temporary "Stop Ahead" and "Stop" signs shall be either covered or removed when the system is turned on.

"Stop Ahead" and "Stop" signs shall be furnished by the Contractor and shall conform to the provisions in Section 12-3.06, "Construction Area Signs" of the Standard Specifications. Minimum size of "Stop" signs shall be 48 inches.

One "Stop Ahead" sign and one "Stop" sign shall be placed for each direction of traffic. For two lanes approaches, two "Stop" signs shall be placed. Location of the signs shall be as directed by the Engineer.

"Stop Ahead" signs shall be supplemented with portable flashing beacons, which shall meet the requirements of Section 12-3.05 "Portable Flashing Beacons" of the Standard Specifications.

During periods of traffic signals or beacon shutdowns, existing flashing beacons shall be supplemented with portable flashing beacons, which shall meet the requirements of Section 12-3.05 "Portable Flashing Beacons" of the Standard Specifications. If directed by the Engineer, the contractor shall furnish, connect, and maintain a generator for temporary operation of the traffic signal. The Contractor shall fully coordinate and cooperate with the County's traffic signal maintenance forces in all matters pertaining to the operation of existing traffic signal equipment.

Full compensation, except as otherwise provided herein, for conforming to the requirements of this article shall be considered as included in the lump sum price paid for the traffic signal modifications, including all labor, equipment, materials and incidentals, and no additional compensation will be allowed therefor.

Remove, Reinstalling or Salvaging Electrical Equipment

Removing, reinstalling or salvaging shall conform to provisions in Section 86-7 "Removing, Reinstalling or Salvaging Electrical Equipment", of the Standard Specifications.

Foundations

Foundations shall conform to the provisions in Section 51, "Concrete Structures", and Section 86-2.03, "Foundations", of the Standard Specifications and these Special Provisions.

Portland cement concrete shall conform to Section 90-2, "Minor Concrete", of the Standard Specifications and shall be Class 3 except pole foundations shall be Class 2.

Construct Type 332 controller cabinet foundation per Standard Plans ES-3C.

Vibrate all foundation concrete to eliminate air pockets.

Standards, Poles, Steel Pedestals and Posts

Standards, poles, steel pedestals, and posts shall conform to the provisions in Section 86-2.04, "Standards, Poles, Steel Pedestals and Posts", of the Standard Specifications and these Special Provisions.

Type 1A pole material shall be spun aluminum unless otherwise specified.

Poles installed at the near-right approach of each intersection shall be banded conforming to the strap and saddle method per Standard Plans RS4 for the emergency installation of stop signs.

Signal mast arms shall be installed in accordance with the "Signal Arm Connection Details" of the Standard Plans unless otherwise specified.

Internally Illuminated Street Name Sign (IISNS) mast arm shall be 10-foot long galvanized steel pole in accordance with County Standard No. 1200. The IISNS mast arm shall be constructed to prevent deformation or failure when subjected to 100 mph wind loads while carrying a 10' long and 2' height Edge-Lit LED IISNS.

If required by the serving electric utility, and confirmed by the Engineer, State Certified Electric Workers shall be utilized for the installation of standards, steel pedestals, and posts in accordance with State of California High Voltage Safety Orders.

Conduits

Conduit shall conform to the provisions in Section 86-2.05, "Conduit", of the Standard Specifications and these Special Provisions.

Conduits shall be Type 3, Schedule 80 Polyvinyl Chloride (PVC) conforming to UL Publication 651 requirements for Rigid Non-Metallic Conduit, for underground installation only.

Conduit depth shall not exceed 60 inches below finish grade.

Conduit size shall be 2 inches minimum unless otherwise specified. New conduit shall not pass through foundations or standards.

Conduit bends shall be factory bends. Bend radius for signal interconnect conduits shall be 3 feet minimum.

A pull rope and a bare #12 AWG wire shall be installed in conduits intended for future use.
Bell bushings are required for all conduit ends. The ends of conduits terminating in pull boxes and controller cabinets shall be sealed with sealing compound approved by the Engineer after conductors have been installed.

Conduits shall be installed via jacking or drilling method per Section86-2.05C, "Installation", of the Standard Specifications.

Trenching Installation

The Engineer shall approve trenching installation on a case-by-case basis where conduit cannot be installed by jacking or drilling. Jacking or Drilling shall be attempted a minimum of three times prior to requesting trenching installation.

If ordered by the Engineer, all pavements shall be cut to a depth of 3 inches with an abrasive type saw or with a rock cutting excavator specifically designed for this purpose. Cuts shall be neat and true with no shatter surface outside the removal area.

Trench shall be 2 inches wider than the outside diameter of the conduit being installed however not exceeding 6 inches in total width. The conduit shall be placed in the bottom of the trench. Conduit depth

shall be at a minimum of 30 inches below finished grade, with a minimum of 26 inches cover over the conduit.

The trench shall be backfilled with two-sack slurry to the finish grade before final paving. Prior to final paving, grind pavement centered along the length of the trench a minimum width of 3 feet and depth of 0.10 feet, and excavate backfilled to a depth of 0.30 feet below the final pavement surface. Final paving with commercial Type A ½" PG64-10 asphalt concrete.

If directed by the Engineer, the two-sack slurry backfill can be installed to a depth of 0.30 feet below the final pavement surface and cured for a minimum of two days prior to final paving if the trench area is not open to traffic.

Pull Boxes

Pull boxes shall conform to the provisions in Section 86-2.06, "Pull Boxes", of the Standard Specifications and these Special Provisions.

Traffic pull boxes shall conform to the provisions in Section 86-2.06, "Traffic Pull Boxes", of the Standard Specifications and these Special Provisions.

Pull boxes shall have a "Fibrelyte" or equivalent cover and bolt down design. Cover shall have a non-skid surface.

Pull box covers shall be marked in accordance with Standard Plans ES-8 without the word "CALTRANS" unless the project is on State of California right of way.
Pull boxes shall be placed with their tops flush with surrounding finish grade or as directed by the Engineer.

Pull boxes shall be installed behind the curb or as shown on the plans and shall be spaced at no more than 500 feet intervals. The Engineer shall determine the exact locations.

Pull boxes installed in unimproved areas, locations not protected by concrete curb and gutter, shall be traffic pull box and marked with Type L markers.

Conductors, Cables and Wiring

Conductors and Cables shall conform to the provisions in Section 86-2.08, "Conductors and Cables", of the Standard Specifications and these Special Provisions.

Wiring shall conform to the provisions in Section 86-2.09, "Wiring", of the Standard Specifications and these Special Provisions.

Specific cabling and wiring requirements for various systems or components shall be in accordance with the Special Provisions entitled to each herein.

Signal cable shall be installed continuously without splicing from the controller cabinet to each traffic signal pole. Traffic signal conductors, multiple circuit conductors, and signal cable conductors shall not be spliced unless otherwise shown

All outer cable jacket for 12 conductor cable shall be removed from the traffic signal standard hand hole to the terminal block located at the side mount traffic signal head.
Where splice is required, Type C or Type T splice shall be used and insulated as shown in the Standard Plans, ES-13A.

Where splice is required, "Liquid Electrical Tape" or equivalent in black color shall be used to provide a watertight electrical insulating coating with "Method B" as shown in the Standard Plans, ES-13A.
Minimum luminaire wiring shall be No. 10 AWG, including wiring within poles and mast arms.

Bonding and Grounding

Bonding and grounding shall conform to the provisions in Section 86-2.10, "Bonding and Grounding", of the Standard Specifications and these Special Provisions.

Grounding jumper shall be attached by a 3/16 inch or larger brass bolt in the signal standard or controller pedestal and shall be run to the conduit, ground rod or bonding wire in the adjacent pull box.

Grounding jumper shall be visible after cap has been poured on foundation.

For equipment grounding jumper a No. 8 bare copper wire shall run continuously in all circuits except a No. 12 bare copper wire shall run continuously in conduits that contain only signal interconnect cable and/or loop detector cable.

Service

Service shall conform to the provisions in Section 86-2.11, "Service", of the Standard Specifications and these Special Provisions.

Service equipment enclosure shall be Type III-CF, as shown on the Standard Plans, ES-2F, and shall conform to the following:

1. 120 / 240 volt, 2 meter service unless otherwise shown on the plans.
2. Circuit breakers required:
    - 2 - 100 Amp 2 pole (signal main and lighting main)
    - 1 - 30 Amp 1 pole (luminaires)
    - 1 - 30 Amp 1 pole (signals)
    - 1 - 20 Amp 1 pole (illuminated street name signs)
    - 1 - 15 Amp 1 pole (luminaire photoelectric control)
    - 1 - 15 Amp 1 pole (street name sign photoelectric control)
    - 1 - 20 Amp 1 pole (for each beacon, if applicable)
    - 1- 30 Amp 2 pole (County Street Lighting)
    - 1 - 30 Amp 1 pole (County Wall Pack Lighting)
3. Cabinet shall be fabricated from aluminum sheeting and finish shall be anodic coating in accordance with Section 86-3.04A "Cabinet Construction".
4. Circuit breakers shall be marked with identifying labels for each circuit breaker.

Type V photoelectric control contactor and test switch assembly shall be installed in the service cabinet. Photoelectric control contactors shall be as follows:

1. Luminaires - 60 Amp electrically held contact
2. Street name signs - 30 Amp electrically held contact

A GFCI outlet shall be installed on the interior side of service cabinet door.
Photo Electric Control assembly shall be installed within the circuit breaker compartment of the service equipment enclosure, and accessible to the Engineer after installation of electrical meters.
Direct burial service conductors are not allowed.

The Contractor shall be responsible for contacting the power company, arranging and providing for the electrical service connection, and ensuring that adequate notice is provided to the serving electric company in advance of need. The County of Riverside will pay all electric company fees required.
The service equipment enclosure shall be a minimum of 15 feet from the controller cabinet, and a minimum of 10 feet from all utility poles, unless otherwise directed by the Engineer.

Service Identification

The service address shall be shown on the front upper panel of the service equipment enclosure, and the meters shall be labeled "LS3" (lighting meter) and "TC1" (signal meter) by lettering applied to the exterior of the enclosure in accordance with these special provisions, or as directed by the Engineer.

Lettering markings shall be black with a two-inch minimum size in block letter form. Markings shall be applied to a brushed aluminum, stainless steel, or other non-corroding metallic plate, as approved by the Engineer. Plate shall be white in color. All paint and markings shall conform in all respects to Federal Specification TT-E-489, latest revision, Class A, Air Drying. Said plate shall be affixed in a permanent manner by riveting or with stainless steel bolts and nuts. Bolts shall be peened after tightening. All materials used for affixing address plate shall be non-corroding. The Engineer shall approve all alternate materials and methods prior to installation.

Testing

Testing and Field Testing shall conform to the provisions in Section 86-2.14, "Testing", of the Standard Specifications and these Special Provisions.
Specific testing requirements for various systems and components shall be in accordance with the Special Provisions entitled to each herein.

The complete controller assembly and Battery Backup System shall be delivered to the following location or location as directed by the Engineer for testing:

Traffic Signal Shop
Riverside County Transportation Department
McKenzie Highway Operations Center
2950 Washington Street
Riverside, California 92504
Telephone (951) 955-6894

A minimum of 15 working days for operational testing and adjustment is required. An additional 15 working days period shall be allowed for retesting should the equipment fail.

The conflict monitor unit shall be tested in the field before signal turn on.

Controller Assembly

Controller assembly shall conform to the provisions in Section 86-3, "Controller Assemblies", of the Standard Specifications and these Special Provisions.
Controller assembly shall be Model 170 controller assembly consisting of the additional features:

1. Model 332L controller cabinet:
   - Anodic coating for both interior and exterior finish
   - A Corbin No. 2 door lock

2. An interior fluorescent lamp with an on/off switch and a door switch that will automatically turn on the lamp when cabinet door is opened.

3. An interior thermostatically controlled, 24 volt electric fan with ball or roller bearing that has capacity rating of 100 cubic feet per minute minimum.

4. Rack mounted push buttons for manual actuation of the following:
   - 8 vehicular phases,
   - 4 pedestrian phases,
   - 4 Emergency Vehicle Preemption (EVP) phases; and,
   - 2 Railroad preemption phases.

5. Model 170E local controller unit:
   - Dual Asynchronous Communications Interface Adaptor (ACIA) capability. ACIA shall be integral to the controller unit. Horizontal printed circuit board controllers will not be accepted.
   - A Model 412F Program Module with 32K 27256 EPROM, 16K RAM, and 8K zero power RAM (memory method two, memory select four).

- Bi Trans Systems, Inc. 233RV2.5 or latest version firmware, test program and a loopback cable.
- If required, provide a Model 170E field master controller unit that has the same features as the 170E local controller except the firmware shall be Bi Tran Systems, Inc. No. 245 FM. It shall be mounted above the local controller unit.

6. A pullout shelf/drawer assembly made of aluminum with telescoping drawer guides for full extension installed below the local controller unit. The top shall have a non-slip plastic laminate permanently attached. The non-slip laminate shall not be attached with silicon adhesive.

7. Load Switches: Switching circuit shall be contained in a replacement module (cube type) sealed in epoxy and rated at 15 amperes load (25 Amp triac). Pin 11 on all load switch sockets shall be wired to AC. Input and output indicators shall be installed on all load switches.

   All load switch sockets shall have individual wire terminals. Printed circuit boards will not be allowed.

8. Flasher units: Switching circuit shall be contained in a replacement module (cube type) sealed in epoxy and rated at 15 amperes load (25 Amps triac).

9. Conflict monitor shall be EDI Model 2010ECL or equivalent with a red monitor assembly circuit board and capable of monitoring green, amber and red indications.

10. Loop detector sensor unit shall be Model 222:
    - Detector unit shall have delay timers adjustable from zero to a minimum of 30 seconds and extension timers adjustable from zero to a minimum of 7 seconds.
    - Delay timers shall delay calls only during display of the associated red or yellow indications. If a vehicle departs the area of detection prior to expiration of the assigned delay period, the timer shall reset and no call shall be placed upon the controller. During display of the associated green indication, detectors shall operate in the present mode and calls shall not be delayed.

11. Power Distribution Assembly shall be Model PDA-2.

12. A twelve-position interconnect terminal strip.

The Contractor shall furnish the following spare equipments / components:

Description	Model	Quantity
Cabinet	332	0
Controller Unit (local)	170E	0
Controller Unit (master)	170E	0
Switch Pack	200	0
Flasher Unit	204	0
Conflict Monitor Unit	2010	0
2-Channel Loop Detector	222	0
2-Channel DC Isolator	242	0
Modem Module	400	0
Program Module	412F	0

Spare equipments or components shall be delivered to the following location or as directed by the Engineer:

Traffic Signal Shop
Riverside County Transportation Department
McKenzie Highway Operations Center
2950 Washington Street
Riverside, California 92504
Telephone (951) 955-6894

The controller unit and controller cabinet shall be manufactured and furnished by the same manufacturer to form a complete functional controller system capable of providing the traffic signal operation specified. All traffic control equipment to be furnished shall be listed on the California Department of Transportation Qualified Products List.

The controller unit and controller cabinet manufacturer or supplier shall perform operational and functional testing of the supplied controller assembly and additional supplied equipment in accordance with the State of California Department of Transportation's Transportation Electrical Equipment specifications (TEES), and a Certificate of Compliance shall be issued for each successfully tested controller assembly and additional supplied equipment.

Modify traffic signal controller assembly if necessary and provide any necessary auxiliary equipment and cabling to achieve the intended traffic signal operation as shown on the plans. The Contractor shall make all field wiring connections to the terminal blocks inside the controller cabinet.
A technician who is qualified to work on the controller assembly from the controller manufacturer or their representative shall install the program module and program the signal controller in accordance with the Engineer provided signal timing sheets, and to be present when the equipment is turned on.

Vehicle Signal Assemblies

Vehicle signal assemblies and auxiliary equipment shall conform to the provisions in Section 86-4, "Traffic Signal Faces and Fittings", of the Standard Specifications and these Special Provisions.
Signal sections, backplates, visors and signal mounting assemblies shall be the metal type and shall be made from the same manufacturer. The section assemblies shall be uniform in appearance and alignment.

Backplates shall be louvered. Visors shall be the "tunnel" type. Top opening of signal sections shall be sealed with neoprene gaskets.

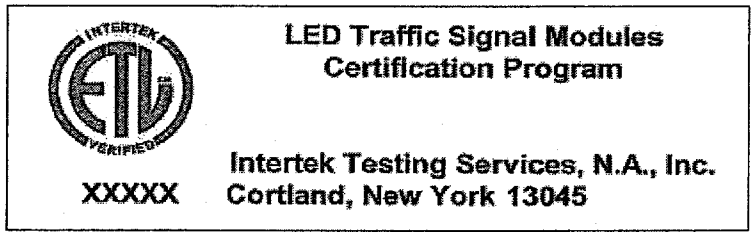
Vehicle signal indications shall be 12-inch diameter Light Emitting Diode (LED) modules in accordance with the following:

1. All circular LED modules shall comply with Institute of Transportation Engineers (ITE) Vehicle Traffic Control Signal Heads (VETCH) - LED Circular Supplement, Adopted June 27, 2005.

2. All arrow LED modules shall comply with ITE VETCH - LED Vehicle Arrow Traffic Signal Supplement, Adopted July 1, 2007.

3. All modules shall fit in existing signal housings without the use of special tools.

4. All modules shall be certified in the Intertek LED Traffic Signal Modules Certification Program and be labeled with the ETL Verified Label as follows:



5. Luminous intensity requirements of the VTCSH must be met across the entire temperature range from -40°C to + 74°C, (-40°F to +165°F).

6. The following cable colors shall be used for the AC power leads on all modules: white for common, red for the red module line, yellow for the yellow module line, and brown for the green module line.

7. The AC power leads shall exit the module via a rubber grommet strain relief, and shall be terminated with quick connect terminals with spade tab adapters. The leads shall be separate at the point at which they leave the module.

8. All external wiring used in the module shall be anti-capillary type cable to prevent the wicking of moisture to the interior of the module.

9. All power supplies shall be coated for additional moisture and thermal protection.

10. The module shall have an incandescent, non-pixilated appearance when illuminated.

11. Nominal power usage is measured at 25°C, 120 VAC. For the 8 inch modules, it shall not exceed 8 watts for Red, 8 watts for Yellow, and 8 watts for Green modules. For the 12 inch modules, it shall not exceed 10 watts for Red, 19 watts for Yellow, and 11 watts for Green modules. For the arrows, it shall not exceed 6 watts for any color.

12. All modules shall use LEDs that have been manufactured with materials that have industry acceptance as being suitable for uses in outdoor applications. At no time is the use of LEDs that utilize AlGaAs technology acceptable.

13. The external lens shall have a smooth outer surface to prevent the buildup of dirt and dust and shall be designed to minimize the potential for sun phantom signals.

14. The circular LED module lens material must be tinted. A tinted transparent film or coating is not permitted.

15. A module shall be sealed against dust and moisture intrusion, including rain and blowing rain per Mil-Std-810F Method 506.4, Procedure 1.

16. Arrow modules shall be clearly marked with the phrase "Suitable for mounting in any orientation".

17. Modules shall be repaired or replaced if the module fails to function as intended due to workmanship or material defects within warranty period.

18. Modules shall be repaired or replaced if the module exhibit luminous intensities less than the minimum specified values within 60 months of the date of delivery.

19. The Manufacturer shall clearly disclose the country in which the factory of module origin is located, the name of the company or organization that owns the factory including all of its parent companies and/or organizations, and their respective country of corporate citizenship.

Pedestrian Signal Assemblies

Pedestrian signals assemblies shall conform to the provisions in Section 86-4.03, "Pedestrian Signal Faces", of the Standard Specifications and these Special Provisions.

Pedestrian Signal Mounting Assemblies and Pedestrian Signal Housings shall be made from the same manufacturer and the section assemblies shall be uniform in appearance and alignment.
Pedestrian signals shall be provided with a polycarbonate egg crate or Z-crate screen.

Pedestrian signals shall be equipped with light emitting diode countdown pedestrian module in accordance to the following:

1. It shall comply with ITE specification: Pedestrian Traffic Control Signal Indications (PTCSI) Part 2: LED Pedestrian Traffic Signal Modules, Adopted March 19, 2004.

2. All modules shall fit in existing signal housings without the use of special tools.

3. All modules shall be certified in the Intertek LED Traffic Signal Modules Certification Program and be labeled with the ETL Verified Label as follows:

The PTCSI does not cover the countdown features of countdown pedestrian signal LED modules. The countdown features shall incorporate the following:

1. Fully compliant to NEMA TS-1, NEMA TS-2, Type 170, and Type 2070 traffic signal controller specifications.

2. The countdown portion of the pedestrian (ped) module shall have a high off-state input impedance so as not to provide a load indication to conflict monitors and interfere with the monitoring of the pedestrian signal. The input impedance of the countdown circuitry shall maintain a voltage reading above 25 VAC to the conflict monitor for up to four units connected on the same channel.

3. The countdown drive circuitry shall not be damaged when subjected to defective load switches providing a half wave signal input.

4. The countdown ped module shall have an internal conflict monitor circuit preventing any possible conflicts between the Hand, Person, and Countdown signal indications. It shall be impossible for the display to countdown during a solid Hand indication.

5. Per CA MUTCD Manual section 4E.07: "The countdown pedestrian signal shall display the number of seconds remaining until the termination of the pedestrian change interval. Countdown displays shall not be used during the walk interval or during the red clearance interval of a concurrent vehicular phase".

6. The countdown ped module shall have a micro-processor capable of recording its own time when connected to a traffic controller. It shall be capable of displaying the digits 0 through 99.

7. When power is first applied or restored to the ped module, the countdown display will be blank during the initial cycle while it records the countdown time using the walk (person) and don't walk (flashing hand) signal indications. The normal hand and person icons shall be displayed during this cycle.

8. The countdown ped module shall continuously monitor the traffic controller for any changes to the pedestrian phase time and re-program itself automatically if needed.

9. The countdown ped module shall register the time for the walk and clearance intervals individually and shall begin counting down at the beginning of the pedestrian clearance interval. The digits shall not flash during the countdown.

10. When the flashing hand becomes solid, the ped module shall display 0 for one second and then blank-out. The display shall remain dark until the beginning of the next countdown.

11. In the event of a pre-emption, the countdown ped module shall skip the remaining time, reach 0 at the same time as the flashing Hand becomes solid, and remain dark until the next cycle.

12. In the cycle following preemption call, the signal shall display the correct time and not be affected by the reduced previous cycle. The countdown shall remain synchronized with the signal indications and always reach 0 at the same time as the flashing Hand becomes solid.

13. If a pedestrian button is activated during the clearance interval, some controllers can change to a second walk cycle without a don't walk phase. The countdown module shall also be capable of consecutive walk cycles. The display digits will be blank during the second walk and countdown properly during the second flashing hand.

14. The countdown ped module shall not display an erroneous or conflicting time when subjected to defective load switches. Should there be a short power interruption during the ped clearance interval or if voltage is applied to both the hand and person simultaneously the display will go to "0" then blank.

15. The countdown ped module shall have accessible dip-switches for the user selectable options. The unit shall have a removable plug on the rear allowing easy access to control the user selectable functions. The countdown is disabled when all the switches are in the "ON" position. The unit shall be shipped from the factory with the specified default setting.

16. Switch 1 – Blank Cycle Following a Timing Change – Factory default is "OFF". When this switch is "OFF" the unit will allow the time to be displayed normally during the cycle following a truncated timing such as a preemption call. The countdown shall be capable of displaying the correct time and not affected by the previous reduced cycle. The unit will require 2 consecutive reduced cycles of identical value to validate and record a new time setting. If the timing is extended, the unit will record it immediately. In the "ON" position when a change in timing is detected the unit will blank out during the following cycle while the new cycle time is measured and recorded if confirmed.

17. Switch 2 – Disables Auto-sync Mode- Factory default setting is "OFF". When this switch is in the "OFF" position the auto-sync is enabled. When the clearance interval begins and the initial flash of the hand is not in sync with the walk signal the unit will measure the offset and reduce the duration of the first second by the value of the offset. This will ensure the countdown reached zero at the same time as the flashing hand becomes solid. In the "ON" position there is no time correction when the flashing hand is in offset with the walk signal. The duration of the first second will not be reduced and the hand will appear solid shortly before the countdown reaches zero.

18. Switch 3 – Countdown Starts with Flashing Hand Signal – Factory default setting is "ON". When this switch is "ON" the countdown begins when the hand signal is turned on. With this switch "ON" and the auto-sync mode enabled a short power interruption will have no effect on the countdown display. With switch 3 in the "OFF" position the countdown begins when the walk signal is turned off. This eliminates the effect of an offset hand signal. When switch 3 is in the "OFF" position the auto-sync switch 2 has no effect on the countdown. In this mode if the power to the walk signal is interrupted, the unit will interpret this as the start of the clearance interval and

will display the countdown time for 2 seconds before the operation is cancelled. The countdown will resume with the normal ending of the walk signal.

19. Switch 4 – Stores Time Value in Memory, Immediate. Restart. - Factory default setting is "OFF". When this switch is in the "OFF" position and power is removed from the unit, the time value stored in the unit is erased. The unit will need to run a dark cycle before it can display the countdown again. In the "ON" position the countdown timing is stored in memory. Following a power interruption, the unit will restart with the stored value and not remain dark during the learning cycle. If the value is different after restart, it will be recorded and displayed correctly at the following cycle.

20. Switch 5 – All LEDs "ON", Test Mode – Factory default setting is "OFF". With this switch in the "ON" position all LEDs are turned on simultaneously. With both switches 4 and 5 in the "ON" position the LED test mode will also scan the 7 individual segments of both digits.

21. The countdown shall be disabled when all switches are placed in the "ON" position.

22. Nominal power usage for Ped Modules at 25°C (77°F), 120 VAC input shall not exceed the values shown in Table 1.

Table 1 -- Nominal Power of Pedestrian Signals

Size	Description	Wattage @ 25°C		
		Hand	Person	Countdown[1]
16"x18"	Side by Side Hand & Person	8	7	N/A
16"x18"	Hand & Person Overlay with Countdown	9	7	5

[1] Wattage for the countdown is measured when the digits 18 are displayed.

23. All wiring shall meet the requirements of Section 13.02 of the VTCSH standard. Secured, color coded, 600V, 18 AWG jacketed wires, 1 meter (39 in) in length, conforming to the NFPA 70, National Electrical Code, and rated for service at +105°C, shall be provided.

24. The following color scheme shall be used for the ped module's AC power leads: Orange for the upraised hand, Blue for the walking person, and White for common. The countdown portion of the LED ped module shall be internally wired to the hand and walking person power.

25. The AC power leads shall exit the ped module via a rubber grommeted strain relief, and shall be terminated with insulated female quick connect terminals with spade / tab adapters. The leads shall be separate at the point at which they leave the ped module.

26. All external wiring utilized in the ped modules shall be anti-capillary type wire to prevent the wicking of moisture to the interior of the ped module.

27. The Hand and Person Icons shall utilize separate power supplies. On countdown products, the countdown ped module must have its own power supply but may take the incoming AC power from the hand / person AC signal lines. All power supplies shall be located inside the ped module.

28. All power supplies shall be conformally coated for additional protection.

29. Off State Voltage Decay: When the hand or person icon is switched from the On state to the Off state the terminal voltage shall decay to a value less than 10 VAC RMS in less than 100 milliseconds when driven by a maximum allowed load switch leakage current of 10 milliamps peak (7.1 milliamps AC).