

SECTION 5 - CONTROL OF WORK AND MATERIALS
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SECTION 5 - CONTROL OF WORK AND MATERIALS

5-1 AUTHORITY OF AGENCY

The Agency will decide all questions regarding the quality and acceptability of materials furnished, work performed, and rate of progress of the Work. The Agency will decide all questions regarding the interpretation and fulfillment of the Contract on the part of the Contractor, and all questions as to the rights of different contractors or Subcontractors involved with the Work. The Agency will determine the amount and quality of the Work performed and materials furnished for which payment is to be made under the Contract.

The Agency will administer its authority through a duly designated representative identified at the preconstruction meeting. The Contractor and the Agency representative agree to make good faith attempts to resolve disputes that arise during the performance of the Work.

An order given by the Agency not otherwise required by the Contract Documents to be in writing will be given or confirmed by the Agency in writing at the Contractor's written request. The request must state the specific subject of the decision, order, instruction, directive, or notice, and, if it has been given orally, its date, time, place, author, and recipient.

5-2 ATTENTION AND COOPERATION OF CONTRACTOR

The Contractor must comply with all written and verbal instructions delivered to the Contractor or the Contractor's authorized representative by the Agency. See Sections 4-5, "Field Instructions or Other Written Directives," and 5-1, "Authority of Agency," of these Specifications.

5-3 SUGGESTIONS TO CONTRACTOR

A plan or method suggested to the Contractor by the Agency, but not specified or required in writing, if adopted or followed in whole or in part by the Contractor, is used at the risk and responsibility of the Contractor. The Agency assumes no responsibility.

5-4 SEPARATE CONTRACTS

The Agency reserves the right to award other contracts in connection with the Work. The Contractor must afford other contractors reasonable opportunity to deliver and store their materials and execute their work, and must properly connect and coordinate their work with the other contractors.

If any part of the Contractor's work depends upon the work of another contractor for proper execution or results, the Contractor must inspect and promptly report to the Agency defects in the work that render it unsuitable for proper execution and results. The Contractor's failure to inspect and promptly report defects constitutes an acceptance of the other contractor's work as fit and proper for the reception of the Contractor's work, unless defects develop in the other contractor's work after the execution of the Contractor's work.

5-5 COOPERATION WITH OTHER ENTITIES

The Agency, utilities, adjacent property owners, and/or other entities may perform work adjacent to or within the Work area concurrent with the Contractor's operations. The Contractor must coordinate with and conduct operations to minimize interference with the work of other forces or contractors.

Disputes or conflicts between the Contractor and other forces or contractors retained by the Agency that create delays or hindrances to each other must be referred to the Agency. If the Contractor's work is delayed because of the acts or omissions of any other force or contractor,

the Contractor has no claim against the Agency other than for an extension of time (see Section 7-18, "Extension of Time," of these Specifications).

5-6 CONTRACTOR'S DISMISSAL OF UNSATISFACTORY EMPLOYEES

If a person employed by the Contractor or any Subcontractor fails or refuses to carry out the directions of the Agency or the provisions of the Contract, or is, in the opinion of the Agency, incompetent, unfaithful, intemperate, or disorderly; or uses threatening or abusive language to any person on or associated with the Work; or is acting or working in a manner that compromises the safety of the Work or persons or property involved with the Work, or is otherwise unsatisfactory, the Contractor must, if requested by the Agency, immediately remove them from the Work and must not employ them on the Work except with written consent of the Agency.

5-7 CONTRACTOR'S EQUIPMENT

The Contractor must provide adequate and suitable equipment, labor, and means of construction to meet the requirements of the Work, including completion within the Contract Time. Only equipment suitable to produce the quality of work required will be permitted to operate on the Project. Specific types of equipment may be requested by the Agency on parts of the Work.

The Agency may permit the use of new or improved equipment. If permission is granted, it is granted to test the quality and continuous attainment of work produced by the equipment, and the Agency has the right to withdraw permission if it determines that the equipment is not producing work that is equal to that specified or will not complete the Work in the time specified in the Contract.

If use of a particular type or piece of equipment has been banned, or in cases where the Agency has condemned for use on the Work a piece or pieces of equipment, the Contractor must promptly remove the equipment from the site of the work. Failure to do so within a reasonable time may be considered a breach of the Contract.

5-8 CONTRACTOR'S SUBMITTALS

5-8.01 Submittals - General

The Contractor must furnish all working drawings, plans, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's instructions required by the Contract, and any other information necessary to demonstrate that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the Contract.

Unless noted otherwise in the Special Provisions or elsewhere in these Specifications, submittals must be submitted in a timely manner that allows for adequate review time.

Submittals for systems must be bound together and must include all information for the system.

Unless otherwise noted in the Special Provisions or agreed to by the Agency, the Contractor must furnish 6 hard copies of all submittals, 2 of which will be returned after review. The Contractor may request, or the Agency may direct, that submittals be made electronically, in which case hard copies will not be required unless specifically requested by the Agency. Submittals must be accompanied by a submittal transmittal form containing, at a minimum, the following information:

1. Contract Number
2. Submittal Number
3. Specification Reference
4. Name of Submittal (e.g. "Landscaping")
5. List of all items included in the submittal and a description of each item
6. If noted in the Special Provisions or directed by the Agency, the Contractor must transmit all submittals, and any other documents specified, using an electronic system designated by the Agency. Such a system may employ web-based software and/or require the Contractor to use specific database applications.

If noted in the Special Provisions or directed by the Agency, the Contractor must transmit all submittals, and any other documents specified, using an electronic system designated by the Agency. Such a system may employ web-based software and/or require the Contractor to use specific database applications.

If an item of work is required to be installed in accordance with the manufacturer's recommendations, the Contractor must furnish 1 electronic and or digital file and 2 hard copies of the manufacturer's installation recommendations to the Agency at least 14 Calendar Days prior to starting the installation.

These submittals will be retained by the Agency, and may consist of hard copies, digital, or electronic versions, as further directed by the Agency.

If the information furnished in a submittal shows any deviation from the Contract requirements, the Contractor must, by a written statement accompanying the information, advise the Agency of the deviation and state the reasons therefor. If the Contractor fails to provide a statement clearly identifying deviations from the Contract, the Agency may void the entire submittal, and the cost of any action taken by the Agency as a result of the Contractor failing to clearly identify and justify deviations will be borne by the Contractor.

It is the Contractor's responsibility to ensure there is no conflict with other submittals and to notify the Agency if the Contractor's submittal may concern work by another contractor or the Agency. The Contractor is solely responsible for coordination of submittals among all crafts

and Subcontractors performing the Work. The Contractor must verify that its Subcontractors' submittals are complete in every way and meet the requirements of the Contract.

Depending on the complexity of the submittal, the number of submittals in review, and the express needs of the Contractor, the submittal will be returned to the Contractor within 20 Working Days, excluding time awaiting clarification or further information from the Contractor.

Agency approval of the Contractor's submittals does not relieve the Contractor of responsibility for errors or obligation for accuracy of dimensions and details, agreement with and conformity to the Contract, or completing the Contract as prescribed, nor will approval be considered approval of a deviation or conflict unless the Agency has been expressly advised of, and has expressly approved, the deviation or conflict.

The Contractor must not make changes to a submittal after it has been approved, and the equipment or materials must not deviate except with written approval by the Agency.

Fabrication or other work performed in advance of approval, unless directed by the Agency in writing, is at the Contractor's risk.

Minimum requirements for submittals are contained in these Specifications. Additional and/or project-specific requirements may be contained in the Special Provisions. The Contractor is responsible for identifying and providing all required submittals.

5-8.02 Resubmittals

Resubmittals must address all comments from the Agency. The Agency will return the reviewed resubmittal to the Contractor within 15 Working Days. Partial resubmittals may be returned "REJECTED." The Contractor is responsible for the Agency's review costs for each resubmittal in excess of the first resubmittal. These costs will be deducted from progress payments.

5-8.03 NOT USED

5-8.04 Submittals Containing Proprietary Information

All required information must be provided even though some or all of it may be considered proprietary. If any of the information is considered proprietary, a Proprietary Information Agreement must be executed between the Agency and the Contractor, stipulating that the information will be supplied by the Contractor and kept confidential by the Agency. Proprietary data must be identified as part of the Contractor's Bid, and the proprietary agreement must be executed before award of the Contract. Proprietary information is defined as information or data describing or defining a

product, process, or system which 1) was developed at the expense of the Contractor, a Subcontractor or supplier; 2) is not generally available in the industry; and 3) is kept secret by its owner for purposes of preventing its use by others. Application software and other documentation, or any other product prepared by the Contractor, Subcontractor, or supplier at the expense of the Agency for specific use on the facility being constructed under the Contract, is not proprietary.

All submitted proprietary information must describe the final record Work. No part of the Work covered by the proprietary agreement can be modified after proprietary submittal acceptance until updated proprietary information has been submitted by the Contractor and accepted by the Agency. Updated proprietary information must fully document all modifications to be implemented. Proprietary data must be marked "PROPRIETARY" by the Contractor. No more than 70 percent of all electronic/electrical work will be paid for until all proprietary information has been submitted and approved.

5-8.05 Electrical, Instrumentation, Control, and Communication Systems

Electrical, instrumentation, control, and communication system drawings must include elementary and loop diagram drawings, functional single line system layout drawings, connection drawings, interconnection drawings, panel/cabinet fabrication drawings, and detailed circuit board and component drawings. Detailed circuit schematics and circuit board layout drawings must clearly show, locate, and identify all components and wiring. Each circuit board component must be identified by the component's original manufacturer name and part number. Industry standard part numbers must be used. Component values, voltage/current levels, setpoints, and timing values must be defined. Drawings must be in the latest version of AutoCAD or other electronic reproducible medium specified by the Agency.

Complete annotated software/firmware source code listings and program documentation must be provided for electronic/electrical systems, subsystems, assemblies, parts, components, and equipment that incorporate programmable devices. All instructions and hardware necessary to load, store, modify, and activate software/firmware source codes and programs must be provided.

5-8.06 Maintenance and Operations (M&O) Submittals

For use in subsequent maintenance and operations, the Contractor must furnish, unless otherwise provided for in the Special Provisions, 1 electronic or digital file and 2 hard copies, bound and indexed, of maintenance and operation information, including the highest level of factory maintenance manuals that are available to factory representatives with a three-year subscription to newsletters and updates supplied by the manufacturer covering all equipment and systems included in the Contract. The Agency may withhold up to 30 percent of the Total Contract Price until M&O submittals have been submitted and approved. Documentation must be provided in hard copy form and, where available, in electronic format such as Word, Excel, AutoCAD R14 (min.) or *.pdf. The submittal must include at a minimum:

1. Drawings
2. As-Builts
 - a. Electrical
 - b. Mechanical
 - c. Site
3. Detail drawings of structures on the site
4. Dimensions
5. Site Layout
6. Underground lines including:
 - a. Existing underground lines (plumbing, electrical, gas, etc.)
 - b. Incoming and outgoing underground lines (plumbing, electrical, gas, etc.)
 - c. Pre-existing underground lines (plumbing, electrical, gas, etc.)
 - d. Underground Conduit (Electrical Wiring, Rigid, PVC)

1. Wiring Diagrams for equipment located on-site (Generator, RTU, Hoist, etc.)
2. Wiring Diagrams for structures
3. Wiring Diagrams of systems
4. Parts List
5. Illustrations
6. Internal wiring diagrams and circuit board schematics and layout drawings
7. Manufacturer's recommended spare parts lists
8. Name, address, and phone number of nearest parts and service agency
9. Systems balance data
10. Maintenance and service instructions
11. Operations instructions
12. Software including annotated source lists and programs
13. Calibration Instructions
14. Calibration Reports
15. Diagnostic Manuals

The submittal of M&O information is required for all mechanical, electrical, instrumentation, control, communications, sound, or special equipment and systems. The Contractor must submit the required data for review at least 30 Calendar Days prior to required training or the final inspection date. Corrections, additions, or resubmittal of data must be made as directed by the Agency.

The Agency must receive complete M&O instructions for all items included above prior to field acceptance of the Work.

5-9 SURVEYS

5-9.01 Agency-Furnished Surveys

Unless otherwise noted in the Project Specifications or Special Provisions, construction stakes or marks will be set by the Agency. The Resident Engineer, in consultation with the Project Surveyor, will determine necessary lines and grades required for the completion of the work specified in these Specifications, on the plans, and in the Project Specifications or Special Provisions. From Agency-furnished line and grade stakes, the Contractor must lay out the Work and set working stakes as required for completion of the Work.

The Contractor is responsible for the accuracy of the Contractor's own layout work. All Contractor work using GPS/GNSS equipment shall be performed by or under the direction and supervision of a Contractor-provided responsible-charge California Licensed Land Surveyor or California Registered Civil Engineer authorized to practice land surveying in accordance with Business and Professions Code Section 8726. This includes, but not limited to, GPS/GNSS machine guidance, additional/supplemental layout outside of Agency provided stakes, setting of forms, checking grades of fixed structures or affixing computer-generated models to project control. The Contractor must submit to the Agency, in writing and prior to the start of Work, the name, contact information and license information of the California Licensed Land Surveyor or California Registered Civil Engineer authorized to practice land surveying.

Per Business and Professional Code Sections 8726 and 6731, the County shall not provide project survey control coordinate values for Contractor use of GPS/GNSS equipment, unless the Contractor has on staff, or hires a survey consultant, a California Licensed Land Surveyor or California Registered Civil Engineer authorized to practice land surveying, to be in responsible-charge of Contractor survey matters. If the contractor has said responsible-charge survey staff member or survey consultant, the County can provide survey control coordinate values for the project.

The County will provide a Disclaimer and Terms of Use survey control values waiver document, to be executed by both the Contractor and California Licensed Land Surveyor or California

Registered Civil Engineer authorized to practice land surveying. The executed waiver document shall be returned to the project Resident Engineer. Once said disclaimer document is received by the Agency and reviewed for compliance, survey control coordinate values can be provided to the responsible-charge California Licensed Land Surveyor or California Registered Civil Engineer authorized to practice land surveying.

The contract ALLOWANCE for a California Licensed Land Surveyor or California Registered Civil Engineer authorized to practice land surveying shall include full compensation for providing a California Licensed Land Surveyor or California Registered Civil Engineer authorized to practice land surveying as necessary for doing all work as specified in the Contract in conformance with this Section.

The Contractor must notify the Agency in writing at least 2 Working Days in advance of starting operations that require stakes or marks. Staking requests must take into consideration the level of effort required to provide the controlling stakes and priorities established as necessary. Advance notice must provide sufficient time to complete at least the first priority requested. Unless authorized by the Agency, work done without line and grade is at the Contractor's risk.

The Contractor is responsible for carefully preserving Agency-provided construction stakes and marks. If the stakes or marks are destroyed, damaged, or rendered unusable, whether or not the Contractor is directly responsible for the damage or destruction, they will be re-set by the Agency (restakes) at the Agency's earliest convenience. Additionally, the Contractor is responsible for the cost of replacement or restoration of stakes and marks that, in the judgment of the Agency, were carelessly or willfully destroyed, damaged or rendered unusable by the Contractor's operations.

The Agency will typically provide the following stakes:

1. **Clearing, Limits & Sawcut Stakes** – The stakes will be placed at even station intervals and/or any change in horizontal direction.
 - a. Stakes will be spaced so that the contractor can see from one stake to another but not less than 100 feet apart.
 - b. All sawcut markings will be set at actual locations.
2. **Rough Grade Stakes** – One line of stakes spaced every 50 feet, horizontal and vertical angle points on each side of the construction to control cut/fill and slopes.
 - a. The stakes will be placed in the A/C at a 2-foot offset from the proposed Sawcut line. If these points fall within 6 feet or less from the proposed Lip of Gutter they will be considered a Finished Grade stake and must be protected.
 - b. For areas of heavier grading, large channels or embankments slope staking will be provided with cut/fill data to control the grading of the feature.
3. **Finished Grade** – One line of stakes spaced every 50 feet and at back of walk angle points, centerline of driveways, and centerline of handicapped ramps. Stakes will be set for each edge of pavement.
 - a. Stakes will be set at an offset from Lip of Gutter with cut/fill to Lip of Gutter or Gutter Flowline (whichever is provided in the approved plan set). Finished Grade stakes must be used to control all elements of the structural section (subgrade, base, and pavement).
 - b. In the absence of curb, gutter and sidewalk (i.e., a median island) stakes will be set at an offset from Edge of Pavement with cut/fill to Edge of Pavement.
 - c. All stakes provided for detached walk will be offset from the Top Back of Walk with cut/fill to Top Back of Walk and will only be provided in transition areas. No stakes will be provided for detached walk that runs parallel with staked curb and gutter.
4. **Traffic Signals, Lights and Joint Trench Boxes** –
 - a. One offset to Top Back of Sidewalk (with either a line stake or radius point) with

cut/fill to Top back of sidewalk.

- b. One stake will be set at the actual location where signal/pole bases fall inside the sidewalk with cut/fill to Finished Grade or Finished Surface (whichever occurs in the approved plan set).
 - c. Where no curb, gutter or sidewalk are to be constructed, two offset stakes (in line or at right angles) to the center of the proposed base will be set. Cut/fill data will be provided to the top of the Light/Pole Base.
 - d. Two stakes (in line or at right angles) will be set at the proposed Top Back of Sidewalk with cut/fill to Top Back of Walk for all electrical vaults, boxes, cabinet bases and non-specific joint trench features.
5. **Sewer, Water and Storm Drain Features** – One line of stakes placed every 50 feet and horizontal/vertical angles offset to proposed pipe with cut/fill to the flowline of pipe.
 - a. Manholes: One offset stake to the center of the manhole (with line stake as necessary) with cut/fill to the pipe inverts and a cut/fill to the proposed rim elevation.
 - b. Drain Inlets: One offset stake to the Lip of Gutter at the center of the drain inlet with cut/fill to the Lip of Gutter.
 - c. Where no curb, gutter or sidewalk are to be constructed, two offset stakes (in line or at right angles) to the center of the proposed drain inlet/catch basin will be set. Cut/fill data will be provided to the grate.
 6. **Drainage channels** – One line of slope stakes spaced every 50 feet on each side of construction, except on channels with a width of 12 feet or less at the top of bank slope stakes, will only be set on one side of construction.
 7. **Drainage/Miscellaneous Structures** –
 - a. One or two stakes necessary to locate structure offset to the center of structure with cut/fill to flowline of pipe, grate, side opening, or other necessary feature (where not controlled by other improvements such as curb, gutter and sidewalk).
 - b. Offset to Lip of Gutter or Top Back of Curb (with line stake as necessary) with cut/fill to Lip of Gutter or Top Back of Curb.
 8. **Bridges/Major Structures** – Agency furnished stakes will vary depending on the type and complexity of the structure. Generally, two stakes will be set for abutments, bents, wingwalls, etc., offset along the layout line with a cut/fill to finished grade. Stakes will not be set by the Agency for the location of individual piles, pile cutoff elevations or falsework. Temporary benchmarks can be set by the Agency at the request of the contractor.
 9. **Wall Stakes** – One line of stakes (line stakes may be set as necessary) spaced every 50 feet, at the beginning and end or curves, angles points, and changes in footing elevation, offset from the layout line with cut/fill to the Top of Footing.

All Agency provided references to stationing will be made to the major controlling alignment (i.e., centerline alignment of road).

NOTE: At the discretion of the Agency, in consultation with the Project Surveyor, one set of stakes may be used for several purposes, such as slopes, finished grade and curbs.

5-9.02 Survey Monuments-Agency Furnished Surveys

The Agency will show the location and character of survey monuments that are within the construction area on the construction plans. It is the Contractor's responsibility to be familiar with the locations of these survey monuments prior to the beginning of construction work. The Contractor must provide the Agency a minimum of five (5) Working days' notice prior to commencing work that could damage or destroy survey monuments that are shown on the plans. For survey monuments shown on the plans to be replaced, the Agency will reference the monuments in advance of construction activity in accordance with the Land Surveyors Act (Business & Professions Code Section 8700 et seq.).

For survey monuments shown on the plans not to be affected, disturbed, destroyed, and replaced, the Contractor shall be responsible for protecting these monuments during construction. If these monuments are subsequently disturbed during construction, all costs borne by the Agency for the referencing, resurvey, and replacement of the monument shall be deducted from the sum due the Contractor.

On thin surface treatments, such as chip seals, the monuments can be covered in advance with a suitable material and then removed, after treatment, to expose the monument.

For any survey monuments that are discovered and not shown on the plans, the Contractor shall bring these to the attention of the Agency a minimum of five (5) Working Days' notice prior to commencing work that could damage or destroy the survey monuments. Should the Contractor disturb, damage, or destroy survey monuments due to the Contractor's carelessness or failure to notify the Agency of the presence of an existing monument, the Agency shall reset the survey monument in accordance with the Land Surveyor's Act (Business & Professions Code 8700 et seq.) by or under the direction of a California Licensed Land Surveyor and replace the survey monument, and all costs borne by the Agency for the referencing, resurvey, and replacement of the monument shall be deducted from the sum due the Contractor.

5-9.03 Contractor Surveys-Construction Staking and Survey Monuments

When set forth in the Contract Documents or Special Provisions, the Contractor is responsible for performing all necessary surveys to lay out and control the Work to the locations, elevations, lines, and dimensions shown or specified in the Contract. Deviations must receive prior written approval of the Agency. Surveys affecting the line or elevation of underground drainage, sewers, or utilities, and all other work within public rights-of-way or easements, must be performed by or under the direction and supervision of a California Licensed Land Surveyor, or a California Registered Civil Engineer authorized to practice Land Surveying.

The Contractor is responsible for protecting and perpetuating survey monuments affected by construction activities in accordance with Business and Professions Code Section 8771. It is the Contractor's responsibility to arrange and pay for a diligent and thorough search for survey monuments. The search must be performed by or under the direction of a California Licensed Land Surveyor, or a California Registered Civil Engineer authorized to practice Land Surveying, prior to the beginning of construction or maintenance work that could damage, disturb or destroy a survey monument. All monuments found must be referenced and reset by or under the direction of a California Licensed Land Surveyor, or a California Registered Civil Engineer authorized to practice Land Surveying, in accordance with Business and Professions Code Section 8771, at the expense of the Contractor. On thin surface treatments, such as chip seals, the monuments can be covered in advance of the maintenance treatment with a suitable material, which must then be removed to expose the monument.

Damaged, disturbed or destroyed survey monuments must be reset, and Corner Records filed in accordance with the Professional Land Surveyors' Act (Business & Professions Code 8700 et seq.) at the expense of the Contractor.

5-9.04 Traffic Control

Traffic control to set Agency-provided construction staking must be provided by the Contractor at no additional cost to the Agency. To minimize inconvenience to the traveling public and enhance the safety of all workers to the extent feasible, the Contractor must request construction staking in areas requiring traffic controls during a period of time when the Contractor has work area traffic controls in place.

5-10 RESPONSIBILITY FOR ACCURACY

The Contractor is responsible for the accuracy of the Contractor's own layout work and is liable for the preservation of established lines and grades. The Contractor must obtain all necessary measurements for and from the work, and must check dimensions, elevations, and grades for all layout and construction work, and must supervise the work; the accuracy for all of which the Contractor is responsible. The Contractor is responsible for adjusting, correcting, and coordinating the work of all Subcontractors so that no discrepancies result.

5-11 DUTIES AND POWERS OF INSPECTORS

Inspectors are the authorized representatives of the Agency. Their duty is to inspect materials and workmanship of those portions of the Work to which they are assigned, either individually or collectively, under instructions of the Agency, and to report all deviations from the Contract.

5-12 INSPECTION

The inspection of the Work does not relieve the Contractor of the obligation to fulfill all Contract requirements. Work, materials, or equipment not meeting the requirements and intent of the Contract will be rejected, and unsuitable work or materials must be made good, notwithstanding the fact that the work or materials may have previously been inspected or approved and payment may have been made.

Reexamination of any part of the Work may be ordered by the Agency, and the part of the Work must be uncovered by the Contractor. The Contractor must pay the entire cost of uncovering, reexamination, and replacement if the reexamined work does not conform to the Contract.

All work and materials furnished pursuant to the Contract are subject to inspection and approval by the Agency. The Contractor must provide the Agency and Inspectors with access to the Work during construction and must furnish every reasonable facility and assistance for ascertaining that the materials and the workmanship are in accordance with the requirements and intent of the Contract.

Unless authorized in writing by the Agency, work done in the absence of an Inspector, whether completed or in progress, is subject to inspection. The Contractor must furnish all tools, labor, materials, access facilities, and other facilities necessary to allow inspection, even to the extent of uncovering or taking down completed portions of the Work. The Contractor must pay all costs incurred, whether or not defective work is discovered. The Contractor is solely responsible for costs associated with the removal of defective work discovered during the inspection and for the complete cost of reconstruction.

The Contractor must notify the Agency of the time and place of factory tests and submit test procedures for approval 30 Calendar Days in advance for tests that are required by the Contract. The Contractor must report the time and place of preparation, manufacture or construction of material for the Work, or any part of the Work, that the Agency wishes to inspect. The Contractor must give 5 Working Days' notice in advance of the beginning of work on the material or of the beginning of the test to allow the Agency to make arrangements for inspecting and testing or witnessing.

5-13 QUALITY OF MATERIALS AND WORKMANSHIP

Unless otherwise allowed or required by the Special Provisions, all materials must be new and of a quality at least equal to that specified. When the Contractor is required to furnish materials or manufactured articles or do work for which no detailed specifications are set forth, the materials or manufactured articles must be of the best grade in quality and workmanship obtainable in the market. If not ordinarily carried in stock, the articles must conform to the usual standards for first-class materials or articles of the kind required. The work, as a whole or in part, must be performed with the best equipment to the best standard of construction.

At a minimum, all work and materials must be of the quality called for in Sections 11 through 50 of these Specifications, the Contract Documents, and pertinent current industry standards or guidelines.

Materials must be furnished in sufficient quantities and in time to ensure uninterrupted progress of the Work. All required spare parts must be delivered in new condition, not in a used or unknown condition, and with all required certificates and documentation. Materials, supplies, and equipment must be stored properly and protected as required. The Contractor is responsible for damage or loss by weather or other causes.

Trench, fill, or roadway settlement occurring during the life of the contract, including the warranty period, is considered a workmanship defect and must be reconstructed or replaced by the Contractor, regardless of previous acceptance or approval by the Agency.

5-14 SUBSTITUTIONS

The Contractor must submit requests for substitution in writing within 30 Calendar Days after the award of the Contract. Certain materials, articles, or equipment may be designated in the Contract by brand, or trade name, or manufacturer, together with catalog designation or other identifying information. Substitute material, articles, or equipment of equal quality which have the required characteristics for the intended purpose, may be proposed for use provided the Contractor complies with the requirements of the following paragraphs.

5-14.01 NOT USED

5-14.02 Documentation

If requested by the Agency, a proposal for substitution must be accompanied by complete information and descriptive data, including cost of operation, cost of maintenance, and physical requirements necessary to determine the equality of offered materials, articles, or equipment. The Contractor must also submit shop drawings, descriptive data, and samples as requested. The burden of proof of comparative quality, suitability, and performance of the offered proposal is the Contractor's. The determination of equal quality suitability and performance will be at the sole discretion of the Agency. The Agency will examine submittals with reasonable promptness. If the Agency rejects the request for substitution, then one of the particular products designated by brand name in the Contract must be furnished. Acceptance of substitution by the Agency does not relieve the Contractor of responsibility for deviations from the Contract or for errors in submittals.

If mechanical, electrical, structural, or other changes are required for proper installation and fit of substitute materials, articles or equipment, or because of deviations from the Contract, the changes must not be made without the written consent of the Agency and must be made by the Contractor without additional cost to the Agency. The Contractor must pay the costs of design, drafting, architectural or engineering services, and building alterations of the construction required to accommodate Contractor substitutions or construction errors to maintain the original function and design.

5-15 PREPARATION FOR TESTING

The Contractor must maintain proper facilities and provide safe access for inspection by the Agency to all parts of the Work and to the shops wherein parts of the Work are in preparation. Where the Contract requires work to be tested or approved, the work must not be tested or covered up without at least a 5 Working Day notice to the Agency of its readiness for inspection, unless the written approval of the Agency for testing or covering is first obtained.

5-16 MATERIALS SAMPLING AND TESTING

Materials to be used in the Work will be subject to sampling and testing by the Agency. The Contractor must furnish the Agency with a list of the Contractor's sources of materials and the locations where materials will be available for inspection. The list must be submitted on an Agency form and furnished to the Agency in time to permit the inspection and testing of materials in advance of their use.

When requested by the Agency, samples or test specimens of the proposed materials or materials incorporated into the Work must be prepared at the expense of the Contractor and furnished by the Contractor in quantities and sizes required for proper examination and tests, and with complete information describing type, kind, or size of material, and its source. All samples must be submitted in time to permit the making of proper tests, analyses, or examinations before and during incorporation of the materials into the Work. No material can be used in the Work unless or until it has been approved by the Agency. Unless otherwise specified, all acceptance materials testing, including field testing, will be performed by the Agency. The Agency will test materials to the standards specified in the Contract and these Specifications. The Agency has the discretion to charge the Contractor for a second test and subsequent retests.

The Agency will receive and test samples whenever necessary.

Sampling and testing laboratories used by the Contractor must be accredited laboratories by AASHTO resource for Test Methods ASTM D3740, C1077, and D3666. When California Test Methods are used, testers must be certified by the California Department of Transportation Independent Assurance Program.

5-16.01 Relative Compaction

Unless otherwise specified, whenever relative compaction is specified in these Specifications or the Special Provisions, the relative compaction will be determined by California Test 231, "Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates Using Nuclear Gages", with the following exceptions/modifications:

1. The wet test maximum density used for determining relative compaction can be determined on material that is representative of the material being tested and is not required to be from the test sites on the day of testing.
2. The test area limits of 1,000 yd² and 2,000 yd² do not apply and the minimum number of test sites shall be 1 with no maximum number of test sites regardless of area size.
3. Percent relative compaction shall be calculated for individual test sites.

Settlement of any earthwork (including, but not limited to, trenches, structural backfill, sidewalk, curb, gutter, and roadways) deemed to be caused by defective compaction efforts by the Contractor will be corrected by the Contractor at no cost to the Agency, regardless of compaction test results performed during construction.

5-17 APPROVAL OF MATERIALS

5-17.01 Sources of Supply

Agency approval of a supply source may be required prior to procurement. Approval does not prevent subsequent disapproval or rejection of materials by the Agency if the quality is less than specified in the Contract.

Sand, gravel, or other minerals incorporated into Agency work must comply with Public Contract Code Section 20676. The Agency may request written documentation of compliance.

5-17.02 Plant Inspection

The Agency is not obligated to inspect materials at the source. The Contractor is responsible for incorporating satisfactory materials into the Work, despite Agency inspections or tests.

The Agency will inspect materials at the source if the Contractor submits a written request and if the Agency deems the inspection necessary. The Contractor and the supplier must cooperate with and assist the Agency while performing the inspection. The Agency must have access to all production areas of the plant.

5-18 PROVISIONS FOR EMERGENCIES

The Agency may provide necessary labor, material, and equipment to address an emergency resulting from the Contractor's operation, including noncompliance with the Contract, public convenience, safety, traffic control, and protection of work, persons, and property. The nature of the emergency may prevent the Agency from notifying the Contractor prior to taking action. The costs of labor, material, and equipment will be deducted from progress payments to the Contractor via a contract change order.

The performance of emergency work under the direction of the Agency does not relieve the Contractor of responsibility for damages resulting from the emergency.

5-19 RIGHT TO RETAIN IMPERFECT WORK

If any portion of the Work or materials incorporated into the Work are defective or not in accordance with the Contract, and if the defect in the work or materials is not of sufficient magnitude or importance to make the work dangerous or undesirable, or if the removal of the work or materials is impracticable or will create dangerous or undesirable conditions, the Agency has the right and authority to retain the work or materials instead of requiring it to be removed and reconstructed or replaced. Progress payment deductions will be made as described in Section 8-9, "Deductions for Imperfect Work," of these Specifications, and a deductive Contract Change Order will be issued in accordance with Section 9, "Changes and Claims," of these Specifications.

5-20 REMOVAL OF REJECTED MATERIALS OR WORK

The Contractor must remove all rejected or condemned materials or structures brought to or incorporated in the Work within 2 Working Days of the Agency's written order. Rejected or condemned materials may not again be offered for use in the Work. The Contractor must, at the Contractor's expense, bring into Contract compliance all rejected material or work in a manner acceptable to the Agency.

If the Contractor fails to comply with this Section, the Agency may bring the rejected material into Contract compliance. The costs incurred by the Agency will be deducted from the progress payment via a contract change order.

5-21 TEMPORARY SUSPENSION OR DELAY OF WORK

The Agency has the authority to temporarily suspend or delay the Work, wholly or in part, for any reasonable period the Agency deems necessary. The Contractor must immediately comply with the Agency's written order to suspend or delay the Work. The suspended or delayed work can only be resumed upon written direction of the Agency. Public safety and convenience must be maintained throughout the suspension or delay in accordance with Sections 12-2, "Public Convenience and Safety," and 12-3, "Public Safety and Traffic Control," of these Specifications.

Delays due to suspension of work will be classified by the Agency either as Avoidable or Unavoidable Delays in accordance with Section 7-12, "Delays," of these Specifications.

Suspension does not relieve the Contractor of the Contractor's responsibilities as described in the Contract.

5-22 TERMINATION OF CONTRACT

5-22.01 Reasons for Termination

The Agency, its Board, or authorized representative reserves the right to terminate the Contract for any of the reasons listed below:

5-22.01.A Contractor Insolvent

If the Contractor becomes insolvent, is adjudged bankrupt, assigns its assets for the benefit of the Contractor's creditors, is unable to pay its debts as they become due, or is otherwise financially unable to complete the Work, the Agency, its Board, or authorized representative may terminate the Contractor's control over the Work and so notify the Contractor and the Contractor's sureties in accordance with Section 5-22.02.

5-22.01.B Completion Delay

The Agency, its Board or authorized representative may terminate the Contract if the Contractor has not completed the Work on or before the completion date adjusted by Contract Change Order. If the Agency chooses to complete the Work, the Contractor is not entitled to any compensation, and is liable to the Agency for liquidated damages, for all time beyond the Contract completion date until the Work is completed. Notice of termination pursuant to this section may be made in accordance with Section 5-22.02.

5-22.01.C Abandonment or Unsatisfactory Performance

The Agency, its Board or authorized representative may issue to the Contractor and the Contractor's surety a written notice to cure if it determines any of the following breaches exist:

- The Contractor abandons the Work.
- The Work or any portion is sublet or assigned without the Agency's consent.
- The rate of progress is not in accordance with the Contract.
- Any portion of the Work is unnecessarily delayed.
- The Contractor willingly violates terms or conditions of the Contract.
- The Contractor does not supply sufficient materials or properly skilled labor.
- The Contractor fails to promptly pay its Subcontractors.
- The Contractor disregards laws, ordinances, or Agency orders.
- The Contractor fails to respond to defective work notices.

The Contractor shall commence satisfactory corrective actions within 10 Calendar Days after receipt of the notice to cure.

5-22.01.D Termination of Contract for Convenience

The Board may at any time and for any reason terminate the Contractor's services and work for its own convenience. The duties and rights of the Contractor after termination for convenience are set forth in Specification 5-22.03A.

5-22.02 Notice of Termination

The Agency, its Board or authorized representative will provide written Notice of Termination to the Contractor and the Contractor's sureties that the Contractor's control over the Work will be terminated for the reasons stated in the Notice of Termination. Upon receipt of written Notice of Termination for default, the Contractor's surety shall immediately assume all rights, obligations and liabilities of the Contractor under the Contract. The Contractor's surety shall notify the Agency that it is assuming all rights, obligations, and liabilities of the Contractor under the Contract and all money that is due, or would become due, to the Contractor shall be payable to the Contractor's surety as the Work progresses, subject to the terms of the Contract, or as determined by consultation and separate agreement with the Agency. Within 30 Calendar Days of receipt of the written Notice of Termination for default, the Contractor's surety shall submit to the Agency, in writing, its plan for remedying the default. The Agency will review the plan and notify the Contractor's surety if the plan is satisfactory within a reasonable time of receipt. If the Contractor's surety fails to submit a satisfactory plan or fails to maintain progress according to the plan accepted by the Agency, the Agency may, upon 72 hours written notice, take over and complete the Work at the expense of Contractor and Contractor's surety. The cost of completing the Work by the Agency shall be charged against the Contractor and the Contractor's surety and may be deducted from any monies due, or which would become due.

Immediately upon receipt of a Notice of Termination, except as otherwise directed in writing by the Agency, the Contractor must:

1. Stop work under the Contract on the date of, and as specified in, the Notice of Termination.
2. Place no further orders or subcontracts for materials, services, or facilities except as necessary to complete the portion of the Work that is not terminated.
3. Terminate orders and subcontracts to the extent that they relate to the work terminated by the Notice of Termination.
4. Assign to the Agency, in the manner, at the times, and to the extent directed by the Agency, all of the rights, titles, and interests of the Contractor under the terminated orders and subcontracts. The Agency has the right, at its discretion, to settle or pay all claims arising out of the termination of the orders and subcontracts.
5. Settle all outstanding liabilities and all claims arising out of termination of orders and subcontracts with the approval or ratification of the Agency. The Agency's approval or ratification is final.
6. Transfer title to the Agency, and deliver in the manner, at the times, and to the extent directed by the Agency, fabricated or unfabricated parts, work in process, completed work, supplies, other material produced as a part of, or acquired in connection with, the terminated work, and the completed or partially completed drawings, information, and other property that, if the Contract had been completed, would have been submitted to the Agency.
7. Sell, in the manner, at the times, to the extent, and at the price that the Agency directs or authorizes, property of the types referred to in Item 6 above. The Contractor is not required to extend credit to the purchaser and may acquire the property under the conditions prescribed and at a price approved by the Agency. The proceeds of the transfer or disposition will be used to reduce payments made to the Contractor under the Contract or credited to the cost of the work covered by the Contract, or paid as the Agency directs.

8. Complete performance of work not terminated by the Notice of Termination.
9. Protect and preserve the property related to the Contract in which the Agency has an interest.

5-22.03 Payments to Contractor Upon Termination of Contract

5-22.03.A Payments to Contractor upon Termination for Convenience

- (a) Upon such termination, the Contractor is entitled to payment only as follows:
 - (i) the reasonable and necessary direct cost of the work completed in conformity with this Agreement as determined by the Engineer; plus,
 - (ii) such other costs actually incurred by the Contractor as are permitted by the prime contract and approved by the Engineer plus,
 - (iii) five percent (5%) of the cost of the work referred to in subparagraph (i) above for overhead; plus,
 - (iv) four percent (4%) of the cost of the work referred to in subparagraph (i and ii) above for profit, so long as the Contractor can demonstrate that the project would have experienced a profit upon its completion; plus,
 - (v) the reasonable costs, including expert and attorney's fees for the preparation of the settlement claim as detailed below.
- (b) "Reasonable and necessary direct cost" set forth in subparagraph (a)(i) above will be calculated by the Engineer by comparing costs submitted in the escrow bid documents, approved change orders or force account work with the Contractor's direct cost report submitted within the claim, and shall deduct any costs deemed by the Engineer to be incurred due to the Contractor's poor performance of the work, ineffective project management, Contractor caused project delays or any other Contractor deviation from its contractual or legal duties.. The Contractor has the burden to establish that the claimed costs are reasonable, necessary and direct costs in accordance with sub-section (a) or (b) herein.
- (c) The costs recoverable in subparagraph (v) must not include any expert and/or attorney's fees or other claim preparation fees incurred after the submission of the initial settlement claim and must not include any costs of litigation including attorney's fees and expert fees brought by the contractor for recovery and any costs allowed under subsections (a) and (b) herein.
- (d) There will be deducted from such sums as provided in this section, the amount of any payments made to the Contractor prior to the date of the termination of this Agreement. The Contractor is not entitled to any claim or claim of lien against the Agency for any additional compensation or damages in the event of such termination for convenience and payment hereunder.
- (e) Upon termination of the project for convenience the Contractor, within 30 Calendar Days, may submit a claim in accordance with Section 9-18 of these specifications if it disputes the Engineer's determination of payments due the Contractor.

5-22.03.B Payments to Contractor upon Termination for Default

If the Work is to be completed following Notice of Termination and termination of the Contractor's right to perform under the Contract, the Contractor is not entitled to receive any portion of the amount to be paid under the Contract until completion of the Project. After completion, if the unpaid balance exceeds the sum of the amount expended by the Agency in finishing the work, plus all damages sustained or to be sustained by the Agency, plus unpaid claims for labor, materials, tools, equipment, or supplies contracted for by the Contractor for the Work, provided that sworn statements of said claims have been filed as required by Section 9, "Changes and Claims," of these Specifications, the excess not otherwise required by these Specifications to be retained will be paid to the Contractor or the Contractor's surety as applicable. If the sum exceeds the unpaid balance of the Total Contract Price, the Contractor and the Contractor's surety are liable to the Agency for the amount of the excess. If the Contractor's surety completes the Work, the surety must be subrogated to money due under the Contract and to money which will become due in the course of completion by the surety.

Any claim by the Contractor pertaining to termination of a contract, whether partial or total, must be submitted to the Agency in the form and with the required certification pursuant to Section 9-18 of these Specifications. Claims must be submitted no later than 90 Calendar Days from the effective date of termination unless the Agency grants one or more extensions, in writing, upon the Contractor's written request transmitted within the 90-day period or authorized extension. If the Contractor fails to submit a termination claim within the time allowed, the Agency may determine and pay amounts, if any, due the Contractor because of the termination.

5-22.04 Agency Completion

If the Contract is terminated and the Agency completes the Work, the Agency may take possession of and use all or any part of the Contractor's materials, tools, equipment, and appliances on the premises to complete the Work. The Agency assumes the responsibility for returning the equipment in as good condition as when it was taken over, except for reasonable wear and tear. The items will be returned when the Work is completed or sooner, at the Agency's discretion. The Agency agrees to pay a reasonable amount for the use of the tools and equipment.

The Agency may direct that all or any part of the Work be completed by day labor and/or other contractors.

5-22.04.A Payment for Agency Completion

If the Agency completes the Work, no payment will be made to the Contractor until the Work is complete. All costs of completing the Work, including, but not limited to, legal expenses, Agency forces, administration and management, direct and indirect, will be deducted from the sum due the Contractor. If the cost of completing the Work exceeds sums due the Contractor, the Contractor and the Contractor's surety must, upon demand, pay the Agency a sum equal to the difference. If the Agency completes the Work and there is a sum due the Contractor after the Agency deducts the costs of completing the Work, the Agency will pay the sum to the Contractor and/or the Contractor's surety.

5-22.04.B Agency Completion Not a Waiver of Agency Rights

No act by the Agency before the Work is finally accepted will operate as a waiver or stop the Agency from acting upon a subsequent event, occurrence, or failure by the Contractor to fulfill the terms and conditions of the Contract. The rights of the Agency pursuant to this Section are in addition to all other rights of the Agency pursuant to the Contract, and at law or in equity.

5-23 TERMINATION OF UNSATISFACTORY SUBCONTRACTS

When a portion of the Work subcontracted by the Contractor is not prosecuted in a satisfactory manner, the Contractor must immediately terminate the subcontract upon written notice from the Agency. The Subcontractor must not again be employed for the portion of the Work on which the Subcontractor's performance was unsatisfactory.