

## Contract

This public works contract ("Contract") is entered into by and between City of Santa Clara ("City") and \_\_\_\_\_ ("Contractor"), for work on the Laurelwood Substation Transmission Line Extension Project ("Project").

The parties agree as follows:

1. **Award of Contract.** In response to the Notice Inviting Bids, Contractor has submitted a Bid Proposal to perform the Work to construct the Project. On \_\_\_\_\_, 20\_\_\_\_, City authorized award of this Contract to Contractor for the amount set forth in Section 4, below.
2. **Contract Documents.** The Contract Documents incorporated into this Contract include and are comprised of all of the documents listed below. The definitions provided in Article 1 of the General Conditions apply to all of the Contract Documents, including this Contract.
  - 2.1 Notice Inviting Bids;
  - 2.2 Instructions to Bidders;
  - 2.3 Addenda, if any;
  - 2.4 Bid Proposal and attachments thereto;
  - 2.5 Contract;
  - 2.6 Payment and Performance Bonds;
  - 2.7 General Conditions;
  - 2.8 General Requirements;
  - 2.9 Special Conditions;
  - 2.10 Project Plans and Specifications;
  - 2.11 Change Orders, if any;
  - 2.12 Notice of Award;
  - 2.13 Notice to Proceed; and
  - 2.14 City's Standard Details, as applicable; and
  - 2.15 The following: N/A
3. **Contractor's Obligations.** Contractor shall perform all of the Work required for the Project, as specified in the Contract Documents. Contractor must provide, furnish, and supply all things necessary and incidental for the timely performance and completion of the Work, including all necessary labor, materials, supplies, tools, equipment, transportation, services, onsite facilities, and utilities, unless otherwise specified in the Contract Documents. Contractor must use its best efforts to diligently prosecute and complete the Work in a professional and expeditious manner and to meet or exceed the performance standards required by the Contract Documents.
4. **Payment.** As full and complete compensation for Contractor's timely performance and completion of the Work in strict accordance with the terms and conditions of the Contract Documents, City will pay Contractor \$\_\_\_\_\_ ("Contract Price") for all of Contractor's direct and indirect costs to perform the Work, including all labor, materials, supplies, equipment, taxes, insurance, bonds and all overhead costs, in accordance with the payment provisions in the General Conditions.
5. **Time for Completion.** Contractor shall fully complete the Work for the Project, meeting all requirements for Final Completion within 80 Working Days from the start date set forth in the Notice to Proceed ("Contract Time"). By signing below, Contractor expressly waives any claim for delayed early completion.
6. **Liquidated Damages.** As further specified in Section 5.4 of the General Conditions, if Contractor fails to complete the Work within the Contract Time, City will assess liquidated damages in the amount of \$2,800 per day for each day of unexcused delay in achieving

Final Completion, and such liquidated damages may be deducted from City's payments due or to become due to Contractor under this Contract.

**7. Labor Code Compliance.**

**7.1 General.** This Contract is subject to all applicable requirements of Chapter 1 of Part 7 of Division 2 of the Labor Code, including requirements pertaining to wages, working hours and workers' compensation insurance, as further specified in Article 9 of the General Conditions.

**7.2 Prevailing Wages.** This Project is subject to the prevailing wage requirements applicable to the locality in which the Work is to be performed for each craft, classification or type of worker needed to perform the Work, including employer payments for health and welfare, pension, vacation, apprenticeship and similar purposes. Copies of these prevailing rates are available online at <http://www.dir.ca.gov/DLSR>.

**7.3 DIR Registration.** City may not enter into the Contract with a bidder without proof that the bidder and its Subcontractors are registered with the DIR to perform public work pursuant to Labor Code § 1725.5, subject to limited legal exceptions.

**8. Workers' Compensation Certification.** Pursuant to Labor Code § 1861, by signing this Contract, Contractor certifies as follows: "I am aware of the provisions of Labor Code § 3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work on this Contract."

**9. Conflicts of Interest.** Contractor, its employees, Subcontractors, and agents may not have, maintain, or acquire a conflict of interest in relation to this Contract in violation of any City ordinance or requirement, or in violation of any California law, including Government Code § 1090 et seq., or the Political Reform Act, as set forth in Government Code § 81000 et seq. and its accompanying regulations. Any violation of this Section constitutes a material breach of the Contract.

**10. Independent Contractor.** Contractor is an independent contractor under this Contract and will have control of the Work and the means and methods by which it is performed. Contractor and its Subcontractors are not employees of City and are not entitled to participate in any health, retirement, or any other employee benefits from City.

**11. Notice.** Any notice required by or pursuant to the Contract Documents must be made in writing, signed, dated, and sent to the other party by personal delivery, U.S. Mail, a reliable overnight delivery service, or by email as a PDF file. Notice is deemed effective upon delivery, except that service by U.S. Mail is deemed effective on the second working day after deposit for delivery. Notice for each party must be given as follows:

**City:**

1500 Warburton Avenue  
Santa Clara, CA 95050  
Attn: Jeevan Valath  
[jvalath@santaclaraca.gov](mailto:jvalath@santaclaraca.gov)

Copy to: Sachin Bajracharya and Diana Shiles  
[sbajracharya@santaclaraca.gov](mailto:sbajracharya@santaclaraca.gov) and [dshiles@santaclaraca.gov](mailto:dshiles@santaclaraca.gov)

**Contractor:**

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Attn: \_\_\_\_\_  
Email: \_\_\_\_\_  
Copy to: \_\_\_\_\_

**12. General Provisions.**

- 12.1 Assignment and Successors.** Contractor may not assign its rights or obligations under this Contract, in part or in whole, without City’s written consent. This Contract is binding on Contractor’s and City’s lawful heirs, successors and permitted assigns.
- 12.2 Third Party Beneficiaries.** There are no intended third party beneficiaries to this Contract.
- 12.3 Governing Law and Venue.** This Contract will be governed by California law and venue will be in the Santa Clara County Superior Court, and no other place. Contractor waives any right it may have pursuant to Code of Civil Procedure § 394, to file a motion to transfer any action arising from or relating to this Contract to a venue outside of Santa Clara County, California.
- 12.4 Amendment.** No amendment or modification of this Contract will be binding unless it is in a writing duly authorized and signed by the parties to this Contract.
- 12.5 Integration.** This Contract and the Contract Documents incorporated herein, including authorized amendments or Change Orders thereto, constitute the final, complete, and exclusive terms of the agreement between City and Contractor.
- 12.6 Severability.** If any provision of the Contract Documents is determined to be illegal, invalid, or unenforceable, in whole or in part, the remaining provisions of the Contract Documents will remain in full force and effect.
- 12.7 Iran Contracting Act.** If the Contract Price exceeds \$1,000,000, Contractor certifies, by signing below, that it is not identified on a list created under the Iran Contracting Act, Public Contract Code § 2200 et seq. (the “Act”), as a person engaging in investment activities in Iran, as defined in the Act, or is otherwise expressly exempt under the Act.
- 12.8 Authorization.** Each individual signing below warrants that he or she is authorized to do so by the party that he or she represents, and that this Contract is legally binding on that party. If Contractor is a corporation, signatures from two officers of the corporation are required pursuant to California Corporations Code § 313.

The parties agree to this Contract as witnessed by the signatures below:

**CITY:**

Approved as to form:

s/ \_\_\_\_\_

s/ \_\_\_\_\_

\_\_\_\_\_  
Name, Title

\_\_\_\_\_  
Name, Title

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Attest:

s/ \_\_\_\_\_

\_\_\_\_\_  
Name, Title

Date: \_\_\_\_\_

**CONTRACTOR:**

\_\_\_\_\_  
Business Name

s/ \_\_\_\_\_

Seal:

\_\_\_\_\_  
Name, Title

Date: \_\_\_\_\_

Second Signature (See Section 12.8):

s/ \_\_\_\_\_

\_\_\_\_\_  
Name, Title

Date: \_\_\_\_\_

\_\_\_\_\_  
Contractor's California License Number(s) and Expiration Date(s)

## Payment Bond

City of Santa Clara ("City") and \_\_\_\_\_ ("Contractor") have entered into a contract for work on the Laurelwood Substation Transmission Line Extension Project ("Project"). The Contract is incorporated by reference into this Payment Bond ("Bond").

- 1. General.** Under this Bond, Contractor as principal and \_\_\_\_\_, its surety ("Surety"), are bound to City as obligee in an amount not less than \$ \_\_\_\_\_, under California Civil Code § 9550 et seq., to ensure payment to authorized claimants. This Bond is binding on the respective successors, assigns, owners, heirs, or executors of Surety and Contractor.
- 2. Surety's Obligation.** If Contractor or any of its Subcontractors fails to pay a person authorized in California Civil Code § 9100 to assert a claim against a payment bond, any amounts due under the Unemployment Insurance Code with respect to work or labor performed under the Contract, or any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of Contractor and its Subcontractors under California Unemployment Insurance Code § 13020 with respect to the work and labor, then Surety will pay the obligation.
- 3. Beneficiaries.** This Bond inures to the benefit of any of the persons named in California Civil Code § 9100, so as to give a right of action to those persons or their assigns in any suit brought upon this Bond. Contractor must promptly provide a copy of this Bond upon request by any person with legal rights under this Bond.
- 4. Duration.** If Contractor promptly makes payment of all sums for all labor, materials, and equipment furnished for use in the performance of the Work required by the Contract, in conformance with the time requirements set forth in the Contract and as required by California law, Surety's obligations under this Bond will be null and void. Otherwise, Surety's obligations will remain in full force and effect.
- 5. Waivers.** Surety waives any requirement to be notified of alterations to the Contract or extensions of time for performance of the Work under the Contract. Surety waives the provisions of Civil Code §§ 2819 and 2845. City waives the requirement of a new bond for any supplemental contract under Civil Code § 9550. Any notice to Surety may be given in the manner specified in the Contract and sent to Surety as follows:

Attn: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

- 6. Law and Venue.** This Bond will be governed by California law, and venue for any dispute pursuant to this Bond will be in the Santa Clara County Superior Court, and no other place. Surety will be responsible for City's attorneys' fees and costs in any action to enforce the provisions of this Bond.

*[Signatures are on the following page.]*

7. **Effective Date; Execution.** This Bond is entered into and is effective on \_\_\_\_\_,  
20\_\_.

**SURETY:**

\_\_\_\_\_  
Business Name

s/ \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

**CONTRACTOR:**

\_\_\_\_\_  
Business Name

s/ \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name, Title

**APPROVED AS TO FORM:**

s/ \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name, Title

END OF PAYMENT BOND



City/State/Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Email: \_\_\_\_\_

8. **Law and Venue.** This Bond will be governed by California law, and venue for any dispute pursuant to this Bond will be in the Santa Clara County Superior Court, and no other place. Surety will be responsible for City's attorneys' fees and costs in any action to enforce the provisions of this Bond.
9. **Effective Date; Execution.** This Bond is entered into and effective on \_\_\_\_\_, 20\_\_\_\_.

**SURETY:**

\_\_\_\_\_  
Business Name

s/ \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name, Title

(Attach Acknowledgment with Notary Seal and Power of Attorney)

**CONTRACTOR:**

\_\_\_\_\_  
Business Name

s/ \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name, Title

**APPROVED AS TO FORM:**

s/ \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name, Title

END OF PERFORMANCE BOND

## General Conditions

### Article 1 - Definitions

**Definitions.** The following definitions apply to all of the Contract Documents unless otherwise indicated, e.g., additional definitions that apply solely to the Specifications or other technical documents. Defined terms and titles of documents are capitalized in the Contract Documents, with the exception of the following (in any tense or form): “day,” “furnish,” “including,” “install,” “work day,” or “working day.”

**Allowance** means a specific amount that must be included in the Base Bid set forth in the Bid Proposal form, for a specified purpose.

**Article**, as used in these General Conditions, means a numbered Article of the General Conditions, unless otherwise indicated by the context.

**Change Order** means a written document duly approved and executed by City, which changes the scope of Work, the Contract Price, or the Contract Time.

**Chief Electric Utility Officer** means the director of the Electric Utility Department, also known as Silicon Valley Power, and his or her authorized delegee(s).

**City** means the City of Santa Clara, acting through its City Council, officers, employees, City Engineer, and any other authorized representatives.

**City Council** means the City Council of the City of Santa Clara, and its authorized delegee(s).

**City Engineer** means the City Engineer for City and his or her authorized delegee(s).

**Claim** means a separate demand by Contractor for a change in the Contract Time or Contract Price, that has previously been submitted to City in accordance with the requirements of the Contract Documents, and which has been rejected by City, in whole or in part; a written demand by Contractor disputing a unilateral Change Order or a portion thereof; or a written demand by Contractor objecting to the amount of Final Payment.

**Contract** means the signed agreement between City and Contractor for performing the Work required for the Project, and all documents expressly incorporated therein.

**Contract Documents** means, collectively, all of the documents listed as such in Section 2 of the Contract, including the Notice Inviting Bids; the Instructions to Bidders; addenda, if any; the Bid Proposal and attachments thereto; the Contract; the Notice of Award and Notice to Proceed; the payment and performance bonds; the General Conditions; the General Requirements; the Special Conditions; the Project Plans and Specifications; any Change Orders; and any other documents which are clearly and unambiguously made part of the Contract Documents. The Contract Documents do not include documents provided “For Reference Only,” or documents that are intended solely to provide information regarding existing conditions.

**Contract Price** means the total compensation to be paid to Contractor for performance of the Work, as set forth in the Contract and as may be amended by Change Order or adjusted for an Allowance. The Contract Price is not subject to adjustment due to inflation or due to the increased cost of labor, material, supplies, or equipment following submission of the Bid Proposal.

**Contract Time** means the time specified for complete performance of the Work, as set forth in the Contract and as may be amended by Change Order.

**Contractor** means the individual, partnership, corporation, or joint-venture that has signed the Contract with City to perform the Work.

**Day** means a calendar day unless otherwise specified.

**Design Professional** means the licensed individual(s) or firm(s) retained by City to provide architectural, engineering, or other design professional services for the Project. If no Design Professional has been retained for this Project, any reference to Design Professional is deemed to refer to the Engineer.

**DIR** means the California Department of Industrial Relations.

**Director** means the director of the Department of Public Works and his or her authorized delegee(s).

**Drawings** has the same meaning as Plans.

**Engineer** means, for a Project administered by the City's Department of Public Works, the City Engineer and his or her authorized delegees; for a Project administered by the City's Water & Sewer Utilities, the Director of Water and Sewer Utilities and his or her authorized delegees; and for a Project administered by Silicon Valley Power, the Chief Electric Utility Officer and his or her authorized delegees.

**Excusable Delay** is defined in Section 5.3(B), Excusable Delay.

**Extra Work** means new or unforeseen work added to the Project, as determined by the Engineer in his or her sole discretion, including Work that was not part of or incidental to the scope of the Work when the Contractor's bid was submitted; Work that is substantially different from the Work as described in the Contract Documents at bid time; or Work that results from a substantially differing and unforeseeable condition.

**Final Completion** means Contractor has fully completed all of the Work required by the Contract Documents to the City's satisfaction, including all punch list items and any required commissioning or training, and has provided the City with all required submittals including the instructions and manuals, product warranties, and as-built drawings.

**Final Payment** means payment to Contractor of the unpaid Contract Price, including release of undisputed retention, less amounts withheld or deducted pursuant to the Contract Documents.

**Furnish** means to purchase and deliver for the Project.

**Government Code Claim** means a claim submitted pursuant to California Government Code § 900 et seq.

**Hazardous Materials** means any substance or material identified as hazardous under any Laws, or any other substance or material that may be considered hazardous or otherwise subject to Laws governing handling, disposal, or cleanup.

**Including**, whether or not capitalized, means "including, but not limited to," unless the context clearly requires otherwise.

**Inspector** means the individual(s) or firm(s) retained or employed by City to test and/or inspect the workmanship, materials, and manner of construction of the Project and its components to ensure compliance with the Contract Documents and all Laws.

**Install** means to fix in place for materials, and to fix in place and connect for equipment.

**Laws** means all applicable local, state, and federal laws, regulations, rules, codes, ordinances, permits, orders, and the like enacted or imposed by or under the auspices of any governmental entity with jurisdiction over any of the Work or any performance of the Work, including health and safety requirements.

**Non-Excusable Delay** is defined in Section 5.3(D), Non-Excusable Delay.

**Plans** means the City-provided plans, drawings, details, or graphical depictions of the Project requirements, but does not include Shop Drawings.

**Project** means the public works project referenced in the Contract, as modified by any Project alternates elected by City, if any.

**Project Manager** means the individual designated by City to oversee and manage the Project on City's behalf and may include his or her authorized delegee(s) when the Project Manager is unavailable. If no Project Manager has been designated for this Project, any reference to Project Manager is deemed to refer to the Engineer.

**Recoverable Costs** is defined in Section 5.3(F), Recoverable Costs.

**Request for Information** or **RFI** means Contractor's written request for information about the Contract Documents, the Work or the Project, submitted to City in the manner and format specified by City.

**Section**, when capitalized in these General Conditions, means a numbered section or subsection of the General Conditions, unless the context clearly indicates otherwise.

**Shop Drawings** means drawings, plan details or other graphical depictions prepared by or on behalf of Contractor, and subject to City acceptance, which are intended to provide details for fabrication, installation, and the like, of items required by or shown in the Plans or Specifications.

**Specialty Work** means Work that must be performed by a specialized Subcontractor with the specified license or other special certification, and that the Contractor is not qualified to self-perform.

**Specifications** means the technical, text specifications describing the Project requirements, which are prepared for and incorporated into the Contract by or on behalf of City, and does not include the Contract, General Conditions or Special Conditions.

**Standard Details** means the latest version of the City's standard details and technical standards, including the City of Santa Clara Standard Details, available at <https://www.santaclaraca.gov/our-city/departments-g-z/public-works/engineering/technical-documents>, and the Silicon Valley Power Technical Standards, which may be available at <https://www.siliconvalleypower.com/svp-and-community/rules-and-regulations> and/or provided by City upon request.

**Standard Plans** means the latest version of the State of California Department of Transportation Standard Plans.

**Subcontractor** means an individual, partnership, corporation, or joint-venture retained by Contractor directly or indirectly through a subcontract to perform a specific portion of the Work. The term Subcontractor applies to subcontractors of all tiers, unless otherwise indicated by the context. A third party such as a utility performing related work on the Project is not a Subcontractor, even if Contractor must coordinate its Work with the third party.

**SVP** means Silicon Valley Power, the City's municipal electric utility.

**Technical Specifications** has the same meaning as Specifications.

**Work** means all of the construction and services necessary for or incidental to completing the Project in conformance with the requirements of the Contract Documents.

**Work Day** or **Working Day**, whether or not capitalized, means a weekday when the City is open for business, and does not include the following holidays observed by the City. If a holiday falls on a Saturday, the preceding Friday will be the holiday. If a holiday falls on a Sunday, the following Monday will be the holiday.

- (A) New Year's Day, January 1;
- (B) Martin Luther King Jr.'s Birthday, third Monday in January;
- (C) Presidents' Day, third Monday in February;
- (D) Spring Holiday, the Friday before Easter Sunday;
- (E) Memorial Day, last Monday in May;
- (F) Independence Day, July 4;
- (G) Labor Day, first Monday in September;
- (H) Admission Day, September 9;
- (I) Indigenous Peoples' Day, second Monday in October;
- (J) Veterans' Day, November 11;
- (K) Thanksgiving Day;
- (L) The Day following Thanksgiving Day;
- (M) Christmas Day and City Closure, December 25-31; and
- (N) Each day appointed by the Governor of California and formally recognized by the City Council as a day of mourning, thanksgiving, or special observance.

**Worksite** means the place or places where the Work is performed, which includes, but may extend beyond the Project site, including separate locations for staging, storage, or fabrication.

## Article 2 - Roles and Responsibilities

### 2.1 City.

- (A) **City Council.** The City Council has final authority in all matters affecting the Project, except to the extent it has delegated authority to the Engineer.
- (B) **Engineer.** The Engineer, acting within the authority conferred by the City Council, is responsible for administration of the Project on behalf of City, including authority to provide directions to the Design Professional and to Contractor to ensure proper and timely completion of the Project. The Engineer's decisions are final and conclusive within the scope of his or her authority, including interpretation of the Contract Documents.
- (C) **Project Manager.** The Project Manager assigned to the Project will be the primary point of contact for the Contractor and will serve as City's representative for daily administration of the Project on behalf of City. Unless otherwise specified, all of Contractor's communications to City (in any form) will go to or through the Project Manager. City reserves the right to reassign the Project Manager role at any time or to delegate duties to additional City representatives, without prior notice to or consent of Contractor.
- (D) **Design Professional.** The Design Professional is responsible for the overall design of the Project and, to the extent authorized by City, may act on City's behalf to ensure performance of the Work in compliance with the Plans and Specifications,

including any design changes authorized by Change Order. The Design Professional's duties may include review of Contractor's submittals, visits to any Worksite, inspecting the Work, evaluating test and inspection results, and participation in Project-related meetings, including any pre-construction conference, weekly meetings, and coordination meetings. The Design Professional's interpretation of the Plans or Specifications is final and conclusive.

## 2.2 Contractor.

(A) **General.** Contractor must provide all labor, materials, supplies, equipment, services, and incidentals necessary to perform and timely complete the Work in strict accordance with the Contract Documents, and in an economical and efficient manner in the best interests of City, and with minimal inconvenience to the public.

(B) **Responsibility for the Work and Risk of Loss.** Contractor is responsible for supervising and directing all aspects of the Work to facilitate the efficient and timely completion of the Work. Contractor is solely responsible for and required to exercise full control over the Work, including the construction means, methods, techniques, sequences, procedures, safety precautions and programs, and coordination of all portions of the Work with that of all other contractors and Subcontractors, except to the extent that the Contract Documents provide other specific instructions. Contractor's responsibilities extend to any plan, method or sequence suggested, but not required by City or specified in the Contract Documents. From the date of commencement of the Work until either the date on which City formally accepts the Project or the effective date of termination of the Contract, whichever is later, Contractor bears all risks of injury or damage to the Work and the materials and equipment delivered to any Worksite, by any cause including fire, earthquake, wind, weather, vandalism or theft, subject to the limitations of Laws, including Public Contract Code § 7105.

(C) **Project Administration.** Contractor must provide sufficient and competent administration, staff, and skilled workforce necessary to perform and timely complete the Work in accordance with the Contract Documents. Before starting the Work, Contractor must designate in writing and provide complete contact information, including telephone numbers, email address, and emergency contact information, for the officer or employee in Contractor's organization who is to serve as Contractor's primary representative for the Project, and who has authority to act on Contractor's behalf. A Subcontractor may not serve as Contractor's primary representative.

(D) **On-Site Superintendent.** Contractor must, at all times during performance of the Work, provide a qualified and competent full-time superintendent acceptable to City, and assistants as necessary, who must be physically present at the Project site while any aspect of the Work is being performed. The superintendent must have full authority to act and communicate on behalf of Contractor, and Contractor shall be bound by the superintendent's communications to City. City's approval of the superintendent is required before the Work commences. Contractor must also provide emergency contact information for the superintendent. If City is not satisfied with the superintendent's performance, City may request a qualified replacement of the superintendent. Failure to comply may result in temporary suspension of the Work, at Contractor's sole expense and with no extension of Contract Time, until an approved superintendent is physically present to supervise the Work. Contractor must provide written notice to City, as soon as practicable, and receive City's approval, before replacing the superintendent.

(E) **Standards.** Contractor must, at all times, ensure that the Work is performed in an efficient, skillful manner following best practices and in full compliance with the Contract Documents, Laws, all rules and regulations of public utilities, and applicable manufacturer's recommendations. Contractor has a material and ongoing obligation to

provide true and complete information, to the best of its knowledge, with respect to all records, documents, or communications pertaining to the Project, including oral or written reports, statements, certifications, Change Order requests, or Claims.

(F) **Meetings.** Contractor, its project manager, superintendent and any primary Subcontractors requested by City, must conduct and/or attend, as applicable, the meetings specified in this subsection. For each meeting, Contractor must prepare meeting minutes and submit the meeting minutes to City following the meeting.

(1) *Pre-Construction Conference.* Contractor, its project manager, superintendent, authorized representative responsible for scheduling, and any primary Subcontractors and/or key personnel requested by City, must attend a pre-construction conference. City will designate a date and time for a pre-construction conference with Contractor following Contract execution. The parties will discuss coordination between City and Contractor and Project administration procedures, including, but not limited to, schedules, personnel and vehicle permit procedures, use of premises, location for temporary facilities at the Project site, security, submittal procedures, utility shutdown procedures, inspection and testing procedures, control and reference point survey procedures, and Contractor's safety program. Contractor must present City with the following information or documents at the conference for City's review and acceptance before the Work commences:

- (a) Name, 24-hour contact information, and qualifications of the proposed on-site superintendent;
- (b) List of all key Project personnel and their complete contact information, including email addresses and telephone numbers during regular hours and after hours;
- (c) Staging plans that identify the sequence of the Work, including any phases and alternative sequences or phases, with the goal of minimizing the impacts on residents, businesses and other operations in the Project vicinity;
- (d) Contractor's traffic control and detour plan and any other traffic control plans associated with the staging plans, that are signed and stamped by a licensed engineer (if required);
- (e) Contractor's initial schedule, if applicable, and draft baseline schedule for the Work as required under Section 5.2;
- (f) Submittal schedule with list of Project submittals that require City review, and list of the proposed material suppliers;
- (g) Draft schedule of values as required under Section 8.1, to be finalized prior to Contractor's submission of the first application for payment;
- (h) Letter of authorization to execute Change Orders on behalf of Contractor; and
- (i) Any other documents specified in the Special Conditions or Notice of Award.

(2) *Weekly Progress Meetings.* Contractor, its project manager, superintendent, and any Subcontractors and/or key personnel requested by City, must attend

weekly Project progress meetings scheduled with City. The progress meetings will be held at Contractor's office at the Project site unless otherwise directed by City. The subjects for discussion at the weekly progress meetings may include, but are not limited to, any meeting minutes from a previous meeting; review of progress of the Work since the previous meeting; Work schedules, including progress schedules, delivery schedules, and adjustments thereto; the status of submittals, RFIs, or Change Orders; the Contractor's safety program activities and results, including reports on any serious injuries and/or damage accidents; and any other items affecting the progress of Work. Contractor shall prepare an agenda for progress meeting(s). If there are any questions from City at a progress meeting that require further response from Contractor, Contractor must respond to those questions in writing within five days following the meeting.

(3) *Special Meetings.* At any time during the progress of the Work, City may schedule special meetings with the Contractor, including, but not limited to, meetings in emergency situations. Contractor, its project manager, superintendent, and any Subcontractors and/or key personnel requested by City, must attend any such special meetings, as directed by City.

(4) *Safety Meetings.* At a minimum, Contractor must conduct monthly safety committee meetings and weekly toolbox safety talks with its workers.

(5) *Coordination Meetings.* In order to fulfill its coordination obligations, Contractor shall hold coordination meetings with other parties relating to other work being performed on or near the Project site or in relation to the Project, including work or activities performed by City, other contractors, or other utility owners. Contractor shall plan, coordinate, and schedule any such meetings with utility companies and City forces installing utilities. At least five days in advance of any such meeting, Contractor shall notify the Engineer and invite the Engineer to attend the meeting. Contractor shall be responsible for presiding over these meetings, as well as preparing and distributing meeting minutes within three working days following any such meeting.

(G) **Construction Records.** Contractor shall maintain up-to-date, thorough, legible, and dated daily job reports, which document all significant activity on the Project for each day that Work is performed on the Project. The daily report for each day must include the number of workers by trade at the Project site, including the hours worked by each worker with title; the equipment used to perform the Work; identification of Subcontractors performing Work; primary Work activities; major deliveries; problems encountered, including injuries, if any; weather and site conditions; and delays, if any. Contractor must submit the daily job reports to the City either at the close of the same day to which the daily job report pertains or the following morning. Contractor shall take date and time-stamped photographs to document general progress of the Project, including site conditions prior to construction activities, before and after photographs at offset trench laterals, existing improvements and utilities, damage and restoration. Contractor shall maintain copies of all subcontracts, Project-related correspondence with Subcontractors, and records of meetings with Subcontractors. Upon request by the City, Contractor shall permit inspection of and/or provide copies of any of these construction records.

(H) **Responsible Party.** Contractor is solely responsible to City for the acts or omissions of any Subcontractors, or any other party or parties performing portions of the Work or providing equipment, materials or services for or on behalf of Contractor or the Subcontractors. Upon City's written request, Contractor must promptly and permanently remove from the Project, at no cost to City, any employee or Subcontractor or employee of a Subcontractor who the Engineer has determined to be incompetent, intemperate or disorderly, or who has failed or refused to perform the Work as required under the

Contract Documents. Contractor shall ensure that no alcohol, firearms, weapons, or controlled substances enter or are used at the Project site.

(I) **Correction of Defects.** Contractor must promptly correct, at Contractor's sole expense, any Work that is determined by City to be deficient or defective in any way, including workmanship, materials, parts, or equipment, as well as any Work that is impacted by deficient or defective Work. Workmanship, materials, parts, or equipment that do not conform to the requirements under the Contract Documents, as determined by City, will be considered defective and subject to rejection. Contractor must also promptly correct, at Contractor's sole expense, any Work performed beyond the lines and grades shown on the Plans or established by City, and any Extra Work performed without City's prior written approval. If Contractor fails to correct or to take reasonable steps toward correcting Work contemplated by this paragraph within five days following notice from City, or within the time specified in City's notice to correct, City may elect to have the Work corrected by its own forces or by a third party, in which case the cost of correction will be deducted from payment otherwise due to Contractor. If City elects to correct the Work due to Contractor's failure or refusal to do so, City or its agents will have the right to take possession of and use any equipment, supplies, or materials available at the Project site or any Worksite on City property, in order to effectuate the correction, at no extra cost to City. Contractor's warranty obligations under Section 11.2, Warranty, will not be waived nor limited by City's actions to correct Work under these circumstances. Alternatively, City may elect to retain the Work, and deduct the difference in value, as determined by the Engineer, from payments otherwise due to Contractor. This paragraph also applies to any defective Work performed by Contractor during the one-year warranty period under Section 11.2.

(1) Contractor shall also be responsible for the costs to correct other work that is being performed on or adjacent to the Project site that is impacted by the defective Work of Contractor and the City may deduct those costs from payment otherwise due Contractor.

(2) Contractor is responsible for all claims, costs, losses, damages, expenses, and liabilities incurred or sustained by City or Contractor related to City's investigation, assessment, and/or remedy of defective Work.

(J) **Contractor's Records.** Contractor must maintain all of its records relating to the Project in any form, including paper documents, photos, videos, electronic records, approved samples, and the construction records required pursuant to paragraph (G), above. Project records subject to this provision include complete Project cost records and records relating to preparation of Contractor's bid, including estimates, take-offs, and price quotes or bids.

(1) Contractor's cost records must include all supporting documentation, including original receipts, invoices, and payroll records, evidencing its direct costs to perform the Work, including, but not limited to, costs for labor, materials, and equipment. Each cost record should include, at a minimum, a description of the expenditure with references to the applicable requirements of the Contract Documents, the amount actually paid, the date of payment, and whether the expenditure is part of the original Contract Price, related to an executed Change Order, or otherwise categorized by Contractor as Extra Work. Contractor's failure to comply with this provision as to any claimed cost operates as a waiver of any rights to recover the claimed cost.

(2) Contractor must continue to maintain its Project-related records in an organized manner for a period of five years after City's acceptance of the Project, as set forth in Section 11.1(C), or following Contract termination, whichever

occurs first. Subject to prior notice to Contractor, City is entitled to inspect or audit any of Contractor's records relating to the Project during Contractor's normal business hours. Contractor's records may also be subject to examination and audit by the California State Auditor, pursuant to Government Code § 8546.7. The record-keeping requirements set forth in this subsection 2.2(J) will survive expiration or termination of the Contract.

(K) **Copies of Project Documents.** Contractor and its Subcontractors must keep copies, at the Project site, of all Work-related documents, including the Contract, permit(s), Plans, Specifications, addenda, Contract amendments, Change Orders, RFIs and RFI responses, Shop Drawings, as-built drawings, schedules, daily records, testing and inspection reports or results, and any related written interpretations. These documents must be available to City for reference at all times during construction of the Project.

(L) **Quality Control.** Contractor is responsible for implementing quality control activities to ensure that all materials, products, equipment, services, and workmanship meet the quality requirements of the Specifications and Plans, and that the Work complies with the Contract Documents. The quality control activities must include, at a minimum, identification of quality standards and references, procedures to ensure activities and the Work comply with the quality standards, and testing and inspection to verify quality of materials and workmanship. When no quality basis is prescribed in the Contract Documents, the quality and testing procedures shall be in accordance with the best acceptable practices of the construction industry for the locale of the Project, for projects of this type, or standards set by engineering or technical societies, whichever is more stringent. Contractor must employ and assign knowledgeable and skilled personnel to perform quality control functions to ensure that the Work complies with the requirements of the Contract Documents.

### 2.3 Subcontractors.

(A) **General.** All Work which is not performed by Contractor with its own forces must be performed by Subcontractors. City reserves the right to approve or reject any and all Subcontractors proposed to perform the Work, for reasons including the Subcontractor's poor reputation, lack of relevant experience, financial instability, and lack of technical ability or adequate trained workforce. Each Subcontractor must obtain a City business license before performing any Work.

(B) **Contractual Obligations.** Contractor must require each Subcontractor to comply with the provisions of the Contract Documents as they apply to the Subcontractor's portion(s) of the Work, including the generally applicable terms of the Contract Documents, and to likewise bind their subcontractors. Contractor shall provide that the rights that each Subcontractor may have against any manufacturer, distributor, or supplier for breach of warranty or guarantee relating to items provided by the Subcontractor for the Project, will be assigned to City. Nothing in these Contract Documents creates a contractual relationship between a Subcontractor and City, but City is deemed to be a third-party beneficiary of the contract between Contractor and each Subcontractor.

(C) **Termination.** If the Contract is terminated, each Subcontractor's agreement must be assigned by Contractor to City, subject to the prior rights of any surety, but only if and to the extent that City accepts, in writing, the assignment by written notification, and assumes all rights and obligations of Contractor pursuant to each such subcontract agreement.

(D) **Substitution of Subcontractor.** If Contractor requests substitution of a listed Subcontractor under Public Contract Code § 4107, Contractor is solely responsible for all costs City incurs in responding to the request, including legal fees and costs to conduct a hearing, and any increased subcontract cost to perform the Work that was to be performed by the listed Subcontractor. If City determines that a Subcontractor is unacceptable to City based on the Subcontractor's failure to satisfactorily perform its Work, or for any of the grounds for substitution listed in Public Contract Code § 4107(a), City may request removal of the Subcontractor from the Project. Upon receipt of a written request from City to remove a Subcontractor pursuant to this paragraph, Contractor shall immediately remove the Subcontractor from the Project and, at no further cost to City, will either (1) self-perform the remaining Work to the extent that Contractor is duly licensed and qualified to do so, or (2) substitute a Subcontractor that is acceptable to City, in compliance with Public Contract Code § 4107, as applicable.

## 2.4 Coordination of Work.

(A) **Concurrent Work.** City reserves the right to perform, have performed, or permit performance of other work on or adjacent to the Project site while the Work is being performed for the Project. Contractor is responsible for coordinating its Work with other work being performed on or adjacent to the Project site, including by any utility companies or agencies, and must avoid hindering, delaying, or interfering with the work of other contractors, individuals, or entities, and must ensure safe and reasonable site access and use as required or authorized by City. To the full extent permitted by law, Contractor must hold harmless and indemnify City against any and all claims arising from or related to Contractor's avoidable, negligent, or willful hindrance of, delay to, or interference with the work of any utility company or agency or another contractor or subcontractor.

(B) **Coordination.** If Contractor's Work will connect or interface with work performed by others, Contractor is responsible for independently measuring and visually inspecting such work to ensure a correct connection and interface. Contractor is responsible for any failure by Contractor or its Subcontractors to confirm measurements before proceeding with connecting Work. Before proceeding with any portion of the Work affected by the construction or operations of others, Contractor must give the Project Manager prompt written notification of any defects Contractor discovers which will prevent the proper execution of the Work. Failure to give notice of any known or reasonably discoverable defects will be deemed acknowledgement by Contractor that the work of others is not defective and will not prevent the proper execution of the Work. Contractor must also promptly notify City if work performed by others, including work or activities performed by City's own forces, is operating to hinder, delay, or interfere with Contractor's timely performance of the Work. City reserves the right to backcharge Contractor for any additional costs incurred due to Contractor's failure to comply with the requirements in this Section 2.4.

2.5 **Submittals.** Unless otherwise specified, Contractor must submit to the Engineer for review and acceptance, all schedules, reports, Shop Drawings, samples, test specimens, product data, and similar submittals required by the Contract Documents, or upon request by the Engineer. Unless otherwise specified, all submittals, including Requests for Information, are subject to the general provisions of this Section, as well as specific submittal requirements that may be included elsewhere in the Contract Documents, including the General Requirements and Specifications. At the pre-construction conference, Contractor must submit a submittal schedule to the Engineer that lists each submittal required by the Contract Documents and the scheduled date of submission, consistent with any specified deadlines for submission set forth in the Contract Documents, and that accounts for City review and processing, as required by Document 01 33 00 of the General Requirements.

(A) **General.** Contractor is responsible for ensuring that all submittals are accurate and conform to the Contract Documents.

(B) **Time and Manner of Submission.** Contractor must ensure that its submittals are prepared and delivered in a manner consistent with the current City-accepted schedule for the Work and within the applicable time specified in the Contract Documents, or if no time is specified, in such time and sequence so as not to delay the performance of the Work or completion of the Project.

(C) **Required Contents.** Each submittal must include the Project name and contract number, Contractor's name and address, the name and address of any Subcontractor or supplier involved with the submittal, the date, and references to applicable Specification section(s) and/or drawing and detail number(s).

(D) **Required Corrections.** If corrections are required, Contractor must promptly make and submit any required corrections as specified in full conformance with the requirements of this Section, or other requirements that apply to that submittal.

(E) **Effect of Review and Acceptance.** Review and acceptance of a submittal by City will not relieve Contractor from complying with the requirements of the Contract Documents. Contractor is responsible for any errors in any submittal, and review or acceptance of a submittal by City is not an assumption of risk or liability by City.

(F) **Enforcement.** Any Work performed or any material furnished, installed, fabricated or used without City's prior acceptance of a required submittal is performed or provided at Contractor's risk, and Contractor may be required to bear the costs incident thereto, including the cost of removing and replacing such Work, repairs to other affected portions of the Work or material, and the cost of additional time or services required of City, including costs for the Design Professional, Project Manager, or Inspector.

(G) **Excessive RFIs.** A RFI will be considered excessive or unnecessary if City determines that the explanation or response to the RFI is clearly and unambiguously discernable from the Contract Documents. City's costs to review and respond to excessive or unnecessary RFIs may be deducted from payments otherwise due to Contractor.

(H) **Availability of Samples.** Contractor must make available to City all approved samples on a continuous basis and at a convenient location.

**2.6 Shop Drawings.** When Shop Drawings are required by the Specifications or requested by the Engineer, they must be prepared according to best practices at Contractor's expense. The Shop Drawings must be of a size and scale to clearly show all necessary details. If City requires changes, the corrected Shop Drawings must be resubmitted to the Engineer for review within the time specified by the Engineer. For all Project components requiring Shop Drawings, Contractor will not furnish materials or perform any Work until the Shop Drawings for those components are accepted by City. Contractor is responsible for any errors or omissions in the Shop Drawings, shop fits and field corrections; any deviations from the Contract Documents; and for the results obtained by the use of Shop Drawings. Acceptance of Shop Drawings by City does not relieve Contractor of Contractor's responsibility.

**2.7 Access to Work.** Contractor must afford prompt and safe access to any Worksite by City and its employees, agents, or consultants authorized by City; and upon request by City, Contractor must promptly arrange for City representatives to visit or inspect manufacturing sites or fabrication facilities for items to be incorporated into the Work.

- 2.8 Personnel.** Contractor and its Subcontractors must employ only competent and skillful personnel to perform the Work. Contractor and its Subcontractor's supervisors, security or safety personnel, and employees who have unescorted access to the Project site must possess proficiency in English sufficient to read, understand, receive, and implement oral or written communications or instructions relating to their respective job functions, including safety and security requirements. Upon written notification from the Engineer, Contractor and its Subcontractors must immediately discharge any personnel who are incompetent, disorderly, disruptive, threatening, abusive, or profane, or otherwise refuse or fail to comply with the requirements of the Contract Documents or Laws, including Laws pertaining to health and safety. Any such discharged personnel may not be re-employed or permitted on the Project in any capacity without City's prior written consent.

### **Article 3 - Contract Documents**

#### **3.1 Interpretation of Contract Documents.**

(A) **Plans and Specifications.** The Plans and Specifications included in the Contract Documents are complementary. If Work is shown on one but not on the other, Contractor must perform the Work as though fully described on both, consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. The Plans and Specifications are deemed to include and require everything necessary and reasonably incidental to completion of the Work, whether or not particularly mentioned or shown. Contractor must perform all Work and services and supply all things reasonably related to and inferable from the Contract Documents. In the event of a conflict between the Plans and Specifications, the Specifications will control, unless the drawing(s) at issue are dated later than the Specification(s) at issue. Detailed drawings take precedence over general drawings, and large-scale drawings take precedence over smaller scale drawings. Any arrangement or division of the Plans and Specifications into sections is for convenience and is not intended to limit the Work required by separate trades. A conclusion presented in the Plans or Specifications is only a recommendation. Actual locations and depths must be determined by Contractor's field investigation. Contractor may request access to underlying or background information in City's possession that is necessary for Contractor to form its own conclusions.

(B) **Duty to Notify and Seek Direction.** If Contractor becomes aware of a changed condition in the Project, or of any ambiguity, conflict, inconsistency, discrepancy, omission, or error in the Contract Documents, including the Plans or Specifications, Contractor must promptly submit a Request for Information to the Engineer, using an RFI form acceptable to the City, and wait for a response from City before proceeding further with the related Work. The RFI must notify City of the issue, specify the affected Work activity per the progress schedule, specify the time criticality of the RFI, and request clarification, interpretation or direction. The Engineer's clarification, interpretation or direction will be final and binding on Contractor. If Contractor proceeds with the related Work before obtaining City's response, Contractor shall be responsible for any resulting costs, including the cost of correcting any incorrect or defective Work that results. Timely submission of a clear and complete RFI is essential to avoiding delay. Contractor must submit time critical RFIs at least 30 days in advance of the scheduled start date of the affected Work. Delay resulting from Contractor's failure to submit a timely and complete RFI to the Engineer is Non-Excusable Delay. If Contractor believes that City's response to an RFI justifies a change to the Contract Price or Contract Time, Contractor must perform the Work as directed, but may submit a timely Change Order request in accordance with the Contract Documents. (See Articles 5 and 6.)

(C) **Figures and Dimensions.** In the event of a conflict between figures and scaled dimensions, figures control over scaled dimensions.

(D) **Technical or Trade Terms.** Any terms that have well-known technical or trade meanings will be interpreted in accordance with those meanings, unless otherwise specifically defined in the Contract Documents.

(E) **Measurements.** Contractor must verify all relevant measurements in the Contract Documents and at the Project site before ordering any material or performing any Work, and will be responsible for the correctness of those measurements or for costs that could have been avoided by independently verifying measurements.

(F) **Compliance with Laws.** The Contract Documents are intended to comply with Laws and will be interpreted to comply with Laws. If Contractor believes that a requirement in the Contract Documents conflicts with Laws, then Contractor shall submit an RFI to City, in accordance with Section 3.1(B), above. Unless otherwise specified by City, in the event of a conflict or inconsistency among (1) the Contract Documents and Laws or (2) among different Laws, Contractor must comply with the most stringent requirement. If the Plans or Specifications require or describe products or execution of better quality, higher standard, or greater size than required by Laws, the Plans and Specifications will take precedence, provided the requirements therein comply with Laws. If there are no specific requirements for compliance with Laws in the Plans or Specifications, Contractor must nonetheless comply with the requirements of Laws.

(G) **Manufacturer's Recommendations; Standards and Code Compliance.** Unless more stringent requirements are set forth in the Plans or Specifications, Contractor must comply with manufacturer's instructions and recommendations, reference standards and building code research report requirements in preparing, fabricating, erecting, installing, applying, connecting, and finishing the Work. Contractor must secure City's advanced written consent for any proposed deviations from reference standards and building code research report requirements and manufacturer's instructions and recommendations. Contractor must document and explain all such deviations to City and provide an acknowledgement by the manufacturer that such deviations are acceptable and appropriate for the Project, if applicable.

**3.2 Order of Precedence.** Information included in one Contract Document but not in another will not be considered a conflict or inconsistency. Unless otherwise specified in the Special Conditions, in case of any conflict or inconsistency among the Contract Documents, the following order of precedence will apply, beginning from highest to lowest, with the most recent version taking precedent over an earlier version:

- (A) Change Orders;
- (B) Addenda;
- (C) Contract;
- (D) Notice to Proceed;
- (E) Attachment for Federal Contract Requirements (only if used);
- (F) Special Conditions;
- (G) General Conditions;
- (H) General Requirements;
- (I) Payment and Performance Bonds;
- (J) Specifications;
- (K) Plans;
- (L) Notice of Award;
- (M) Notice Inviting Bids;
- (N) Attachment for Federal Bidding Requirements (only if used);
- (O) Instructions to Bidders;

- (P) Contractor's Bid Proposal and attachments;
- (Q) the City's Standard Details, as applicable; and
- (R) Any generic documents prepared by and on behalf of a third party, that were not prepared specifically for this Project, such as the Caltrans Standard Specifications, Caltrans Special Provisions, or Caltrans Standard Plans.

**3.3 Caltrans Standard Specifications.** Any reference to or incorporation of the Standard Specifications of the State of California, Department of Transportation ("Caltrans"), including "Standard Specifications," "Caltrans Specifications," "State Specifications," or "CSS," means the most current edition of Caltrans' Standard Specifications, unless otherwise specified ("Caltrans Standard Specifications"), including the most current amendments as of the date that Contractor's bid was submitted for this Project. The following provisions apply to use of or reference to the Caltrans Standard Specifications or Special Provisions:

(A) **Limitations.** The "General Provisions" of the Caltrans Standard Specifications, i.e., sections 1 through 9, do not apply to these Contract Documents with the exception of any specific provisions, if any, which are expressly stated to apply to these Contract Documents.

(B) **Conflicts or Inconsistencies.** If there is a conflict or inconsistency between any provision in the Caltrans Standard Specifications or Special Provisions and a provision of these Contract Documents, as determined by City, the provision in the Contract Documents will govern.

(C) **Meanings.** Terms used in the Caltrans Standard Specifications or Special Provisions are to be interpreted as follows:

- (1) Any reference to the "Engineer" is deemed to mean the City Engineer.
- (2) Any reference to the "Special Provisions" is deemed to mean the Special Conditions, unless the Caltrans Special Provisions are expressly included in the Contract Documents listed in Section 2 of the Contract.
- (3) Any reference to the "Department" or "State" is deemed to mean City.

**3.4 For Reference Only.** Contractor is responsible for the careful review of any document, study, or report provided by City or appended to the Contract Documents solely for informational purposes and identified as "For Reference Only." Nothing in any document, study, or report so appended and identified is intended to supplement, alter, or void any provision of the Contract Documents. Contractor is advised that City or its representatives may be guided by information or recommendations included in such reference documents, particularly when making determinations as to the acceptability of proposed materials, methods, or changes in the Work. Any record drawings or similar final or accepted drawings or maps that are not part of the Contract Documents are deemed to be For Reference Only. The provisions of the Contract Documents are not modified by any perceived or actual conflict with provisions in any document that is provided For Reference Only. Geotechnical data, reports, and analyses of any kind are "For Reference Only" documents, whether or not they are attached to the Contract Documents.

**3.5 Current Versions.** Unless otherwise specified by City, any reference to standard specifications, technical specifications, or any City or state codes or regulations means the latest specification, code, or regulation in effect on the date that bids were due.

- 3.6 Conformed Copies.** If City prepares a conformed set of the Contract Documents following award of the Contract, it will provide Contractor with two hard copy (paper) sets, if requested, and one copy of the electronic file in PDF format. It is Contractor's responsibility to ensure that all Subcontractors, including fabricators, are provided with the conformed set of the Contract Documents at Contractor's sole expense.
- 3.7 Ownership.** No portion of the Contract Documents may be used for any purpose other than construction of the Project, without prior written consent from City. Contractor is deemed to have conveyed the copyright in any designs, drawings, specifications, Shop Drawings, or other documents (in paper or electronic form) developed by Contractor for the Project, and City will retain all rights to such works, including the right to possession.

#### **Article 4 – Bonds, Indemnity, and Insurance**

- 4.1 Payment and Performance Bonds.** Within ten days following issuance of the Notice of Award, Contractor is required to provide a payment bond and a performance bond, each in the penal sum of not less than 100% of the Contract Price, and each executed by Contractor and its surety using the bond forms included with the Contract Documents.
- (A) **Surety.** Each bond must be issued and executed by a surety admitted in California. If an issuing surety cancels the bond or becomes insolvent, within seven days following written notice from City, Contractor must substitute a surety acceptable to City. If Contractor fails to substitute an acceptable surety within the specified time, City may, at its sole discretion, withhold payment from Contractor until the surety is replaced to City's satisfaction, or terminate the Contract for default.
- (B) **Supplemental Bonds for Increase in Contract Price.** If the Contract Price increases during construction by five percent or more over the original Contract Price, Contractor must provide supplemental or replacement bonds within ten days of written notice from City pursuant to this Section, covering 100% of the increased Contract Price and using the bond forms included with the Contract Documents.
- 4.2 Responsibility and Indemnity.**
- (A) **Limitation on Liability.** City and each of its officers, employees, consultants and agents including, but not limited to, the City Council and Engineer, shall not be liable or accountable in any manner for loss or damage that may happen to any part of the Work; loss or damage to materials or other things used or employed in performing the Work; injury, sickness, disease, or death of any person; or damage to property resulting from any cause whatsoever except their sole negligence, willful misconduct or active negligence, attributable to performance or character of the Work, and Contractor releases all of the foregoing persons and entities from any and all such claims.
- (B) **Indemnification.** To the fullest extent permitted by law (including, without limitation, California Civil Code § 2782), Contractor shall assume defense of, and indemnify and hold harmless, City and each of its officers, employees, consultants, and agents, including, but not limited to, the City Council and Engineer, from claims, suits, actions, losses and liability of every kind, nature and description, including, but not limited to, claims and fines of regulatory agencies and attorney's fees and consultant's fees, directly or indirectly arising out of, connected with or resulting from performance of the Work, failure to perform the Work, or condition of the Work which is caused in whole or part by any act or omission of Contractor, Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether it is caused in part by the negligence of City or by any person or entity required to be indemnified hereunder, except as set forth in subsection (E), below. This

indemnity requirement applies to any liability arising from alleged defects in the content or manner of submission of Contractor's bid for the Contract. Contractor's failure or refusal to timely accept a tender of defense pursuant to this Contract will be deemed a material breach of the Contract.

(C) **Third-Party Claims.** City will timely notify Contractor upon receipt of any third-party claim relating to the Contract, as required by Public Contract Code § 9201. With respect to third-party claims against Contractor, Contractor waives any and all rights to any type of express or implied indemnity against City and each of its officers, employees, consultants, and agents, including, but not limited to City, the City Council, and Engineer.

(D) **Continuing Obligations.** To the fullest extent permitted by law (including, without limitation, Civil Code § 2782), the indemnities, releases of liability, and limitations of liability, claims procedures, and limitations of remedy expressed throughout the Contract Documents shall apply even in the event of breach of contract, negligence, fault or strict liability of the party or parties indemnified, released, or limited in liability, and shall survive the termination, rescission, breach, abandonment, or completion of the Work or the terms of the Contract Documents. If Contractor fails to perform any of these defense or indemnity obligations, City may in its discretion back charge Contractor for City's costs and damages resulting therefrom and deduct such sums from payments due to Contractor.

(E) **Exceptions.** The indemnities in this Section 4.2 shall not apply to City or other indemnified party to the extent of its sole negligence or willful misconduct; nor shall they apply to City or other indemnified party to the extent of its active negligence.

**4.3 Insurance.** No later than ten days following issuance of the Notice of Award, Contractor must procure and provide proof of the insurance coverage required by the Contract Documents in the form of certificates and endorsements acceptable to City. (See Section 1 of the Special Conditions.) The required insurance must cover the activities of Contractor and its Subcontractors relating to or arising from the performance of the Work, and must remain in full force and effect at all times during the period covered by the Contract, through the date of City's acceptance of the Project. All required insurance must be issued by a company licensed to do business in the State of California, and each such insurer must have an A.M. Best's financial strength rating of "A" or better and a financial size rating of "VI" or better. If Contractor fails to provide any of the required coverage in full compliance with the requirements of the Contract Documents, City may, at its sole discretion, purchase such coverage at Contractor's expense and deduct the cost from payments due to Contractor, or terminate the Contract for default. The procurement of insurance will not be construed to limit Contractor's liability under this Contract or to fulfill Contractor's indemnification obligations under this Contract.

## Article 5 – Contract Time

**5.1 Time is of the Essence.** Time is of the essence in Contractor's performance and completion of the Work, and Contractor must diligently prosecute the Work and complete it within the Contract Time.

(A) **General.** Contractor must commence the Work on the date indicated in the Notice to Proceed and must fully complete the Work in strict compliance with all requirements of the Contract Documents and within the Contract Time. Contractor may not begin performing the Work before the date specified in the Notice to Proceed.

(B) **Advanced Contract Time.** Contractor may request an earlier (advanced) time for completion, which City may decide to accept or reject, in its sole discretion. Contractor

is not entitled to any extra compensation in the event that it fails to complete the Project within the advanced Contract Time, but within the original time specified for completion.

(C) **Authorization.** Contractor is not entitled to compensation or credit for any Work performed before the date specified in the Notice to Proceed, with the exception of any schedules, submittals, or other requirements, if any, that must be provided or performed before issuance of the Notice to Proceed.

(D) **Rate of Progress.** Contractor and its Subcontractors must, at all times, provide workers, materials, and equipment sufficient to maintain the rate of progress necessary to ensure full completion of the Work within the Contract Time. If City determines that Contractor is failing to prosecute the Work at a sufficient rate of progress, City may, in its sole discretion, direct Contractor to provide additional workers, materials, or equipment, or to work additional hours or days without additional cost to City, in order to achieve a rate of progress satisfactory to City. If Contractor fails to comply with City's directive in this regard, City may, at Contractor's expense, separately contract for additional workers, materials, or equipment or use City's own forces to achieve the necessary rate of progress, and it may exclude Contractor from the Project site, or portions of the Project site, or from certain elements of the Work, if necessary. Contractor shall remain responsible for any resulting delay, including any liquidated damages, and indemnification of City from claims of others. Alternatively, City may terminate the Contract based on Contractor's default.

**5.2 Schedule Requirements.** Contractor must prepare all schedules using standard, commercial scheduling software acceptable to the Engineer, and must provide the schedules in electronic form (PDF and native files) as requested by the Engineer. Each schedule must be divided into Work activities of durations of approximately 21 days or less, except for non-field construction activities or as otherwise deemed acceptable to City, and must show the critical path in red. In addition to the general scheduling requirements set forth herein, Contractor must also comply with any scheduling requirements included in the Special Conditions or in the Technical Specifications.

(A) **Initial Schedule.** If the Contract Time for the Project is greater than 235 Working Days, at the pre-construction conference, Contractor must submit to City for review and acceptance an initial schedule that addresses the first 30 days following the start date set forth in the Notice to Proceed. The initial schedule must include a detailed plan for the Work to be completed in the first 30 days; details of planned mobilization of plant and equipment; sequence of early operations; procurement of materials and equipment; and a summary of the Work beyond the first 30 days.

(B) **Baseline (As-Planned) Schedule.** Within ten calendar days following City's issuance of the Notice to Proceed (or as otherwise specified in the Notice to Proceed), Contractor must submit to City for review and acceptance a baseline (as-planned) schedule using critical path methodology showing in detail how Contractor plans to perform and fully complete the Work within the Contract Time, including labor, equipment, materials, and fabricated items. The baseline schedule must show the order of the major items of Work and the dates of start and completion of each item, including when the materials and equipment will be procured. The schedule must also include the work of all trades, reflecting anticipated labor or crew hours and equipment loading for the construction activities, and must be sufficiently comprehensive and detailed to enable progress to be monitored on a day-by-day basis. For each activity, the baseline schedule must be dated, provided in the format specified in the Contract Documents or as required by City, and must include, at a minimum, a description of the activity, the start and completion dates of the activity, predecessor and successor activities, and the duration of the activity.

(C) **City's Review of Schedules.** City will review and may note exceptions to the baseline schedule, and to the progress schedules submitted as required below, to assure completion of the Work within the Contract Time. Contractor is solely responsible for resolving any exceptions noted in a schedule and, within seven days, must correct the schedule to address the exceptions. City's review or acceptance of Contractor's schedules will not operate to waive or limit Contractor's duty to complete the Project within the Contract Time, nor to waive or limit City's right to assess liquidated damages for Contractor's unexcused failure to do so.

(D) **Progress Schedules.** After City accepts the final baseline schedule with no exceptions, Contractor must submit an updated progress schedule, in the format specified by City, for review and acceptance with each application for a progress payment, or when otherwise specified by City, until completion of the Work. The updated progress schedule must: show how the actual progress of the Work as constructed to date compares to the baseline schedule; reflect any proposed changes in the construction schedule or method of operations, including to achieve Project milestones within the Contract Time; and identify any actual or potential impacts to the critical path. Contractor must also submit periodic reports to City of any changes in the projected material or equipment delivery dates for the Project. In addition, Contractor must submit a three-week look-ahead schedule at each weekly progress meeting.

(1) *Float.* The progress schedule must show early and late completion dates for each task. The number of days between those dates will be designated as the "float." Any float belongs to the Project and may be allocated by the Engineer to best serve timely completion of the Project.

(2) *Failure to Submit Schedule.* Reliable, up-to-date schedules are essential to efficient and cost-effective administration of the Project and timely completion. If Contractor fails to submit a schedule within the time periods specified in this Section, or submits a schedule to which City has noted exceptions that are not corrected, City may withhold up to ten percent from payment(s) otherwise due to Contractor until the exceptions are resolved, the schedule is corrected and resubmitted, and City has accepted the schedule. In addition, Contractor's failure to comply with the schedule requirements in this Section 5.2 will be deemed a material default and a waiver of any claims for Excusable Delay or loss of productivity arising during any period when Contractor is out of compliance, subject only to the limits of Public Contract Code § 7102.

(E) **Recovery Schedule.** If City determines that the Work is more than one week behind schedule, within seven days following written notice of such determination, Contractor must submit a recovery schedule, showing how Contractor intends to perform and complete the Work within the Contract Time, based on actual progress to date. The recovery schedule must include a written narrative for each action necessary to complete the Work within the Contract Time. If sequence changes are necessary, Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of the Work. If requested by City, Contractor shall also show the intended critical path; secure appropriate Subcontractor and supplier consent for the recovery schedule; submit a narrative explaining trade flow and construction flow changes, duration changes, added or deleted activities, and critical path changes; and identify all near critical paths and man hour loading assumptions for Subcontractors.

(F) **Effect of Acceptance.** Contractor and its Subcontractors must perform the Work in accordance with the most current City-accepted schedule unless otherwise directed by City. City's acceptance of a schedule does not operate to extend the time for completion of the Work or any component of the Work, and will not affect City's right to

assess liquidated damages for Contractor's unexcused delay in completing the Work within the Contract Time.

(G) **Reservation of Rights.** City reserves the right to direct the sequence in which the Work must be performed or to make changes in the sequence of the Work in order to facilitate the performance of work by City or others, or to facilitate City's use of its property. The Contract Time or Contract Price may be adjusted to the extent such changes in sequence actually increase or decrease Contractor's time or cost to perform the Work.

(H) **Authorized Working Days and Times.** Contractor is limited to working Monday through Friday, excluding holidays, between the hours of 7:00 AM and 5:00 PM, except as provided in the Special Conditions or as authorized in writing by City in response to a written request from Contractor. Contractor must make such written request at least two Working Days in advance of the proposed Work to be performed on days or during hours not expressly authorized in the Contract Documents. City reserves the right to charge Contractor for additional costs incurred by City due to Work performed on days or during hours not expressly authorized in the Contract Documents, including reimbursement of costs incurred for inspection, testing, and construction management services.

### 5.3 Delay and Extensions of Contract Time.

(A) **Notice of Delay.** If Contractor becomes aware of any actual or potential delay affecting the critical path, Contractor must notify the Engineer within 24 hours in writing, regardless of the nature or cause of the delay, so that City has a reasonable opportunity to mitigate or avoid the delay.

(B) **Excusable Delay.** The Contract Time may be extended if Contractor encounters "Excusable Delay," which is an unavoidable delay in completing the Work within the Contract Time due to causes completely beyond Contractor's control, and which Contractor could not have avoided or mitigated through reasonable care, planning, foresight, or diligence, provided that Contractor is otherwise fully performing its obligations under the Contract Documents. Grounds for Excusable Delay may include fire, natural disasters including earthquake or unusually severe weather, acts of terror or vandalism, epidemic, unforeseeable adverse government actions, unforeseeable actions of third parties, encountering unforeseeable hazardous materials, unforeseeable site conditions, or suspension for convenience under Article 13. The Contract Time will not be extended based on circumstances which will not unavoidably delay completing the Work within the Contract Time based on critical path analysis.

(C) **Weather Delays.** A "Weather Delay Day" is a Working Day during which Contractor and its forces, including Subcontractors, are unable to perform more than 50% of the critical path Work scheduled for that day due to adverse weather conditions which impair the ability to safely or effectively perform the scheduled critical path Work that day. Adverse weather conditions may include rain, saturated soil, and Project site clean-up required due to adverse weather. Determination of what constitutes critical path Work scheduled for that day will be based on the most current, City-approved schedule. Contractor shall be entitled to a non-compensable extension of the Contract Time for each Weather Delay Day.

(1) Contractor must fully comply with the applicable procedures in Articles 5 and 6 of the General Conditions regarding requests to modify the Contract Time.

(2) Contractor shall not be entitled to an extension of time for a Weather Delay Day to the extent Contractor is responsible for concurrent delay on that day.

(3) Contractor must take reasonable steps to mitigate the consequences of Weather Delay Days, including prudent workforce management and protecting the Work, Project Site, materials, and equipment.

(D) **Non-Excusable Delay.** Delay which Contractor could have avoided or mitigated through reasonable care, planning, foresight, or diligence is "Non-Excusable Delay." Contractor is not entitled to an extension of Contract Time or any compensation for Non-Excusable Delay, or for Excusable Delay that is concurrent with Non-Excusable Delay. Non-Excusable Delay includes delay caused by:

(1) Contractor's failure to order equipment and materials sufficiently in advance of the time needed for completion of the Work within the Contract Time;

(2) Contractor's failure to provide adequate notification to utility companies or agencies for connections or services necessary for completion of the Work within the Contract Time;

(3) foreseeable conditions which Contractor could have ascertained from reasonably diligent inspection of the Project site or review of the Contract Documents or other information provided or available to Contractor;

(4) Contractor's failure, refusal, or financial inability to perform the Work within the Contract Time, including insufficient funds to pay its Subcontractors or suppliers;

(5) performance or non-performance by Contractor's Subcontractors or suppliers;

(6) the time required to respond to excessive RFIs (see Section 2.5(G));

(7) delayed submission of required submittals, or the time required for correction and resubmission of defective submittals;

(8) time required for repair of, re-testing, or re-inspection of defective Work;

(9) enforcement of Laws by City, or outside agencies with jurisdiction over the Work; or

(10) City's exercise or enforcement of any of its rights or Contractor's duties pursuant to the Contract Documents, including correction of defective Work, extra inspections or testing due to non-compliance with Contract requirements, safety compliance, environmental compliance, or rejection and return of defective or deficient submittals.

(11) City's right to sequence the Work in a manner to avoid disruption to City's tenants and their contractors or other City contractors and their respective subcontractors, exercised as a result of Contractor's failure to perform its cooperation and coordination obligations under the Contract Documents.

(E) **Compensable Delay.** Pursuant to Public Contract Code § 7102, in addition to entitlement to an extension of Contract Time, Contractor is entitled to compensation for costs incurred due to delay caused solely by City, when that delay is unreasonable under

the circumstances involved and not within the contemplation of the parties (“Compensable Delay”). Contractor is not entitled to an extension of Contract Time or recovery of costs for Compensable Delay that is concurrent with Non-Excusable Delay. Delay due to Weather Delay Days is not Compensable Delay and will only entitle Contractor to an extension of time commensurate with the time lost due to such delay.

(F) **Recoverable Costs.** Contractor is not entitled to compensation for Excusable Delay unless it is Compensable Delay, as defined above. Contractor is entitled to recover only the actual, direct, reasonable, and substantiated costs (“Recoverable Costs”) for each working day that the Compensable Delay prevents Contractor from proceeding with more than 50% of the critical path Work scheduled for that day, based on the most recent progress schedule accepted by City. Recoverable Costs will not include home office overhead or lost profit.

(G) **Request for Extension of Contract Time or Recoverable Costs.** A request for an extension of Contract Time or any associated Recoverable Costs must be submitted in writing to City within 14 days of the date the delay is first encountered, even if the duration of the delay is not yet known at that time, or any entitlement to the Contract Time extension or to the Recoverable Costs will be deemed waived. In addition to complying with the requirements of this Article 5, the request must be submitted in compliance with the Change Order request procedures in Article 6 below. Strict compliance with these requirements is necessary to ensure that any delay or consequences of delay may be mitigated as soon as possible, and to facilitate cost-efficient administration of the Project and timely performance of the Work. Any request for an extension of Contract Time or Recoverable Costs that does not strictly comply with all requirements of Article 5 and Article 6 will be deemed waived.

(1) **Required Contents.** The request must include a detailed description of the cause(s) of the delay and must also describe the measures that Contractor has taken to mitigate the delay and/or its effects, including efforts to mitigate the cost impact of the delay, such as by workforce management or by a change in sequencing. If the delay is still ongoing at the time the request is submitted, the request should also include Contractor’s plan for continued mitigation of the delay or its effects.

(2) **Delay Days and Costs.** The request must specify the number of days of Excusable Delay claimed or provide a realistic estimate if the duration of the delay is not yet known. If Contractor believes it is entitled to Recoverable Costs for Compensable Delay, the request must specify the amount and basis for the Recoverable Costs that are claimed or provide a realistic estimate if the amount is not yet known. Any estimate of delay duration or cost must be updated in writing and submitted with all required supporting documentation as soon as the actual time and cost is known. The maximum extension of Contract Time will be the number of days, if any, by which an Excusable Delay or a Compensable Delay exceeds any concurrent Non-Excusable Delay. Contractor is entitled to an extension of Contract Time, or compensation for Recoverable Costs, only if, and only to the extent that, such delay will unavoidably delay Final Completion.

(3) **Supporting Documentation.** The request must also include any and all supporting documentation necessary to evidence the delay and its actual impacts, including scheduling and cost impacts with a time impact analysis using critical path methodology and demonstrating the unavoidable delay to Final Completion. The time impact analysis must be submitted in a form or format acceptable to City. The time impact analysis must include (a) schedule diagrams comparing the current activities and sequences to the revised activities and sequences and (b) analysis that clearly demonstrates impact(s) to the critical

path activities. The time impact analysis must utilize the most current schedule update information that accurately reflects progress on the Project at the time of the schedule impact. The schedule logic for future activities must accurately reflect the approved plan for completing the remaining Work.

(4) **Burden of Proof.** Contractor has the burden of proving that: the delay was an Excusable Delay or Compensable Delay, as defined above; Contractor has fully complied with its scheduling obligations in Section 5.2, Schedule Requirements; Contractor has made reasonable efforts to mitigate the delay and its schedule and cost impacts; the delay will unavoidably result in delaying Final Completion; and any Recoverable Costs claimed by Contractor were actually incurred and were reasonable under the circumstances.

(5) **Legal Compliance.** Nothing in this Section 5.3 is intended to require the waiver, alteration, or limitation of the applicability of Public Contract Code § 7102.

(6) **No Waiver.** Any grant of an extension of Contract Time, or compensation for Recoverable Costs due to Compensable Delay, will not operate as a waiver of City's right to assess liquidated damages for Non-Excusable Delay.

(7) **Dispute Resolution.** In the event of a dispute over entitlement to an extension of Contract Time or compensation for Recoverable Costs, Contractor may not stop Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work. Contractor's sole recourse for an unresolved dispute based on City's rejection of a Change Order request for an extension of Contract Time or compensation for Recoverable Costs is to comply with the dispute resolution provisions set forth in Article 12 below.

**5.4 Liquidated Damages.** It is expressly understood that if Final Completion is not achieved within the Contract Time, City will suffer damages from the delay that are difficult to determine and accurately specify. Pursuant to Public Contract Code § 7203, if Contractor fails to achieve Final Completion within the Contract Time due to Contractor's Non-Excusable Delay, City will charge Contractor in the amount specified in the Contract for each calendar day that Final Completion is delayed beyond the Contract Time, as liquidated damages and not as a penalty. Any waiver of accrued liquidated damages, in whole or in part, is subject to approval of the City Council or its authorized delegee.

(A) **Liquidated Damages.** Liquidated damages will not be assessed for any Excusable Delay or Compensable Delay, as set forth above.

(B) **Milestones.** Liquidated damages may also be separately assessed for failure to meet milestones specified elsewhere in the Contract Documents.

(C) **Setoff.** City is entitled to deduct the amount of liquidated damages assessed against any payments otherwise due to Contractor, including progress payments, Final Payment, or unreleased retention. If there are insufficient Contract funds remaining to cover the full amount of liquidated damages assessed, City is entitled to recover the balance from Contractor or its performance bond surety.

(D) **Occupancy or Use.** Occupancy or use of the Project in whole or in part prior to Final Completion does not constitute City's acceptance of the Project and will not operate as a waiver of City's right to assess liquidated damages for Contractor's Non-Excusable Delay in achieving Final Completion.

(E) **Other Remedies.** City's right to liquidated damages under this Section applies only to damages arising from Contractor's Non-Excusable Delay or failure to complete the Work within the Contract Time. City retains its right to pursue all other remedies under the Contract for other types of damage, including damage to property or persons, costs or diminution in value from defective materials or workmanship, costs to repair or complete the Work, lost revenues, interest expenses, cost of substitute facilities, claims and fines of regulatory agencies, or other liability caused by Contractor.

## Article 6 - Contract Modification

**6.1 Contract Modification.** Subject to the limited exception set forth in subsection (D) below, any change in the Work or the Contract Documents, including the Contract Price or Contract Time, will not be a valid and binding change to the Contract unless it is formalized in a Change Order (Attachment A), including a "no-cost" Change Order or a unilateral Change Order. Changes in the Work pursuant to this Article 6 will not operate to release, limit, or abridge Contractor's warranty obligations pursuant to Article 11 or any obligations of Contractor's bond sureties.

(A) **City-Directed Changes.** City may direct changes in the scope or sequence of Work or the requirements of the Contract Documents, without invalidating the Contract. Such changes may include Extra Work as set forth in subsection (C) below, or deletion or modification of portions of the Work. Prior to directing any such changes, City may request information from Contractor regarding the impact of any such City-directed changes on the Contract Price or Contract Time. Contractor will respond to any such request within ten days following City's issuance of the request. Contractor's response, including anticipated impacts, must be consistent with requirements of the Contract Documents, including Sections 6.3 and 6.4, below. Contractor must promptly comply with City-directed changes in the Work, when directed by City, in accordance with the original Contract Documents, even if Contractor and City have not yet reached agreement as to adjustments to the Contract Price or Contract Time for the change in the Work or for the Extra Work. Contractor is not entitled to extra compensation for cost savings resulting from "value engineering" pursuant to Public Contract Code § 7101, except to the extent authorized in advance by City in writing, and subject to any applicable procedural requirements for submitting a proposal for value engineering cost savings.

(B) **Disputes.** In the event of a dispute over entitlement to or the amount of a change in Contract Time or a change in Contract Price related to a City-directed change in the Work, Contractor must perform the Work as directed and may not delay its Work or cease Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work, including the Work in dispute. Likewise, in the event that City and Contractor dispute whether a portion or portions of the Work are already required by the Contract Documents or constitute Extra Work, or otherwise dispute the interpretation of any portion(s) of the Contract Documents, Contractor must perform the Work as directed and may not delay its Work or cease Work pending resolution of the dispute, but must continue to comply with its duty to diligently prosecute the performance and timely completion of the Work, including the Work in dispute, as directed by City. If Contractor refuses to perform the Work in dispute, City may, acting in its sole discretion, elect to delete the Work from the Contract and reduce the Contract Price accordingly, and self-perform the Work or direct that the Work be performed by others. Alternatively, City may elect to terminate the Contract for convenience or for cause. Contractor's sole recourse for an unresolved dispute related to changes in the Work or performance of any Extra Work is to comply with the dispute resolution provisions set forth in Article 12, below.

(C) **Extra Work.** City may direct, in writing, Contractor to perform Extra Work related to the Project. Contractor must promptly perform any Extra Work as directed or authorized by City in accordance with the original Contract Documents, even if Contractor and City have not yet reached agreement on adjustments to the Contract Price or Contract Time for such Extra Work. If Contractor believes it is necessary to perform Extra Work due to changed conditions, Contractor must promptly notify the Engineer in writing, specifically identifying the Extra Work and the reason(s) the Contractor believes it is Extra Work. This notification requirement does not constitute a Change Order request pursuant to Section 6.2, below. Contractor must maintain detailed daily records that itemize the cost of each element of Extra Work, and sufficiently distinguish the direct cost of the Extra Work from the cost of other Work performed. For each day that Contractor performs Extra Work, or Work that Contractor contends is Extra Work, Contractor must submit no later than the following Working Day, a daily report of the Extra Work performed that day and the related costs, together with copies of certified payroll, invoices, and other documentation substantiating the costs ("Extra Work Report"). The Engineer will make any adjustments to Contractor's Extra Work Report(s) based on the Engineer's records of the Work. When an Extra Work Report(s) is agreed on and signed by both City and Contractor, the Extra Work Report(s) will become the basis for payment under a duly authorized and signed Change Order. Failure to submit the required documentation by close of business on the next Working Day is deemed a full and complete waiver for any change in the Contract Price or Contract Time for any Extra Work performed that day.

(D) **Minor Changes and RFIs.** Minor field changes, including RFI replies from City, that do not affect the Contract Price or Contract Time and that are approved by the Engineer acting within his or her scope of authority, do not require a Change Order. By executing an RFI reply from City, Contractor agrees that it will perform the Work as clarified therein, with no change to the Contract Price or Contract Time.

(E) **Remedy for Non-Compliance.** Contractor's failure to promptly comply with a City-directed change is deemed a material breach of the Contract, and in addition to all other remedies available to it, City may, at its sole discretion, hire another contractor or use its own forces to complete the disputed Work at Contractor's sole expense, and may deduct the cost from the Contract Price.

**6.2 Contractor Change Order Requests.** Contractor must submit a request or proposal for a change in the Work, compensation for Extra Work, or a change in the Contract Price or Contract Time as a written Change Order request or proposal.

(A) **Time for Submission.** Any request for a change in the Contract Price or the Contract Time must be submitted in writing to the Engineer within 14 calendar days of the date that Contractor first encounters the circumstances, information or conditions giving rise to the Change Order request, even if the total amount of the requested change in the Contract Price or impact on the Contract Time is not yet known at that time. If City requests that Contractor propose the terms of a Change Order, unless otherwise specified in City's request, Contractor must provide the Engineer with a written proposal for the change in the Contract Price or Contract Time within five working days of receiving City's request, in a form satisfactory to the Engineer.

(B) **Required Contents.** Any Change Order request or proposal submitted by Contractor must include a complete breakdown of actual or estimated costs and credits, and must itemize labor, materials, equipment, taxes, subcontract amounts, and, if applicable, Extra Work Reports. Any estimated cost must be updated in writing as soon as the actual amount is known.

(C) **Required Documentation.** All claimed costs must be fully documented, and any related request for an extension of time or delay-related costs must be included at that time and in compliance with the requirements of Article 5 of the General Conditions. Upon request, Contractor must permit City to inspect its original and unaltered bidding records, subcontract agreements, subcontract change orders, purchase orders, invoices, or receipts associated with the claimed costs.

(D) **Required Form.** Contractor must use City's form(s) for submitting all Change Order requests or proposals, unless otherwise specified by City.

(E) **Certification.** All Change Order requests must be signed by Contractor and must include the following certification:

"The undersigned Contractor certifies under penalty of perjury that its statements and representations in this Change Order request are true and correct. Contractor warrants that this Change Order request is comprehensive and complete as to the Work or changes referenced herein, and agrees that any known or foreseeable costs, expenses, or time extension requests not included herein, are deemed waived."

**6.3 Adjustments to Contract Price.** The amount of any increase or decrease in the Contract Price will be determined based on one of the following methods listed below, in the order listed with unit pricing taking precedence over the other methods. Markup applies only to City-authorized time and material Work, and does not apply to any other payments to Contractor. For Work items or components that are deleted in their entirety, Contractor will only be entitled to compensation for those direct, actual, and documented costs (including restocking fees), reasonably incurred before Contractor was notified of the City's intent to delete the Work, with no markup for overhead, profit, or other indirect costs.

(A) **Unit Pricing.** Amounts previously provided by Contractor in the form of unit prices, either in a bid schedule or in a post-award schedule of values pursuant to Section 8.1, Schedule of Values, will apply to determine the price for the affected Work, to the extent applicable unit prices have been provided for that type of Work. No additional markup for overhead, profit, or other indirect costs will be added to the calculation.

(B) **Lump Sum.** A mutually agreed upon, all-inclusive lump sum price for the affected Work with no additional markup for overhead, profit, or other indirect costs.

(C) **Time and Materials.** On a time and materials basis, if and only to the extent compensation on a time and materials basis is expressly authorized by City in advance of Contractor's performance of the Work and subject to any not-to-exceed limit. Time and materials compensation will include allowed markup for overhead, profit, and other indirect costs as follows:

(1) All direct labor costs provided by the Contractor, excluding superintendence, project management, or administrative costs, plus 15% markup;

(2) All direct material costs provided by the Contractor, plus 15% markup (except markup will not be applied to the sales tax component of direct material costs);

(3) All direct plant and equipment rental costs provided by the Contractor, plus 15% markup;

(4) All direct labor, materials, and equipment costs for Work performed by Subcontractor plus markup on those costs not to exceed 10% of the cumulative total of those direct costs, regardless of the number of contract tiers; and

(5) Increased bond and insurance premium costs are deemed included in the above markups.

**6.4 Limitations on Allowable Costs.** Allowable costs in connection with City-authorized time and materials Work or as otherwise authorized by the Contract Documents are subject to the following:

(A) **Labor.** Costs are allowed for labor, including forepersons when authorized by City, used in the actual and direct performance of the Work directed by Change Order, excluding superintendence, project management, and administrative costs. Allowable labor costs include (1) the actual and direct payroll costs to Contractor, consisting of actual wages and any employer payments to, or on behalf of, workers (other than actual wages) for health and welfare, pension, vacation, training, or other State- or federal-recognized fringe benefit payments, and (2) the labor surcharge percentage, in effect during performance of the Work, as set forth in the publication titled *California Department of Transportation Labor Surcharge and Equipment Rental Rates*, which is intended to cover worker's compensation insurance, social security, Medicare, federal unemployment insurance, State unemployment insurance, and State training taxes.

(B) **Materials.** Costs are allowed for the actual cost to Contractor for materials directly required for performance of the Work directed by Change Order. The cost of materials may include the costs of transportation, sales tax, and delivery, if necessarily incurred. If a cash or trade discount by the supplier of the materials is available to Contractor, it will be credited to City, regardless of whether the discount is actually taken. If the materials are obtained from a supply or source owned wholly or in part by Contractor, payment therefor will not exceed the current wholesale price for such materials. Costs for consumed materials may be charged on a reasonably estimated basis but may not be a percentage of labor. If, in the opinion of City, the cost of materials is excessive, or if Contractor fails to furnish satisfactory evidence of the cost from the supplier thereof, then the cost of the materials will be deemed to be the lowest wholesale price at which similar materials are available in the quantities required and at the time needed. City reserves the right to furnish materials, and Contractor will have no claim for costs or profits on City-furnished material. If materials are salvaged upon completion, the salvage value will be deducted from the cost of materials.

(C) **Equipment.** Costs are allowed for the actual cost to Contractor for the use of equipment directly required in the performance of the Work directed by Change Order. For Contractor- or Subcontractor-owned equipment, costs will be allowed based on rental rates listed for equipment in the California Department of Transportation's Labor Surcharge and Equipment Rental Rates publication in effect at the time the Work is performed, unless there is no applicable rate for an item of equipment, in which case cost will be based on the rental rate listed in the most recent edition of the Association of Equipment Distributors ("AED") book. For rented equipment, costs will be allowed based on actual rental invoices. The equipment used for Work in a Change Order must be of proper size and type. If equipment of an unwarranted size or type is used, the allowable costs for use of such equipment will be calculated at the rental rate for equipment of a proper size and type, as determined by City. The rental rates to be paid to Contractor shall constitute full compensation to Contractor for the cost of fuel, power, oil, lubrication, supplies, small tools, small equipment, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and any and all costs to Contractor incidental to the use of such equipment. Unless otherwise specified, manufacturer's ratings, and manufacturer-approved modifications, shall be used to classify equipment for

determination of applicable rental rates. Individual pieces of equipment having a replacement value of \$500 or less will be considered to be small tools or small equipment, and no payment therefor will be made unless it has been rented specifically for the Work directed by Change Order. No payment will be made for time while equipment is inoperative due to breakdowns or for non-Work days.

(1) For equipment at the Project site, rental time to be paid for equipment shall be time equipment is in operation on Work being performed or on standby as approved by City. The following shall be used in computing rental time of equipment: (a) When hourly rates are listed, less than 30 minutes of operation shall be considered to be ½ hour of operation; (b) When daily rates are listed, less than four hours of operation shall be considered to be ½ day of operation.

(2) For equipment that must be brought to the Project site to be used exclusively on Work directed by Change Order, the rental time may include the time required to move the equipment to the Project site from the nearest available source for rental of such equipment, and to return it to the source, as follows: (a) Costs of loading and unloading equipment are allowable; (2) Cost of transporting equipment in low bed trailers shall not exceed hourly rates charged by established haulers; (c) Cost of transporting equipment shall not exceed applicable minimum established rates of California Public Utilities Commission; and (d) City will not make any payment for transporting and loading and unloading equipment if equipment is used on Work in any other way than on Work directed by Change Order.

(3) Rental period may begin at time equipment is unloaded at Project site and terminate at end of the performance of the Work directed by Change Order or day on which City directs Contractor to discontinue use of equipment, whichever occurs first. Rental time to be paid per working day shall be four hours for zero hours of operation, six hours for four hours of operation, and eight hours for eight hours of operation, time being prorated between these parameters. Hours to be paid for equipment that is operated less than eight hours due to breakdowns, shall not exceed eight less the number of hours equipment is inoperative due to breakdowns.

(D) **Specialists.** If Work in a Change Order requires the services of a specialist, as determined by City, costs will be allowed for the services of the specialist based on the actual itemized invoice to Contractor for the specialist's services required in the performance of the Work, after deduction of any cash or trade discount available to Contractor, regardless of whether such discount is actually taken. If it is impracticable and not in accordance with established practice of the specialist's industry to provide a complete itemization of its services, then costs will be allowed based on the current market price rate for such services. If the Work in a Change Order requires a fabrication or machining process in a fabrication or machine shop facility off-site, the cost of such off-site Work may be included in allowable costs, if City is notified in writing in advance and approves such costs.

(E) **Markup.** The following non-exclusive list identifies items that are deemed included in markup for overhead, profit, and other indirect costs, whether incurred by Contractor, Subcontractors, or suppliers, and Contractor shall not invoice or receive payment for these costs separately:

- (1) Drawings and submissions of drawings, including field drawings, Shop Drawings, and sketches;
- (2) Employee vehicle and gas expenses;
- (3) Estimating;

- (4) Final cleanup;
- (5) General administration and preparation of cost proposals, schedule analyses, Change Order requests, and other supporting documentation as necessary;
- (6) General superintendence;
- (7) Handling and disposal fees;
- (8) Home office expenses;
- (9) Parking expenses of any field labor, foreman, office personnel, and superintendents;
- (10) Procurement and use of vehicles and fuel used in Work;
- (11) Routine field inspection of Work;
- (12) Salaries of project management personnel, superintendent, timekeeper, storekeeper, administrative assistants, and secretaries;
- (13) Small tools and equipment valued at less than \$500;
- (14) Insurance and bond premiums and costs;
- (15) Temporary on-site facilities, including, but not limited to, electrical (power, lighting), fencing, offices, platforms, plumbing, telephones, internet, and water;
- (16) Travel expenses; and
- (17) Other incidental Work.

**6.5 Unilateral Change Order.** If the parties dispute the terms of a proposed Change Order, including disputes over the amount of compensation or extension of time that Contractor has requested, the value of deleted or changed Work, what constitutes Extra Work, or quantities used, City may elect to issue a unilateral Change Order, directing performance of the Work, and authorizing a change in the Contract Price or Contract Time for the adjustment to compensation or time that the City believes is merited. Contractor's sole recourse to dispute the terms of a unilateral Change Order is to submit a timely Claim pursuant to Article 12, below.

**6.6 Non-Compliance Deemed Waiver.** Contractor waives its entitlement to any increase in the Contract Price or Contract Time if Contractor fails to fully comply with the provisions of this Article. Contractor will not be paid for unauthorized Extra Work.

## **Article 7 - General Construction Provisions**

### **7.1 Permits, Fees, Business License, and Taxes.**

(A) **Permits, Fees, and City Business License.** Contractor must obtain and pay for all permits, fees, and licenses required to perform the Work, including a City business license. Contractor must cooperate with and provide notifications to all government agencies with jurisdiction over the Project, as may be required. Contractor must provide City with copies of all records of permits and permit applications, payment of required fees, and any licenses required for the Work. Contractor must comply with all permit requirements and conduct all necessary permit coordination activities. Contractor will be responsible, at its sole cost, for any fines, costs, damages, or other liabilities incurred by City resulting from violations or threatened violations of permit requirements or other legal or regulatory requirements, or from City's loss of use of any permit, due to Contractor's activities.

(B) **Taxes.** Contractor must pay for all taxes on labor, material, and equipment, except Federal Excise Tax to the extent that City is exempt from Federal Excise Tax.

**7.2 Temporary Facilities.** Contractor must provide, at Contractor's sole expense, any and all temporary facilities for the Project. The location of all temporary facilities must be

approved by the City prior to installation. Temporary facilities must be safe and adequate for the intended use and installed and maintained in accordance with Laws and the Contract Documents. Additional provisions pertaining to temporary facilities may be included in the Specifications or Special Conditions.

(A) **Facilities Based on Project Site.**

(1) *Project with a Defined Fence Perimeter.* For a Project with a defined fence perimeter, Contractor must provide any and all temporary facilities, including, but not limited to, an onsite staging area for materials and equipment, a field office, sanitary facilities, utilities, storage, scaffolds, barricades, walkways, elevators and hoists, cranes, and any other temporary structure or facility necessary to safely perform the Work. Unless otherwise directed by City, Contractor will fence and screen the Project site and, if applicable, any separate Worksites, including the staging area, and its operation must minimize inconvenience to neighboring properties.

(2) *Project within Public Right-of-Way.* For a Project within the public right-of-way, Contractor must provide any and all temporary facilities, including, but not limited to, sanitary facilities, barricades, walkways, ramps, project signs, changeable message boards, and any other temporary structure or facility necessary to provide access to the public and to safely perform the Work.

(B) **Utilities.** Contractor must install and maintain, at Contractor's sole expense, the power, water, sewer, and all other utilities required for the Project site, including the piping, wiring, internet and Wi-Fi connections, and any related equipment necessary to maintain the temporary facilities. Contractor is responsible for the cost of utility services necessary to perform the Work.

(C) **Removal and Repair.** Contractor must promptly remove all such temporary facilities when they are no longer needed or upon completion of the Work, whichever comes first. Contractor must promptly repair any damage to City's property or to other property caused by the installation, use, or removal of the temporary facilities, and must promptly restore the property to its original or intended condition.

**7.3 Noninterference and Site Management.** Contractor must avoid interfering with City's use of its property at or adjacent to the Project site, including use of roadways, entrances, parking areas, walkways, and structures. Contractor must perform the Work in a manner that does not interrupt or otherwise adversely impact any City operations, including the City's franchise hauler for solid waste. Contractor must also minimize disruption of access to private property in the Project vicinity. Contractor must coordinate with affected property owners, tenants, and businesses, and maintain some vehicle and pedestrian access to their residences or properties at all times. Temporary access ramps, fencing or other measures must be provided as needed. Before blocking access to a private driveway or parking lot, Contractor must provide effective notice to the affected parties at least 48 hours in advance of the pending closure and allow them to remove vehicles. Private driveways, residences and parking lots must have access to a roadway during non-Work hours.

(A) **Offsite Acquisition.** Unless otherwise provided by City, Contractor must acquire, use and dispose of, at its sole expense, any Worksites, licenses, easements, and temporary facilities necessary to access and perform the Work.

(B) **Offsite Staging Area and Field Office.** If additional space beyond the Project site is needed, such as for the staging area or the field office, Contractor may need to make arrangements with the nearby property owner(s) to secure the space. Before using

or occupying any property owned by a third party, Contractor must provide City with a copy of the necessary license agreement, easement, or other written authorization from the property owner, together with a written release from the property owner holding City harmless from any related liability, in a form acceptable to the City Attorney.

(C) **Traffic Management.** Contractor must provide traffic management and traffic controls as specified in the Contract Documents, as required by Laws, and as otherwise required to ensure public and worker safety, and to avoid interference with public or private operations or the normal flow of vehicular, bicycle, or pedestrian traffic.

(D) **Circularizing Businesses and Residences.** At least 48 hours in advance of any Work that may affect businesses or residents, Contractor must notify, by circular, all businesses and residents with street frontage or property that may be affected by the Work. The circular must include Contractor's name, address, and telephone number; the starting time and date of the Work; the nature and extent of the Work; and the approximate date upon which Contractor expects to complete the Work. The circular must be submitted to the Engineer for approval at least two full Working Days in advance of the proposed distribution date.

**7.4 Signs.** No signs may be displayed on or about City's property, except signage which is required by Laws or by the Contract Documents, without City's prior written approval as to size, design, and location.

#### **7.5 Project Site and Nearby Property Protections.**

(A) **General.** Contractor is responsible at all times, on a 24-hour basis and at its sole cost, for protecting the Work, the Project site, and the materials and equipment to be incorporated into the Work, until the City has accepted the Project, excluding any exceptions to acceptance, if any. Except as specifically authorized by City, Contractor must confine its operations to the area of the Project site indicated in the Plans and Specifications. Contractor is liable for any damage caused by Contractor or its Subcontractors to the Work, City's property, the property of adjacent or nearby property owners and the work or personal property of other contractors working for City, including damage related to Contractor's failure to adequately secure the Work or any Worksite.

(1) Subject to City's approval, Contractor shall provide and install safeguards, including, but not limited to, security fencing, barricades, lighting, and any other security measures necessary to protect the Work; any Worksite, including the Project site; City's real or personal property and the real or personal property of adjacent or nearby property owners, including plant and tree protections. If instructed by the Engineer, Contractor must, at a minimum, install a temporary chain-link fence with locking gate surrounding the Project site and maintain a lock on the access gate at all times.

(2) City wastewater systems may not be interrupted. If the Work disrupts existing sewer facilities, Contractor must immediately notify City and establish a plan, subject to City's approval, to convey the sewage in closed conduits back into the sanitary sewer system. Sewage must not be permitted to flow in trenches or be covered by backfill.

(3) Contractor must remove with due care, and store at City's request, any objects or material from the Project site that City will salvage or reuse at another location. Any such objects or material must be delivered by Contractor in good condition to City's Street Corporation Yard at 1700 Walsh Avenue, Santa Clara, CA 95050 or, for an SVP Project, 1705 Martin Avenue, Santa Clara, CA 95050.

(4) If directed by Engineer, Contractor must remedy all damage, injury, loss or interruptions as specified by the Engineer. However, acting in its sole discretion, City may elect to have the damage, injury, loss or interruptions remedied otherwise, and may deduct the cost from payment otherwise due to Contractor.

(5) Contractor will not permit any structure, pavement, or infrastructure to be loaded in a manner that will damage or endanger the integrity of the structure, pavement, or infrastructure.

(6) Contractor will not make any arrangements with any person to permit occupancy or use of any land, structure, or building at the Project site, for any purpose other than performance of the Work, unless specifically required or authorized by the Contract Documents.

(7) All fire hydrants and water control valves must be kept free from obstruction and available for use at all times.

(8) Contractor must shield all welding operations from public view with solid barrier(s).

(9) Contractor must provide protective measures to adequately protect workers and the public from hazards resulting from the Work and to exclude unauthorized persons from the Work.

(10) No attempt has been made by City to locate private utilities on private property such as irrigation systems or electrical conduits.

(B) ***Project Site Access and Securing Project Site.*** Contractor and Subcontractor personnel may not occupy or use the Project site for any purpose during non-Work hours, except as may be provided in the Contract Documents or pursuant to prior written authorization from City.

(1) ***Project with a Defined Fence Perimeter.*** If the Project has a defined fence perimeter, Contractor must at all times limit access to the Project site to necessary personnel only. All personnel associated with construction of the Project must enter the site through Contractor's access gate, at the location indicated on the Plans. Access for construction personnel will be limited to the hours set forth in Section 5.2(H) or as otherwise specified by City. All mail and deliveries must be sent to a separate address (at Contractor's gate), specifically arranged by Contractor for the Project. Contractor is responsible for providing adequate signage to alert delivery persons to the new address.

(2) ***Project within Public Right-of-Way.*** If the Project is within the public right-of-way, after completion of Work each day, Contractor must secure the Project site and, to the extent feasible, make the area reasonably accessible to the public unless City approves otherwise. All excess materials and equipment not protected by approved traffic control devices must be relocated to the staging area or demobilized. Trench spoils must be hauled off the Project site daily and open excavations must be protected with steel plates.

(C) ***Unforeseen Conditions.*** If Contractor encounters facilities, utilities, or other unknown conditions not shown on or reasonably inferable from the Plans or apparent from inspection of the Project site, Contractor must immediately notify the City and promptly submit a Request for Information to obtain further directions from the Engineer. Contractor must avoid taking any action which could cause damage to the facilities or utilities pending further direction from the Engineer. The Engineer's written response will

be final and binding on Contractor. If the Engineer's subsequent direction to Contractor affects Contractor's cost or time to perform the Work, Contractor may submit a Change Order request as set forth in Article 6 above.

(D) **Support and Protection.** Contractor shall be responsible for determining where sloping, shoring, bracing, and/or underpinning is necessary and the adequacy of the design, installation, and maintenance of all sloping, shoring, bracing, and/or underpinning for all excavations, including any excavation less than five feet in depth. Contractor must provide, install, and maintain all such sloping, shoring, bracing, and underpinning. The sloping, shoring, bracing, and underpinning must be sufficient to provide support to City's property and adjacent properties and improvements thereon and protect the Work, adjacent property and improvements, workers, and the public from accidents, injuries, or damage. Contractor shall be solely responsible for any damage or injuries that may result from excavating or trenching. City's acceptance of any drawings showing the shoring or bracing design or schedule shall not relieve Contractor of its responsibilities under this Section. Contractor must also protect the Work with lights, guardrails, temporary covers, and barricades. Contractor must enclose excavations with proper barricades. Contractor must brace and secure all parts of the Work against storm and accident. Contractor must also provide additional forms of protection as may be necessary under the circumstances. Contractor must provide notifications to adjacent property owners as may be required by Laws. See also, Section 7.15, Trenching of Five Feet or More.

(E) **Notification of Property Damage.** Contractor must immediately notify the City of damage to any real or personal property resulting from Work on the Project. Contractor must immediately provide a written report to City of any such property damage in excess of \$500 (based on estimated cost to repair or replace) within 24 hours of the occurrence. The written report must include: (1) the location and nature of the damage, and the owner of the property, if known; (2) the name and address of each employee of Contractor or any Subcontractor involved in the damage; (3) a detailed description of the incident, including precise location, time, and names and contact information for known witnesses; and (4) a police or first responder report, if applicable. If Contractor is required to file an accident report with another government agency, Contractor shall provide a copy of the report to City.

## 7.6 Materials and Equipment.

(A) **General.** Unless otherwise specified, all materials and equipment required for the Work must be new, free from defects, and of the best grade for the intended purpose, and furnished in sufficient quantities to ensure the proper and expeditious performance of the Work. Contractor must employ measures to preserve the specified quality and fitness of the materials and equipment. Unless otherwise specified, all materials and equipment required for the Work are deemed to include all components required for complete installation and intended operation and must be installed in accordance with the manufacturer's recommendations or instructions. Contractor is responsible for all shipping, handling, and storage costs associated with the materials and equipment required for the Work. Contractor is responsible for providing security and protecting the Work and all of the required materials, supplies, tools and equipment at Contractor's sole cost until City has formally accepted the Project as set forth in Section 11.1, Final Completion. Contractor will not assign, sell, mortgage, or hypothecate any materials or equipment for the Project, or remove any materials or equipment that have been installed or delivered.

(B) **City-Provided.** If the Work includes installation of materials or equipment to be provided by City, Contractor is solely responsible for the proper examination, handling, storage, and installation in accordance with the Contract Documents. Contractor must notify City of any defects discovered in City-provided materials or equipment, sufficiently

in advance of scheduled use or installation to afford adequate time to procure replacement materials or equipment as needed. Contractor is solely responsible for any loss of or damage to such items which occurs while the items are in Contractor's custody and control, the cost of which may be offset from the Contract Price and deducted from any payment(s) due to Contractor.

(C) **Intellectual Property Rights.** Contractor must, at its sole expense, obtain any authorization or license required for use of patented or copyright-protected materials, equipment, devices, or processes that are incorporated into the Work. Contractor's indemnity obligations in Article 4 apply to any claimed violation of intellectual property rights.

(D) **Standards To Apply Where Specifications Are Not Furnished.** The following general specifications will apply wherever in the Specifications, or in any directions given by City in accordance with or supplementing Specifications, it is provided that Contractor shall furnish materials or manufactured articles or will do Work for which no detailed specifications are provided. Materials or manufactured articles will be of the best grade, in quality and workmanship, obtainable in the market from firms of established good reputation. If not ordinarily carried in stock, the materials or manufactured articles must conform to industry standards for first-class materials or articles of the kind required, with due consideration of the use to which they are to be put. Work will conform to the usual standards or codes for first-class work of the kind required. Contractor shall specify in writing to City the materials to be used or Work to be performed under this Section 7.6 ten Working Days prior to furnishing such materials or performing such Work.

## 7.7 Substitutions.

(A) **"Or Equal."** Any Specification designating a material, product, or thing (collectively, "item") or service by specific brand or trade name, followed by the words "or equal," is intended only to indicate the quality and type of item or service desired, and Contractor may request use of any equal item or service. Unless otherwise stated in the Specifications, any reference to a specific brand or trade name for an item or service that is used solely for the purpose of describing the type of item or service desired, will be deemed to be followed by the words "or equal." A substitution will only be approved if it is a true "equal" item or service in every aspect of design, function, and quality, as determined by City, including dimensions, weight, maintenance requirements, durability, fit with other elements, and schedule impacts.

(B) **Request for Substitution.** A post-award request for substitution of an item or service must be submitted in writing to the Engineer for approval in advance, within the applicable time period provided in the Contract Documents. If no time period is specified, the substitution request may be submitted any time within 35 days after the date of award of the Contract, or sufficiently in advance of the time needed to avoid delay of the Work, whichever is earlier. A separate request for substitution must be submitted for each item or service proposed for substitution. Contractor must submit a digital copy of each request.

(C) **Substantiation.** Contractor must substantiate each written request for substitution with the following: (1) product identification, (2) manufacturer's literature, (3) test results or samples, if applicable, (4) name and address of similar projects on which the item has been used and the date of installation, (5) the name, address, and telephone number of manufacturer's representative or sales engineer, (6) a detailed description of the proposed construction method and drawings illustrating the construction method, (7) an itemized comparison of the proposed substitution with the product specified that lists all variations, including, but not limited to, dimensions, weights, service requirements, and functional differences, (8) available maintenance, repair, and replacement service for the

proposed item, (9) any required approvals or other information for the proposed substitute that are necessary for compliance with regulatory agency requirements, (10) any schedule impacts associated with use of the proposed substitute, and (11) any other available data substantiating the proposed substitute as an equal item or service. Contractor must also state whether the substitute will require any changes to the Contract Documents, or any other separate contract the Contractor may have with the City, and whether use of the proposed substitute requires the payment of any license fee or royalty. Contractor's failure to timely provide all necessary substantiation, including any required test results as soon as they are available, is grounds for rejection of the proposed substitution, without further review. If a variation from the product specified is not identified in the submittal, the variation may be rejected by City even if the submittal was favorably reviewed.

(D) **Burden of Proving Equality.** Contractor has the burden of proving the equality of the proposed substitution at Contractor's sole cost. City has sole discretion to determine whether a proposed substitution is equal, and City's determination is final.

(E) **Approval or Rejection.** If the proposed substitution is approved, Contractor is solely responsible for any additional costs or time associated with the substituted item or service. If the proposed substitution is rejected, Contractor must, without delay, install the item or use the service as specified by City.

(F) **Contractor's Obligations.** City's approval of a proposed substitution will not relieve Contractor from any of its obligations under the Contract Documents. If an approved substitution requires any redesign, Contractor must reimburse City for any associated redesign costs. Such costs may be deducted from payments otherwise due Contractor. In the event Contractor makes an unauthorized substitution, Contractor shall be solely responsible for all resulting cost impacts, including the cost of removal and replacement and the impact to other design elements.

## 7.8 Testing and Inspection.

(A) **General.** All materials, equipment, and workmanship used in the Work are subject to inspection and testing by City at all times and at all locations during construction and/or fabrication, including at any Worksite, shops, and yards. All manufacturers' application or installation instructions must be provided to the Inspector at least ten days prior to the first such application or installation. Contractor must, at all times, make the Work available for testing or inspection and must provide, at its sole cost, all information and assistance as required by City, including information and assistance from Subcontractors, fabricators, material suppliers and manufacturers, to perform the testing or inspection. Contractor must provide incidental labor and facilities to provide safe access to Work for testing and inspection, to obtain and handle samples at the Project site or at the source of the products to be tested, and to store and cure test samples. Neither City's inspection or testing of Work, nor its failure to do so, operate to waive or limit Contractor's duty to complete the Work in accordance with the Contract Documents.

(B) **Scheduling and Notification.** Contractor must cooperate with City in coordinating the inspections and testing. At least fifteen days in advance of a first test or inspection of each type, Contractor must submit a schedule of tests or inspections to City, indicating the types of tests or inspections and their scheduled dates. Contractor must deliver adequate samples of materials, proposed mix designs, and/or test specimens to a laboratory or location designated by City, at Contractor's expense, and schedule all tests required by the Contract Documents in time to avoid any delay to the progress of the Work. Contractor must also notify the Engineer at least three full Working Days before any inspection or testing and must provide timely notice to the other necessary parties as

specified in the Contract Documents. If Contractor schedules an inspection or test beyond regular Work hours, or on a Saturday, Sunday, or recognized City holiday, Contractor must notify the Engineer at least three Working Days in advance for approval. If approved, Contractor must reimburse City for the cost of the overtime inspection or testing. Such costs, including the City's hourly costs for required personnel, may be deducted from payments otherwise due to Contractor.

(C) **Responsibility for Costs.** City will bear the initial cost of inspection and testing to be performed by City staff or independent inspection and testing consultants retained by City, subject to the following exceptions:

(1) Contractor shall be responsible for the costs of any subsequent inspections or tests which are required to substantiate compliance with the Contract Documents, and any associated remediation costs.

(2) Contractor shall be responsible for inspection costs, at City's hourly rates, for inspection time lost because the Work is not ready, or Contractor fails to appear for a scheduled inspection.

(3) If any portion of the Work that is subject to inspection or testing is covered or concealed by Contractor prior to the inspection or testing, Contractor shall bear the cost of making that portion of the Work available for the inspection or testing required by the Contract Documents, and any associated repair or remediation costs.

(4) Contractor is responsible for properly shoring all compaction test sites deeper than five feet below grade, as required under Section 7.15 below.

(5) Any Work or material that is defective or fails to comply with the requirements of the Contract Documents must be promptly repaired, removed, replaced, or corrected by Contractor, at Contractor's sole expense, even if that Work or material was previously inspected or included in a progress payment.

(6) Contractor is responsible for testing and inspection costs due to the following: changes in source or supplier of materials or products after original testing and inspection; changes in means, methods, techniques, sequences and procedures of construction that necessitate additional testing and inspection; and changes in mix designs after review and acceptance of submitted mix designs.

(D) **Contractor's Obligations.** Contractor is solely responsible for any delay occasioned by remediation of defective or noncompliant Work or material. Inspection or testing of the Work by City does not in any way relieve Contractor of its obligations to perform the Work as specified. Contractor has an independent duty to test and inspect its Work to ensure that it is safe, complies with the requirements of the Contract Documents, and that it is in proper condition to accommodate or interface with subsequent Work. Any Work done without the inspection(s) or testing required by the Contract Documents will be subject to rejection by City.

(E) **Distant Locations.** If required off-site testing or inspection must be conducted at a location more than 50 miles from the Project site, Contractor is solely responsible for the additional travel costs required for testing and/or inspection at such locations.

(F) **Final Inspection.** The provisions of this Section 7.8 also apply to final inspection under Article 11, Completion and Warranty Provisions.

(G) **Governing Authorities and Other Public Agencies.** If any governing authorities or other public agencies with jurisdiction over the Work, or a portion thereof, require any inspection, testing, or approval of the Work, or a portion thereof, Contractor must schedule, conduct, and pay for any such inspection or testing and obtain any required approvals. These governing authorities and agencies may include, but are not limited to, City's Building Department, Public Works Department, and Fire Department, the Office of Statewide Health Planning Department (OSHPD), and other similar agencies. Contractor must submit any such certificates of inspection or testing or approvals to the City.

(H) **Inspections and Tests by Serving Utilities.** Contractor must schedule, conduct, and pay for all tests and inspections required by serving utilities for the Work.

(I) **Inspections and Tests by Manufacturer's Representatives.** Contractor must, at its sole cost, schedule, coordinate, and ensure the performance of all tests and inspections specified to be conducted by materials or systems manufacturers, including those required by materials or systems manufacturers as a condition of warranty or certification Work.

**7.9 Project Site Conditions and Maintenance.** Contractor must at all times, on a 24-hour basis and at its sole cost, maintain the Project site and staging and storage areas in clean, neat, and sanitary condition and in compliance with all Laws pertaining to safety, air quality, and dust control. Adequate toilets must be provided, and properly maintained and serviced for all workers on the Project site, located in a suitably secluded area, subject to City's prior approval. If toilets of the chemically treated type are used, Contractor must furnish at least one toilet for each 20 persons. Contractor shall enforce the use of such sanitary facilities by all personnel at the Project site. Contractor must also, on a daily basis and at its sole cost, remove and properly dispose of the debris and waste materials from the Project site.

(A) **Air Emissions Control.** Contractor must not discharge smoke or other air contaminants into the atmosphere in violation of any Laws. Contractor must comply with all Laws, including the California Air Resources Board's In-Use Off-Road Diesel-Fueled Fleets Regulation (13 CCR § 2449 et seq.).

(B) **Dust and Debris.** Contractor must minimize and confine dust and debris resulting from the Work. Contractor must protect buildings and operating facilities from dust and must use suitable dust screens to protect existing and new machinery, motors, instrument panels, or similar equipment from dust. Contractor must include proper ventilation with dust screens. Contractor must abate dust nuisance by cleaning, sweeping, and immediately sprinkling with water excavated areas of dirt or other materials prone to cause dust, and within one hour after the Engineer notifies Contractor that an airborne nuisance exists. The Engineer may direct that Contractor provide an approved water-spraying truck for this purpose. If water is used for dust control, Contractor shall only use the minimum necessary. Contractor must take all necessary steps to keep waste water out of streets, gutters, or storm drains. See Section 7.19, Environmental Control. If City determines that the dust control is not adequate, City may have the work done by others and deduct the cost from the Contract Price. Contractor shall immediately remove any excess excavated material from the Project site and any dirt deposited on public streets. (See also Document 01 50 00 of the General Requirements.)

(C) **Hazards Control.** Contractor must prevent the accumulation of wastes that may create hazardous conditions. Contractor must store volatile waste in covered metal containers and remove such waste from the premises daily. Contractor must provide adequate ventilation during the use of volatile or noxious substances.

(D) **Clean up.** Before discontinuing Work in an area, Contractor must clean the area and remove all debris and waste along with the construction equipment, tools, machinery, and surplus materials.

(1) Except as otherwise specified, all excess Project materials, and the materials removed from existing improvements on the Project site with no salvage value or intended reuse by City, will be Contractor's property.

(2) Hauling trucks and other vehicles leaving the Project site must be cleaned of exterior mud or dirt before traveling on City streets. Materials and loose debris must be delivered and loaded to prevent dropping materials or debris. Contractor must immediately remove spillage from hauling on any publicly traveled way. Streets affected by Work on the Project must be kept clean by street sweeping.

(3) Contractor shall also, on a daily basis, remove any dust, debris, mud, fill, and spoils from private property, unless the private property owner has requested otherwise in writing.

(E) **Disposal.** Contractor must dispose of all Project debris and waste materials in a safe and legal manner. Contractor may not burn or bury waste materials on the Project site. Contractor will not allow any dirt, refuse, excavated material, surplus concrete or mortar, or any associated washings, to be disposed of onto streets, into manholes or into the storm drain system. All excess soil from performance of Work shall be disposed at a Class I, II, or III landfill at sites to be chosen by Contractor in accordance with Laws. Contractor must review and comply with any such regulations and requirements of the agency having jurisdiction over any contemplated disposal site, as applicable. Contractor shall recycle all debris and waste materials with feasible re-use including concrete, asphalt concrete, pavement base materials, steel, and wood. A Project that includes 5,000 square feet or more of building construction, demolition or renovation shall comply with the City of Santa Clara Construction and Demolition Debris Recycling Program per Santa Clara Code Section 8.25.285.

(F) **Completion.** At the completion of the Work, Contractor must remove from the Project site all of its equipment, tools, surplus materials, waste materials and debris, presenting a clean and neat appearance. Before demobilizing from the Project site, Contractor must ensure that all surfaces are cleaned, sealed, waxed, or finished as applicable, and that all marks, stains, paint splatters, and the like have been properly removed from the completed Work and the surrounding areas. Contractor must clean or replace the filters of any mechanical equipment operated during construction and clean the ducts, blowers, and coils of mechanical equipment operated without filters during construction. Contractor must also mechanically sweep paved areas. Contractor must ensure that all parts of the construction are properly joined with the previously existing and adjacent improvements and conditions. Contractor must provide all cutting, fitting and patching needed to accomplish that requirement. Contractor must also repair or replace all existing improvements that are damaged or removed during the Work, both on and off the Project site, including curbs, sidewalks, driveways, fences, signs, utilities, utility poles, guy wires, underground pipes, conduits, drains, street surfaces, structures, and landscaping (sod, groundcover, shrubs, trees, and the like). Repairs and replacements must be at least equal to the previously existing improvements, and the condition, finish and dimensions must match the previously existing improvements. All replacements must be made with new materials. Contractor must restore to original condition all property or items that are not designated for alteration under the Contract Documents and leave each Worksite clean and ready for occupancy or use by City.

(G) **Non-Compliance.** If Contractor fails to comply with its maintenance and cleanup obligations or any City clean up order, City may, acting in its sole discretion, elect to suspend the Work until the condition(s) is corrected with no increase in the Contract Time or Contract Price, or undertake appropriate cleanup measures without further notice and deduct the cost from any amounts due or to become due to Contractor.

**7.10 Instructions and Manuals.** Contractor must provide to City three hard copies and a digital copy of each instruction and manual required by the Contract Documents, unless otherwise specified. These must be complete as to drawings, details, parts lists, performance data, and other information that may be required for City to easily maintain and service the materials and equipment installed for this Project.

(A) **Submittal Requirements.** The instructions and manuals, along with any required guarantees, must be delivered to City for review prior to requesting final inspection pursuant to Section 11.1(A), unless otherwise specified.

(B) **Training.** Contractor or its Subcontractors must train City's personnel in the operation and maintenance of any complex equipment or systems as a condition precedent to Final Completion, if required in the Contract Documents.

**7.11 As-built Drawings.** Contractor and its Subcontractors must prepare and maintain at the Project site a detailed, complete and accurate as-built set of the Plans which will be used solely for the purpose of recording changes made in any portion of the original Plans in order to create accurate record drawings at the end of the Project.

(A) **Duty to Update.** The as-built drawings must be updated as changes occur, on a daily basis if necessary. City may withhold the estimated cost for City to have the as-built drawings prepared from payments otherwise due to Contractor, until the as-built drawings are brought up to date to the satisfaction of City. Actual locations to scale must be identified on the as-built drawings for all runs of mechanical and electrical work, including all site utilities installed underground, in walls, floors, or otherwise concealed. Deviations from the original Plans must be shown in detail. The exact location of all main runs, whether piping, conduit, ductwork or drain lines, must be shown by dimension and elevation. The location of all buried pipelines, appurtenances, or other improvements must be represented by coordinates and by the horizontal distance from visible above-ground improvements.

(B) **Final Completion.** Contractor must verify that all changes in the Work are depicted in the as-built drawings and must deliver the complete set of as-built drawings to the Engineer for review and acceptance as a condition precedent to Final Completion and Final Payment.

**7.12 Existing Utilities and Facilities.**

(A) **General.** The Work may be performed in developed, urban areas with existing utilities, both above and below ground, including utilities identified in the Contract Documents or in other informational documents or records. Underground utilities are inherent in Work involving digging of trenches or other excavations and Contractor is to apply its skill and industry to verify the information available. Contractor must take due care to locate identified or reasonably identifiable utilities before proceeding with trenching, excavation, or any other activity that could damage or disrupt existing utilities. This may include excavation with small equipment, potholing, or hand excavation, and, if practical, using white paint or other suitable markings to delineate the area to be excavated. Except as otherwise provided herein, Contractor shall be responsible for costs resulting from damage to identified or reasonably identifiable utilities due to Contractor's negligence or failure to comply with the Contract Documents, including the

requirements in this Article 7. Contractor shall take immediate action to restore any service installation damaged by Contractor's operations. If City determines that Contractor has not responded to damaged service installations in a timely manner or has not diligently pursued restoration of damaged service installations, City may restore service installations and deduct the cost from payments otherwise due to Contractor.

(B) **Unidentified Utilities.** Pursuant to Government Code § 4215, if, during the performance of the Work, Contractor discovers utility facilities not identified by City in the Contract Documents, Contractor must immediately provide written notice to City and the utility. City assumes responsibility for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the Project site if those utilities are not identified in the Contract Documents. Contractor shall be compensated in accordance with the provisions of the Contract Documents for the costs of locating, repairing damage not due to Contractor's failure to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Plans or Specifications with reasonable accuracy, and for equipment on the Project necessarily idled during such work. Contractor will not be assessed liquidated damages for delay in completion of the Work, to the extent the delay was caused by City's failure to provide for removal or relocation of such utility facilities.

(C) **Service Laterals or Appurtenances.** In accordance with Government Code § 4215, nothing herein will be deemed to require City to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Project site can be inferred by Contractor from the presence of an underground transmission main or other visible facilities, such as buildings, new asphalt, meters and junction boxes, on or adjacent to the Project site.

(D) **Locating Utilities.** Contractor is responsible for all of the following activities to locate identified or reasonably identifiable utilities and the cost thereof is included in the Contract Price: (a) reviewing and checking all available information and data provided in any "For Reference Only" documents, the Plans, and Underground Services Alert (USA) information; (b) locating all identified or reasonably identifiable utilities, including utilities shown or indicated in the Contract Documents or any other available information and utilities indicated by visual observation including, but not limited to, and by way of example only, engaging qualified locating services and all necessary backhoeing and potholing; and (c) coordination of the Work with the owners of such utilities during construction. Contractor shall notify City of any conflict between information provided in any "For Reference Only" documents, the Plans, and USA information.

(E) Except as required by applicable law, Contractor shall bear the risk that utilities not owned or built by City may differ in nature or locations shown in information provided in the "For Reference Only" documents, the Plans, and USA information, or otherwise reasonably available to Contractor.

**7.13 Notice of Excavation.** Contractor must comply with all applicable requirements in Government Code § 4216 et seq., which are incorporated by reference herein.

**7.14 Trenching and Excavations of Four Feet or More.** As required by Public Contract Code § 7104, if the Work includes digging trenches or other excavations that extend deeper than four feet below the surface, the provisions in this Section apply to the Work and the Project.

(A) **Duty to Notify.** Contractor must promptly, and before the following conditions are disturbed, provide written notice to City if Contractor finds any of the following conditions:

(1) Material that Contractor believes may be a hazardous waste, as defined in § 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing Laws;

(2) Subsurface or latent physical conditions at the Project site differing from those indicated by information about the Project site made available to bidders prior to the deadline for submitting bids; or

(3) Unknown physical conditions at the Project site of any unusual nature, materially different from those ordinarily encountered and generally recognized as inherent in work of the character required by the Contract Documents.

(B) **City Investigation.** City will promptly investigate the conditions and if City finds that the conditions materially differ from those indicated, apparent, or reasonably inferred from information about the Project site made available to bidders, or involve hazardous waste, and cause a decrease or increase in Contractor's cost of, or the time required for, performance of any part of the Work, City will issue a Change Order.

(C) **Disputes.** In the event that a dispute arises between City and Contractor regarding any of the conditions specified in subsection (B) above, or the terms of a Change Order issued by City, Contractor will not be excused from completing the Work within the Contract Time, but must proceed with all Work to be performed under the Contract. Contractor shall retain any and all rights provided either by the Contract or by Laws which pertain to the resolution of disputes between Contractor and City.

**7.15 Trenching of Five Feet or More.** As required by Labor Code § 6705, if the Contract Price exceeds \$25,000 and the Work includes the excavation of any trench or trenches of five feet or more in depth, a detailed plan must be submitted to City for acceptance at least five days in advance of the excavation. The detailed plan must show the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation. If the plan varies from the shoring system standards, it must be prepared by a California registered civil or structural engineer. Use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders is prohibited.

**7.16 New Utility Connections.** Except as otherwise specified, City will pay connection charges and meter costs for new permanent utilities required by the Contract Documents, if any. Contractor must notify City sufficiently in advance of the time needed to request service from each utility provider so that Contractor can coordinate connections and services in accordance with the Project schedule.

**7.17 Lines and Grades.** Contractor is required to use any benchmark provided by the Engineer. Unless otherwise specified in the Contract Documents, Contractor must provide all lines and grades required to execute the Work. Contractor must also provide, preserve, and replace if necessary, all construction stakes required for the Project. All stakes or marks must be set by a California licensed surveyor or a California registered civil engineer. Contractor must notify the Engineer of any discrepancies found between Contractor's staking and grading and information provided by the Contract Documents. Upon completion, all Work must conform to the lines, elevations, and grades shown in the Plans, including any changes directed by a Change Order.

**7.18 Historic or Archeological Items.**

(A) **Contractor's Obligations.** Contractor must ensure that all persons performing Work at the Project site are required to immediately notify the Project Manager, upon

discovery of any potential historic or archeological items, including historic or prehistoric ruins, a burial ground, archaeological or vertebrate paleontological site, including fossilized footprints or other archeological, paleontological or historical feature on the Project site (collectively, "Historic or Archeological Items").

(B) **Discovery; Cessation of Work.** Upon discovery of any potential Historic or Archeological Items, Work must be stopped within an 85-foot radius of the find and may not resume until authorized in writing by City. If required by City, Contractor must assist in protecting or recovering the Historic or Archeological Items, with any such assistance to be compensated as Extra Work on a time and materials basis under Article 6, Contract Modification. At City's discretion, a suspension of Work required due to discovery of Historic or Archeological Items may be treated as Excusable Delay pursuant to Article 5, or as a suspension for convenience under Article 13.

**7.19 Environmental Control.** Contractor must not pollute any drainage course or its tributary inlets with fuels, oils, bitumens, acids, insecticides, herbicides or other harmful materials. Contractor must prevent the release of any hazardous material or hazardous waste into the soil or groundwater, and prevent the unlawful discharge of pollutants into City's storm drain system and watercourses as required below. Contractor and its Subcontractors must at all times in the performance of the Work comply with all Laws concerning pollution of waterways.

(A) **Stormwater Permit.** Contractor must comply with all applicable conditions of the State Water Resources Control Board National Pollutant Discharge Elimination System General Permit for Waste Discharge Requirements for Discharges of Stormwater Runoff Associated with Construction Activity ("Stormwater Permit").

(B) **Contractor's Obligations.** If required for the Work, a copy of the Stormwater Permit is on file in City's principal administrative offices, and Contractor must comply with it without adjustment of the Contract Price or the Contract Time. Contractor must timely and completely submit required reports and monitoring information required by the conditions of the Stormwater Permit. Contractor also must comply with all other Laws governing discharge of stormwater, including applicable municipal stormwater management programs.

**7.20 Noise Control.** Contractor must comply with all applicable noise control Laws. Noise control requirements apply to all equipment used for the Work or related to the Work, including trucks, transit mixers or transient equipment that may or may not be owned by Contractor. (See also Document 01 50 00 of the General Requirements.)

**7.21 Mined Materials.** Pursuant to Public Contract Code § 20676, Contractor will not purchase any sand, gravel, or other minerals for the Work from an operation subject to the Surface Mining and Reclamation Act of 1975 (Public Resources Code § 2710 et seq.) unless the Contractor certifies, under penalty of perjury, that the minerals are from a mining operation included on the AB 3098 List, which may be accessed online at: <https://www.conservation.ca.gov/smgb/Pages/AB-3098-List.aspx>.

**7.22 Compliance with Laws Pertaining to Disability Rights.** The Work, and Contractor's performance of the Work, must comply with all Laws, including the Americans with Disabilities Act (ADA) and all Laws pertaining to disability rights. Contractor shall not discriminate against disabled persons in the performance of the Work or provision of benefits or activities under the Contract and further agrees that any violation of this prohibition by Contractor, its employees, agents, assigns, or Subcontractors will constitute a material breach of the Contract.

## Article 8 - Payment

**8.1 Schedule of Values.** Prior to submitting its first application for payment and allowing for City's review and comment, Contractor must prepare and submit to the Project Manager a schedule of values apportioned to the various divisions and phases of the Work, including mobilization and demobilization. If a Bid Schedule was submitted with Contractor's bid, the amounts in the schedule of values must be consistent with the Bid Schedule. Each line item contained in the schedule of values must be assigned a value such that the total of all items equals the Contract Price. The items must be sufficiently detailed to enable accurate evaluation of the percentage of completion claimed in each application for payment, and the assigned value consistent with any itemized or unit pricing submitted with Contractor's bid. The schedule of values must include line items for Project scheduling and preparation and submission of Project Records Documents, as defined in the General Requirements. Where more than one Subcontractor performs the Work for a particular Work item or activity on the schedule of values, the schedule of values must show a separate line item for each subcontract. City will reject any attempt to increase the cost of early activities (i.e., "front loading") resulting in a complete reallocation of money until such "front loading" is corrected in the schedule of values. Repeated attempts at front loading may result in suspension or termination of the Work for default, or a withholding from progress payments, as set forth in Section 8.3, below, until the schedule of values is acceptable to City.

(A) **Measurements for Unit Price Work.** Materials and items of Work to be paid for on the basis of unit pricing will be measured according to the methods specified in the Contract Documents. If there are no specified methods, measurement will be made in any manner deemed appropriate by City for the class of Work at issue (e.g., pre-assigned values, percentage completion, units completed, or incremental milestones). Any conflict between quantities shown in the Contract Documents and the actual quantities required to complete the Work will be resolved in favor of the actual quantities, as determined by City. The Contract Price will be adjusted to reflect the actual quantities required for the Work based on the itemized or unit prices provided in the Bid Schedule, unless and only to the extent that the City agrees to adjust the price for unit price work pursuant to subsection (A)(1), below. Contractor must immediately inform City of any disagreement with City's measurement of actual quantities and must immediately supply City with documentation to support measurements of actual quantities.

(1) **Adjustments for Increases or Decreases in Unit Price Work.** If the actual quantity for a bid item is increased or decreased by more than 25% of the estimated quantity on the Bid Schedule, the City may, but is not obligated to, make price adjustments for the excess or decreased quantity. Any such price adjustment will be determined by the Engineer pursuant to Section 6.3. The Engineer will determine whether a given increase or decrease in quantity exceeds 25%, and the Engineer's determination is final. No adjustment in pricing will be made until after all Work involving that bid item is completed, and the final quantity has been determined by the Engineer.

(B) **Deleted or Reduced Work.** Contractor will not be compensated for Work that City has deleted or reduced in scope, except for any labor, material, or equipment costs for such Work that Contractor reasonably incurred before Contractor learned that the Work could be deleted or reduced. Contractor will only be compensated for those actual, direct and documented costs incurred, and will not be entitled to any mark up for overhead or lost profits.

**8.2 Progress Payments.** Following the last day of each month, or as otherwise required by the Special Conditions or Specifications, or as agreed upon by City and Contractor, Contractor shall submit to the Project Manager a monthly application for payment for

Work performed during the preceding month based on the estimated value of the Work performed during that preceding month.

(A) **Application for Payment.** Each application for payment must be itemized to include labor, materials, and equipment incorporated into the Work (less any previous payments for the same); materials and equipment delivered to the Project site if the conditions in subsection (1) below are satisfied; and authorized and approved Change Orders, including the Change Order number(s), a description of the Work activities, and a Change Order status log. The application must also show the accumulated retainage to date. Each payment application must be supported by the unit prices submitted with Contractor's Bid Schedule and/or schedule of values, the percentage of completion claimed for each activity, and any other substantiating data required by the Contract Documents.

(1) If Contractor requests payment on the basis of materials and equipment not incorporated into the Work, Contractor must satisfy the following conditions: the materials and/or equipment must be delivered and suitably stored at the Project site or at a local Worksite agreed to, in writing, by City; full title to the materials and/or equipment will vest in City at the time of delivery to the Project site or agreed upon Worksite; Contractor must obtain a negotiable warehouse receipt, endorsed over to City for materials and/or equipment stored in an off-site Worksite; materials and/or equipment must be segregated and labeled or tagged to identify the Project; and Contractor's application for payment must be accompanied by a bill of sale, invoice, or other documentation warranting that City has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect City's interest therein, all of which must be satisfactory to City. If these conditions are satisfied, the application for payment may include up to 75% of the cost of equipment not yet incorporated into the Work and up to 50% of the cost of materials not yet incorporated into the Work.

(B) **Payment of Undisputed Amounts.** City will pay the undisputed amount due within 30 days after Contractor has submitted a complete and accurate payment application, subject to Public Contract Code § 20104.50. City will deduct a percentage from each progress payment as retention, as set forth in Section 8.5, below, and may deduct or withhold additional amounts as set forth in Section 8.3, below.

**8.3 Adjustment of Payment Application.** City may adjust or reject the amount requested in a payment application, including application for Final Payment, in whole or in part, if the amount requested is disputed or unsubstantiated. Contractor will be notified in writing of the basis for the modification to the amount requested. City may also deduct or withhold from payment otherwise due based upon any of the circumstances and amounts listed below. Sums withheld from payment otherwise due will be released when the basis for that withholding has been remedied and no longer exists.

(A) For Contractor's unexcused failure to perform the Work as required by the Contract Documents, including correction or completion of punch list items, City may withhold or deduct an amount based on the City's estimated cost to correct or complete the Work.

(B) For loss or damage caused by Contractor or its Subcontractors arising out of or relating to performance of the Work, any failure to protect the Project site, or any failure to protect equipment or materials from weather or damage, City may deduct an amount based on the estimated cost to repair or replace.

(C) For Contractor's failure to pay its Subcontractors and suppliers when payment is due, City may withhold an amount equal to the total of past due payments and may opt to pay that amount separately via joint check pursuant to Section 8.6(B), Joint Checks.

(D) For Contractor's failure to timely correct rejected, nonconforming, or defective Work, City may withhold or deduct an amount based on the City's estimated cost to correct or complete the Work.

(E) For any unreleased stop notice, City may withhold 125% of the amount claimed.

(F) For Contractor's failure to submit any required schedule or schedule update in the manner specified or within the time specified in the Contract Documents, City may withhold an amount equal to ten percent of the total amount requested until Contractor complies with its schedule submittal obligations.

(G) For Contractor's failure to maintain or submit as-built documents or any other Project Record Documents, as defined in the General Requirements, in the manner specified or within the time specified in the Contract Documents, City may withhold or deduct an amount based on the City's cost to prepare the as-builts or other Project Record Documents.

(H) For Work performed without Shop Drawings that have been accepted by City, when accepted Shop Drawings are required before proceeding with the Work, City may deduct an amount based on the estimated cost to correct unsatisfactory Work or diminution in value.

(I) Subject to applicable law, for Contractor's and/or Subcontractor's failure to submit certified payroll records to the City, as required by Article 9 of the General Conditions, City may withhold payment under the Contract.

(J) For fines, payments, or penalties assessed under the Labor Code, City may deduct payments due to Contractor as required by Laws and as directed by the Division of Labor Standards Enforcement.

(K) For any other fines, payments, or penalties assessed against the City relating to Contractor's acts or omissions, including violations of Laws, City may withhold or deduct such amounts from payment otherwise due to Contractor.

(L) For any other costs or charges that may be withheld or deducted from payments to Contractor, as provided in the Contract Documents, including liquidated damages, City may withhold or deduct such amounts from payment otherwise due to Contractor.

(M) Subject to applicable law, City may, at its option, withhold such moneys due under the Contract Documents as City deems necessary until any and all suits or claims against Contractor for injury to persons, property or operations are resolved and City receives satisfactory evidence thereof.

**8.4 Early Occupancy.** Neither City's payment of progress payments nor its partial or full use or occupancy of the Project constitutes acceptance of any part of the Work.

**8.5 Retention.** City will retain five percent of the full amount due on each progress payment (i.e., the amount due before any withholding or deductions pursuant to Section 8.3, Adjustment of Payment Application), or the percentage stated in the Notice Inviting Bids, whichever is greater, as retention to ensure full and satisfactory performance of the Work. Contractor is not entitled to any reduction in the rate of withholding at any time, nor to

release of any retention before 35 days following City's recordation of the Notice of Completion, subject to the terms of Public Contract Code § 7107.

(A) **Substitution of Securities.** As provided by Public Contract Code § 22300, Contractor may request in writing that it be allowed, at its sole expense, to substitute securities for the retention withheld by City. Contractor must use the City's escrow agreement form (Attachment B), unless otherwise specified by City. Any escrow agreement entered into pursuant to this provision must fully comply with Public Contract Code § 22300 and will be subject to approval as to form by City's legal counsel. If City exercises its right to draw upon such securities in the event of default pursuant to section (7) of the statutory Escrow Agreement for Security Deposits in Lieu of Retention, pursuant to subdivision (g) of Public Contract Code § 22300 ("Escrow Agreement"), and if Contractor disputes that it is in default, its sole remedy is to comply with the dispute resolution procedures in Article 12 and the provisions therein. It is agreed that for purposes of this paragraph, an event of default includes City's rights pursuant to these Contract Documents to withhold or deduct sums from retention, including withholding or deduction for liquidated damages, incomplete or defective Work, stop payment notices, or backcharges. It is further agreed that if any individual authorized to give or receive written notice on behalf of a party pursuant to section (10) of the Escrow Agreement are unavailable to give or receive notice on behalf of that party due to separation from employment, retirement, death, or other circumstances, the successor or delegee of the named individual is deemed to be the individual authorized to give or receive notice pursuant to section (10) of the Escrow Agreement.

(B) **Release of Undisputed Retention.** All undisputed retention, less any amounts that may be assessed as liquidated damages, retained for stop notices, or otherwise withheld pursuant to Section 8.3, Adjustment of Payment Application, will be released as Final Payment to Contractor no sooner than 35 days following recordation of the notice of completion, and no later than 60 days following acceptance of the Project by City's governing body or authorized designee pursuant to Section 11.1(C), Acceptance, or, if the Project has not been accepted, no later than 60 days after the Project is otherwise considered complete pursuant to Public Contract Code § 7107(c).

**8.6 Payment to Subcontractors and Suppliers.** Each month, Contractor must promptly pay each Subcontractor and supplier the value of the portion of labor, materials, and equipment incorporated into the Work or delivered to the Project site by the Subcontractor or supplier during the preceding month. Such payments must be made in accordance with the requirements of Laws pertaining to such payments, and those of the Contract Documents and applicable subcontract or supplier contract.

(A) **Withholding for Stop Notice.** Pursuant to Civil Code § 9358, City will withhold 125% of the amount claimed by an unreleased stop notice, a portion of which may be retained by City for the costs incurred in handling the stop notice claim, including attorneys' fees and costs, as authorized by law.

(B) **Joint Checks.** City reserves the right, acting in its sole discretion, to issue joint checks made payable to Contractor and a Subcontractor or supplier, if City determines this is necessary to ensure fair and timely payment for a Subcontractor or supplier who has provided services or goods for the Project. As a condition to release of payment by a joint check, the joint check payees may be required to execute a joint check agreement in a form provided or approved by the City Attorney's Office. The joint check payees will be jointly and severally responsible for the allocation and disbursement of funds paid by joint check. Payment by joint check will not be construed to create a contractual relationship between City and a Subcontractor or supplier of any tier beyond the scope of the joint check agreement.

- 8.7 Final Payment.** Contractor's application for Final Payment must comply with the requirements for submitting an application for a progress payment as stated in Section 8.2, above. Corrections to previous progress payments, including adjustments to estimated quantities for unit priced items, may be included in the Final Payment. If Contractor fails to submit a timely application for Final Payment, City reserves the right to unilaterally process and issue Final Payment without an application from Contractor in order to close out the Project. For the purposes of determining the deadline for Claim submission pursuant to Article 12, the date of Final Payment is deemed to be the date that City acts to release undisputed retention as final payment to Contractor, or otherwise provides written notice to Contractor of Final Payment or that no undisputed funds remain available for Final Payment due to offsetting withholdings or deductions pursuant to Section 8.3, Adjustment of Payment Application. If the amount due from Contractor to City exceeds the amount of Final Payment, City retains the right to recover the balance from Contractor or its sureties.
- 8.8 Release of Claims.** City may, at any time, require that payment of the undisputed portion of any progress payment or Final Payment be contingent upon Contractor furnishing City with a written waiver and release of all claims against City arising from or related to the portion of Work covered by those undisputed amounts subject to the limitations of Public Contract Code § 7100. Any disputed amounts may be specifically excluded from the release. Final Payment will be contingent upon Contractor furnishing Attachment C, Agreement and Release of Any and All Claims.
- 8.9 Warranty of Title.** Contractor warrants that title to all work, materials, or equipment incorporated into the Work and included in a request for payment will pass over to City free of any claims, liens, or encumbrances upon payment to Contractor.

## Article 9 - Labor Provisions

- 9.1 Discrimination Prohibited.** Discrimination against any prospective or present employee engaged in the Work on grounds of race, color, ancestry, national origin, ethnicity, religion, sex, sexual orientation, age, disability, or marital status is strictly prohibited. Contractor and its Subcontractors are required to comply with all applicable Laws prohibiting discrimination, including the California Fair Employment and Housing Act (Govt. Code § 12900 et seq.), Government Code § 11135, and Labor Code §§ 1735, 1777.5, 1777.6, and 3077.5.
- 9.2 Labor Code Requirements.**
- (A) **Eight Hour Day.** Pursuant to Labor Code § 1810, eight hours of labor constitute a legal day's work under this Contract.
- (B) **Penalty.** Pursuant to Labor Code § 1813, Contractor shall forfeit to City as a penalty, the sum of \$25.00 for each day during which a worker employed by Contractor or any Subcontractor is required or permitted to work more than eight hours in any one calendar day or more than 40 hours per calendar week, except if such workers are paid overtime under Labor Code § 1815.
- (C) **Apprentices.** Contractor is responsible for compliance with the requirements governing employment and payment of apprentices, as set forth in Labor Code § 1777.5, which is fully incorporated by reference.
- (D) **Notices.** Pursuant to Labor Code § 1771.4, Contractor is required to post all job site notices prescribed by Laws.

**9.3 Prevailing Wages.** Each worker performing Work under this Contract that is covered under Labor Code §§ 1720, 1720.3, or 1720.9, including cleanup at the Project site, must be paid at a rate not less than the prevailing wage as defined in §§ 1771 and 1774 of the Labor Code. The prevailing wage rates are on file with the City and available online at <http://www.dir.ca.gov/dlsr>. Contractor must post a copy of the applicable prevailing rates at the Project site.

(A) **Penalties.** Pursuant to Labor Code § 1775, Contractor and any Subcontractor will forfeit to City as a penalty up to \$200.00 for each calendar day, or portion thereof, for each worker paid less than the applicable prevailing wage rate. Contractor must also pay each worker the difference between the applicable prevailing wage rate and the amount actually paid to that worker.

(B) **Federal Requirements.** If this Project is subject to federal prevailing wage requirements in addition to California prevailing wage requirements, Contractor and its Subcontractors are required to pay the higher of the currently applicable state or federal prevailing wage rates.

**9.4 Payroll Records.** Contractor must comply with the provisions of Labor Code §§ 1771.4, 1776, and 1812 and all implementing regulations, which are fully incorporated by this reference, including requirements for monthly electronic submission of payroll records to the DIR, if applicable.

(A) **Contractor and Subcontractor Obligations.** Contractor and each Subcontractor must keep accurate payroll records, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed in connection with the Work. Each payroll record must contain or be verified by a written declaration that it is made under penalty of perjury, stating both of the following:

(1) The information contained in the payroll record is true and correct; and

(2) Contractor or the Subcontractor has complied with the requirements of Labor Code §§ 1771, 1811, and 1815 for any Work performed by its employees on the Project.

(B) **Submittal of Records.**

(1) As a condition to receiving progress payments, Final Payment, and payment of retention, Contractor must furnish to City, with its application for payment, all applicable and necessary certified payroll records (for itself and all applicable Subcontractors) for the time period covering the application for payment. City may withhold any portion of a payment, including the entire payment amount, until certified payroll forms and related documentation are properly submitted, reviewed, and found to be in full compliance with applicable Laws. If the certified payroll records do not comply with the requirements of Labor Code § 1720 et seq., City may continue to withhold sufficient funds to cover estimated wages and penalties under the Contract.

(2) Contractor must submit certified payroll through LCPTTracker or similar system as directed by the City. Contractor will be provided log-in credentials to access the City's LCPTTracker system. The term "certified payroll" includes all required documentation to comply with the mandates set forth in Labor Code §1720 et seq., as well as any additional documentation requested by the City or its designee including, but not limited to: certified payroll, fringe benefit statements

and backup documentation such as monthly benefit statements, employee timecards, copies of wage statements and cancelled checks, proof of training contributions (CAC2, if applicable), and apprenticeship forms such as DAS-140 and DAS-142. In addition to submitting the certified payrolls and related documentation to City, Contractor and Subcontractors must submit certified payroll and related documents electronically to the Labor Commissioner, in accordance with Labor Code § 1771.4. Failure to submit payrolls to the DIR may also result in the withholding of progress payments, Final Payment, and/or retention payment.

(C) **Certified Record.** A certified copy of an employee's payroll record must be made available for inspection or furnished to the employee or his or her authorized representative on request, to City, to the Division of Labor Standards Enforcement, to the Division of Apprenticeship Standards of the DIR, and as further required by the Labor Code.

(D) **Enforcement.** Upon notice of noncompliance with Labor Code § 1776, Contractor or Subcontractor has ten days in which to comply with the requirements of this section. If Contractor or Subcontractor fails to do so within the ten-day period, Contractor or Subcontractor will forfeit a penalty of \$100.00 per day, or portion thereof, for each worker for whom compliance is required, until strict compliance is achieved. Upon request by the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement, these penalties will be withheld from payments then due to Contractor.

**9.5 Labor Compliance.** Pursuant to Labor Code § 1771.4, the Contract for this Project is subject to compliance monitoring and enforcement by the DIR.

## Article 10 - Safety Provisions

**10.1 Safety Precautions and Programs.** Contractor and its Subcontractors are fully responsible for safety precautions and programs, and for the safety of persons and property in the performance of the Work. Contractor and its Subcontractors must at all times comply with all applicable health and safety Laws and seek to avoid injury, loss, or damage to persons or property by taking reasonable steps to protect its employees and other persons at any Worksite, materials and equipment stored on or off site, and property at or adjacent to any Worksite.

(A) **Reporting Requirements.** Contractor must immediately notify the City of any death, serious injury or illness resulting from Work on the Project. Contractor must immediately provide a written report to City of each recordable accident or injury occurring at any Worksite within 24 hours of the occurrence. The written report must include: (1) the name and address of the injured or deceased person; (2) the name and address of each employee of Contractor or of any Subcontractor involved in the incident; (3) a detailed description of the incident, including precise location, time, and names and contact information for known witnesses; and (4) a police or first responder report, if applicable. If Contractor is required to file an accident report with a government agency, Contractor shall provide a copy of the report to City.

(B) **Safety Program.** If requested by City, Contractor must submit a Project-specific safety program to City. Contractor's safety program must include: (1) an injury and illness prevention program and (2) a site-specific health and safety plan that describes the health and safety procedures that Contractor shall implement during the Work to ensure the safety of the public and workers. Contractor's safety program must comply with the applicable legal and regulatory requirements. Contractor must provide City with copies of all notices required by Laws.

(C) **Safety Representative.** Contractor shall designate a qualified and experienced safety representative at the Project site whose duties and responsibilities will include: (1) the prevention of accidents; (2) maintenance and supervision of safety precautions and programs; (3) compliance with applicable health and safety Laws, including Occupational Safety and Health Act (“OSHA”) requirements; and (4) implementation and enforcement of Contractor’s traffic control and detour plan, security plan, program for temporary structures, construction site management plan, demolition program, and environmental safety and health plan. Contractor’s safety representative will also be responsible for submitting any changes to these plans to City for review.

(D) **Contractor’s Obligations.** Any damage or loss caused by Contractor arising from the Work which is not insured under property insurance must be promptly remedied by Contractor.

(E) **Remedies.** If City determines, in its sole discretion, that any part of the Work or Project site is unsafe, City may, without assuming responsibility for Contractor’s safety program, require Contractor or its Subcontractor to cease performance of the Work or to take corrective measures to City’s satisfaction. If Contractor fails to promptly take the required corrective measures, City may perform them and deduct the cost from the Contract Price. Contractor agrees it is not entitled to submit a Claim for damages, for an increase in Contract Price, or for a change in Contract Time based on Contractor’s compliance with City’s request for corrective measures pursuant to this provision.

(F) **Protective Gear.** Contractor must supply a sufficient number of hard hats to properly equip all personnel and visitors and must ensure that all personnel and visitors at the Project site wear hard hats at all times. Contractor must also supply personal protective equipment (“PPE”) to all of Contractor’s personnel and ensure that, if an exposure exists, all affected personnel use the PPE.

**10.2 Hazardous Materials.** Unless otherwise specified in the Contract Documents, this Contract does not include the removal, handling, or disturbance of any asbestos or other Hazardous Materials. If Contractor encounters materials on the Project site that Contractor reasonably believes to be asbestos or other Hazardous Materials, and the asbestos or other Hazardous Materials have not been rendered harmless, Contractor may continue Work in unaffected areas reasonably believed to be safe, but must immediately cease work on the area affected and report the condition to City. Contractor’s notice to City must indicate whether the material believed to be Hazardous Materials was shown or indicated on the Contract Documents to be within the scope of Work and whether the material was brought to the Project site by Contractor, its Subcontractors, a supplier, or any other individual. No asbestos, asbestos-containing products or other Hazardous Materials may be used in performance of the Work.

**10.3 Material Safety.** Contractor is solely responsible for complying with § 5194 of Title 8 of the California Code of Regulations, including by providing information to Contractor’s employees about any hazardous chemicals to which they may be exposed in the course of the Work. A hazard communication program and other forms of warning and training about such exposure must be used. Contractor must also maintain Safety Data Sheets (“SDS”) at the Project site, as required by Laws, for materials or substances used or consumed in the performance of the Work. The SDS will be accessible and available to Contractor’s employees, Subcontractors, and City.

(A) **Contractor Obligations.** Contractor is solely responsible for the proper delivery, handling, use, storage, removal, and disposal of all materials brought to the Project site and/or used in the performance of the Work. Contractor must notify the Engineer if a specified product or material cannot be used safely.

(B) **Labeling.** Contractor must ensure proper labeling on any material brought onto the Project site so that any persons working with or in the vicinity of the material may be informed as to the identity of the material, any potential hazards, and requirements for proper handling, protections, and disposal.

**10.4 Hazardous Condition.** Contractor is solely responsible for determining whether a hazardous condition exists or is created during the course of the Work, involving a risk of bodily harm to any person or risk of damage to any property. If a hazardous condition exists or is created, Contractor must take all precautions necessary to address the condition and ensure that the Work progresses safely under the circumstances. Contractor must notify City, in writing, of the existence of any hazardous conditions, property or equipment at the Project site. Hazardous conditions may result from, but are not limited to, use of specified materials or equipment, the Work location, the Project site condition, the method of construction, or the way any Work must be performed.

**10.5 Emergencies.** In an emergency affecting the safety or protection of persons, Work, or property at or adjacent to any Worksite, Contractor must take reasonable and prompt actions to prevent damage, injury, or loss, without prior authorization from the City if, under the circumstances, there is inadequate time to seek prior authorization from the City.

## **Article 11 - Completion and Warranty Provisions**

### **11.1 Final Completion.**

(A) **Final Inspection and Punch List.** When the Work required by this Contract is fully performed, Contractor must provide written notification to City requesting final inspection. The Engineer will schedule the date and time for final inspection, which must include Contractor's primary representative for this Project and its superintendent. Based on that inspection, City will prepare a punch list of any items that are incomplete, missing, defective, incorrectly installed, or otherwise not compliant with the Contract Documents. The punch list to Contractor will specify the time by which all of the punch list items must be completed or corrected. The punch list may include City's estimated cost to complete each punch list item if Contractor fails to do so within the specified time. The City may also specify a date for a follow up inspection of the punch list items. If additional inspections are required after the follow up inspection, Contractor shall reimburse the City for its costs associated with subsequent inspections. The omission of any non-compliant item from a punch list will not relieve Contractor from fulfilling all requirements of the Contract Documents. Contractor's failure to complete any punch list item within the time specified in the punch list will not waive or abridge its warranty obligations for any such items that must be completed by the City or by a third party retained by the City due to Contractor's failure to timely complete any such outstanding item. When required by City, Contractor must also schedule and coordinate a final inspection with City Building Inspectors.

(B) **Requirements for Final Completion.** Final Completion will be achieved upon completion or correction of all punch list items, as verified by City's further inspection, and upon satisfaction of all other Contract requirements, including return of all personnel identification media, vehicle permits, and keys issued to Contractor for the Project; submission to City of any written requests from private property owners pursuant to Section 7.9(D)(4); any startup or commissioning required under the Contract Documents; and submission of all final submittals, including instructions and manuals as required under Section 7.10, and complete, final as-built drawings as required under Section 7.11 and other Project Record Documents, as defined in the General Requirements, all to City's satisfaction. See also Section 8.8, Release of Claims.

(C) **Acceptance.** The Project will be considered accepted upon City Council action during a public meeting to accept the Project, unless the Engineer is authorized to accept the Project, in which case the Project will be considered accepted upon the date of the Engineer's issuance of a written notice of acceptance. In order to avoid delay of Project close out, the City may elect, acting in its sole discretion, to accept the Project as complete subject to exceptions for punch list items that are not completed within the time specified in the punch list. See also Section 8.8, Release of Claims.

(D) **Final Payment and Release of Retention.** Final Payment and release of retention, less any sums withheld pursuant to the provisions of the Contract Documents, will not be made sooner than 35 days after recordation of the notice of completion. If Contractor fails to complete all of the punch list items within the specified time, City may withhold up to 150% of City's estimated cost to complete each of the remaining items from Final Payment and may use the withheld retention to pay for the costs to self-perform the outstanding items or to retain a third party to complete any such outstanding punch list item.

## 11.2 Warranty.

(A) **General.** Contractor warrants that all materials and equipment will be new unless otherwise specified, of good quality, in conformance with the Contract Documents, and free from defective workmanship and materials. Contractor further warrants that the Work will be free from material defects not intrinsic in the design or materials required in the Contract Documents. Contractor warrants that materials or items incorporated into the Work comply with the requirements and standards in the Contract Documents, including compliance with Laws, and that any Hazardous Materials encountered or used were handled as required by Laws. At City's request, Contractor must furnish satisfactory evidence of the quality and type of materials and equipment furnished. Contractor's warranty does not extend to damage caused by normal wear and tear or improper use or maintenance.

(B) **Warranty Period.** Contractor's warranty must guarantee its Work for a period of one year from the date of Project acceptance (the "Warranty Period"), except when a longer guarantee is provided by a supplier or manufacturer or is required by the Specifications or Special Conditions. Contractor must obtain from its Subcontractors, suppliers and manufacturers any special or extended warranties required by the Contract Documents.

(C) **Warranty Documents.** As a condition precedent to Final Completion, Contractor must supply City with all warranty and guarantee documents relevant to equipment and materials incorporated into the Work and guaranteed by their suppliers or manufacturers. Contractor must submit draft warranty forms to City for approval prior to execution. The warranty forms must be consistent with the requirements in the Contract Documents and will not detract from or confuse those requirements. City reserves the right to reject unsolicited and coincidental product warranties that detract from or confuse the requirements of the Contract Documents. The City may require that the warranties are countersigned by Subcontractors, manufacturers, and installers, as applicable. Contractor must assemble the warranty and guarantee documents in an 8½ inch by 11 inch three-ring binder with a durable plastic cover; separate and organize the documents in the same order as the Specifications; and include a table of contents. The binder must also include contact information, including names and phone numbers, for those individuals that the City may contact during the Warranty Period. Contractor must also provide City with a digital copy of all warranty and guarantee documents.

(D) **Subcontractors.** The warranty obligations in the Contract Documents apply to Work performed by Contractor and its Subcontractors, and Contractor agrees to be co-guarantor of such Work.

(E) **Contractor's Obligations.** Upon written notice from City to Contractor of any defect in the Work discovered during the Warranty Period, Contractor or its responsible Subcontractor must promptly correct the defective Work at its own cost. Contractor's obligation to correct defects discovered during the Warranty Period will continue past the expiration of the Warranty Period as to any defects in Work for which Contractor was notified prior to expiration of the Warranty Period. Work performed during the Warranty Period ("Warranty Work") will be subject to the warranty provisions in this Section 11.2 for a one-year period that begins upon completion of such Warranty Work to City's satisfaction or to the expiration of any extended warranty period (if applicable), whichever is later.

(F) **City's Remedies.** If Contractor or its responsible Subcontractor fails to correct defective Work within ten days following notice by City, or sooner if required by the circumstances, City may correct the defects to conform with the Contract Documents at Contractor's sole expense. Contractor must reimburse City for its costs in accordance with subsection (H), below.

(G) **Emergency Repairs.** In cases of emergency where any delay in correcting defective Work could cause harm, loss or damage, City may immediately correct the defects to conform with the Contract Documents at Contractor's sole expense. Contractor or its surety must reimburse City for its costs in accordance with subsection (H), below.

(H) **Reimbursement.** Contractor must reimburse City for its costs to repair under subsections (F) or (G), above, within 30 days following City's submission of a demand for payment pursuant to this provision. If City is required to initiate legal action to compel Contractor's compliance with this provision, and City is the prevailing party in such action, Contractor and its surety are solely responsible for all of City's attorney's fees and legal costs expended to enforce Contractor's warranty obligations herein, in addition to any and all costs City incurs to correct the defective Work.

**11.3 Use Prior to Final Completion.** City reserves the right to occupy or make use of the Project, or any portions of the Project, prior to Final Completion if City has determined that the Project or portion of it is in a condition suitable for the proposed occupation or use, and that it is in its best interest to occupy or make use of the Project, or any portions of it, prior to Final Completion.

(A) **Non-Waiver.** Occupation or use of the Project, in whole or in part, prior to Final Completion will not operate as acceptance of the Work or any portion of it, nor will it operate as a waiver of any of City's rights or Contractor's duties pursuant to these Contract Documents, and will not affect nor bear on the determination of the time of substantial completion with respect to any statute of repose pertaining to the time for filing an action for construction defect.

(B) **City's Responsibility.** City will be responsible for the cost of maintenance and repairs due to normal wear and tear with respect to those portions of the Project that are being occupied or used before Final Completion. The Contract Price or the Contract Time may be adjusted pursuant to the applicable provisions of these Contract Documents if, and only to the extent that, any occupation or use under this Section actually adds to Contractor's cost or time to complete the Work within the Contract Time.

**11.4 Substantial Completion.** For purposes of determining "substantial completion" with respect to any statute of repose pertaining to the time for filing an action for construction

defect, "substantial completion" is deemed to mean the last date that Contractor or any Subcontractor performs Work on the Project prior to City acceptance of the Project, except for warranty work performed under this Article.

## Article 12 - Dispute Resolution

**12.1 Claims.** This Article applies to and provides the exclusive procedures for any Claim arising from or related to the Contract or performance of the Work.

(A) **Limitations.** A Claim may only include the portion of a previously rejected demand that remains in dispute between Contractor and City. With the exception of any dispute regarding the amount of money actually paid to Contractor as Final Payment, Contractor is not entitled to submit a Claim demanding a change in the Contract Time or the Contract Price, which has not previously been submitted to City in full compliance with Article 5 and Article 6, and subsequently rejected in whole or in part by City.

(B) **Scope of Article.** This Article provides the exclusive procedures for submission and resolution of Claims of any amount and applies in addition to the provisions of Public Contract Code § 9204 and § 20104 et seq., which are incorporated by reference herein.

(C) **No Work Delay.** Notwithstanding the submission of a Claim or any other dispute between the parties related to the Project or the Contract Documents, Contractor must perform the Work and may not delay or cease Work pending resolution of a Claim or other dispute, but must continue to diligently prosecute the performance and timely completion of the Work, including the Work pertaining to the Claim or other dispute.

(D) **Informal Resolution.** Contractor shall make a good faith effort to informally resolve a dispute before initiating a Claim, preferably by face-to-face meeting between authorized representatives of Contractor and City.

(E) **Contractor Costs.** Contractor is responsible for its costs to prepare and submit a Claim.

**12.2 Claims Submission.** The following requirements apply to any Claim subject to this Article:

(A) **Substantiation.** The Claim must be submitted to City in writing by registered or certified mail with return receipt requested and clearly identified as a "Claim" submitted pursuant to this Article 12. The Claim must include all of the documents necessary to substantiate the Claim including the Change Order request that was rejected in whole or in part, and a copy of City's written rejection that is in dispute. The Claim must clearly identify and describe the dispute, including relevant references to applicable portions of the Contract Documents, and a chronology of relevant events. Any Claim for additional payment must include a complete, itemized breakdown of all known or estimated labor, materials, taxes, insurance, and subcontract or other costs, consistent with the limitations on allowable costs set forth in Section 6.4. Substantiating documentation such as payroll records, receipts, invoices, or the like, must be submitted in support of each component of claimed cost. Any Claim for an extension of time or delay costs must be substantiated with a schedule analysis and narrative depicting and explaining claimed time impacts.

(B) **Claim Format and Content.** A Claim must be submitted in the following format:

(1) Provide a cover letter, specifically identifying the submission as a "Claim" submitted under this Article 12 and specifying the requested remedy (e.g., amount of proposed change to Contract Price and/or change to Contract Time).

(2) Provide a summary of each Claim, including underlying facts and the basis for entitlement, and identify each specific demand at issue, including the specific Change Order request (by number and submittal date), and the date of City's rejection of that demand, in whole or in part.

(3) Provide a detailed explanation of each issue in dispute. For multiple issues included within a single Claim or for multiple Claims submitted concurrently, separately number and identify each individual issue or Claim, and include the following for each separate issue or Claim:

- a. A succinct statement of the matter in dispute, including Contractor's position and the basis for that position;
- b. Identify and attach all documents that substantiate the Claim, including relevant provisions of the Contract Documents, RFIs, calculations, and schedule analysis (see subsection (A), Substantiation, above);
- c. A chronology of relevant events; and
- d. Analysis and basis for claimed changes to Contract Price, Contract Time, or any other remedy requested.

(4) Provide a summary of issues and corresponding claimed damages. If, by the time of the Claim submission deadline (below), the precise amount of the requested change in the Contract Price or Contract Time is not yet known, Contractor must provide a good faith estimate, including the basis for that estimate, and must identify the date by which it is anticipated that the Claim will be updated to provide final amounts.

(5) Include the following certification, executed by Contractor's authorized representative:

"The undersigned Contractor certifies under penalty of perjury that its statements and representations in this Claim submittal are true and correct. Contractor warrants that this Claim submittal is comprehensive and complete as to the matters in dispute, and agrees that any costs, expenses, or delay not included herein are deemed waived."

(C) ***Submission Deadlines.***

(1) A Claim disputing rejection of a request for a change in the Contract Time or Contract Price must be submitted within 21 days following the date that City notified Contractor in writing that a request for a change in the Contract Time or Contract Price, duly submitted in compliance with Article 5 and Article 6, has been rejected in whole or in part. A Claim disputing the terms of a unilateral Change Order must be submitted within 21 days following the date of issuance of the unilateral Change Order. These Claim deadlines apply even if Contractor cannot yet quantify the total amount of any requested change in the Contract Time or Contract Price. If the Contractor cannot quantify those amounts, it must submit an estimate of the amounts claimed pending final determination of the requested remedy by Contractor.

(2) With the exception of any dispute regarding the amount of Final Payment, any Claim must be filed on or before the date of Final Payment or will be deemed waived.

(3) A Claim disputing the amount of Final Payment must be submitted within 21 days of the effective date of Final Payment, under Section 8.7, Final Payment.

(4) Strict compliance with these Claim submission deadlines is necessary to ensure that any dispute may be mitigated as soon as possible, and to facilitate cost-efficient administration of the Project. ***Any Claim that is not submitted within the specified deadlines will be deemed waived by Contractor.***

**12.3 City's Response.** City will respond within 45 days of receipt of the Claim with a written statement identifying which portion(s) of the Claim are disputed, unless the 45-day period is extended by mutual agreement of City and Contractor or as otherwise allowed under Public Contract Code § 9204. However, if City determines that the Claim is not adequately substantiated pursuant to Section 12.2(A), Substantiation, City may first request in writing, within 30 days of receipt of the Claim, any additional documentation supporting the Claim or relating to defenses to the Claim that City may have against the Claim.

(A) ***Additional Information.*** If additional information is thereafter required, it may be requested and provided upon mutual agreement of City and Contractor. If Contractor's Claim is based on estimated amounts, Contractor has a continuing duty to update its Claim as soon as possible with information on actual amounts in order to facilitate prompt and fair resolution of the Claim.

(B) ***Non-Waiver.*** Any failure by City to respond within the times specified above will not be construed as acceptance of the Claim, in whole or in part, or as a waiver of any provision of these Contract Documents.

**12.4 Meet and Confer.** If Contractor disputes City's written response, or City fails to respond within the specified time, within 15 days of receipt of City's response or within 15 days of City's failure to respond within the applicable 45-day time period under Section 12.3, respectively, Contractor may notify City of the dispute in writing sent by registered or certified mail, return receipt requested, and demand an informal conference to meet and confer for settlement of the issues in dispute. If Contractor fails to notify City of the dispute and demand an informal conference to meet and confer in writing within the specified time, Contractor's Claim will be deemed waived.

(A) ***Schedule Meet and Confer.*** Upon receipt of the demand to meet and confer, City will schedule the meet and confer conference to be held within 30 days, or later if needed to ensure the mutual availability of each of the individuals that each party requires to represent its interests at the meet and confer conference.

(B) ***Location for Meet and Confer.*** The meet and confer conference will be scheduled at a location at or near City's principal office.

(C) ***Written Statement After Meet and Confer.*** Within ten working days after the meet and confer has concluded, City will issue a written statement identifying which portion(s) of the Claim remain in dispute, if any.

(D) ***Submission to Mediation.*** If the Claim or any portion remains in dispute following the meet and confer conference, within ten working days after the City issues the written statement identifying any portion(s) of the Claim remaining in dispute, the

Contractor may identify in writing disputed portion(s) of the Claim, which will be submitted for mediation, as set forth below.

**12.5 Mediation and Government Code Claims.**

(A) **Mediation.** Within ten working days after the City issues the written statement identifying any portion(s) of the Claim remaining in dispute following the meet and confer, City and Contractor shall mutually agree to a mediator, as provided under Public Contract Code § 9204. Mediation will be scheduled to ensure the mutual availability of the selected mediator and all of the individuals that each party requires to represent its interests. If there are multiple Claims in dispute, the parties may agree to schedule the mediation to address all outstanding Claims at the same time. The parties will share the costs of the mediator and mediation fees equally, but each party is otherwise solely and separately responsible for its own costs to prepare for and participate in the mediation, including costs for its legal counsel or any other consultants.

(B) **Government Code Claims.**

(1) Timely presentation of a Government Code Claim is a condition precedent to filing any legal action based on or arising from the Contract. Compliance with the Claim submission requirements in this Article 12 is a condition precedent to filing a Government Code Claim.

(2) The time for filing a Government Code Claim will be tolled from the time Contractor submits its written Claim pursuant to Section 12.2, above, until the time that Claim is denied in whole or in part at the conclusion of the meet and confer process, including any period of time used by the meet and confer process. However, if the Claim is submitted to mediation, the time for filing a Government Code Claim will be tolled until conclusion of the mediation, including any continuations, if the Claim is not fully resolved by mutual agreement of the parties during the mediation or any continuation of the mediation.

**12.6 Tort Claims.** This Article does not apply to tort claims and nothing in this Article is intended nor will be construed to change the time periods for filing tort-based Government Code Claims.

**12.7 Arbitration.** It is expressly agreed, under Code of Civil Procedure § 1296, that in any arbitration to resolve a dispute relating to this Contract, the arbitrator's award must be supported by law and substantial evidence.

**12.8 Burden of Proof and Limitations.** Contractor bears the burden of proving entitlement to and the amount of any claimed damages. Contractor is not entitled to damages calculated on a total cost basis, but must prove actual damages. Contractor is not entitled to speculative, special, or consequential damages, including home office overhead or any form of overhead not directly incurred at the Project site or any other Worksite; lost profits; loss of productivity; lost opportunity to work on other projects; diminished bonding capacity; increased cost of financing for the Project; extended capital costs; non-availability of labor, material or equipment due to delays; or any other indirect loss arising from the Contract. The Eichleay Formula or similar formula will not be used for any recovery under the Contract. The City will not be directly liable to any Subcontractor, lower tier subcontractor, supplier, or any other person or organization, or to any surety for, or employee or agent of, any of them.

**12.9 Legal Proceedings.** In any legal proceeding that involves enforcement of any requirements of the Contract Documents, the finder of fact will receive detailed instructions on the meaning and operation of the Contract Documents, including

conditions, limitations of liability, remedies, claim procedures, and other provisions bearing on the defenses and theories of liability. Detailed findings of fact will be requested to verify enforcement of the Contract Documents. All of the City's remedies under the Contract Documents will be construed as cumulative, and not exclusive, and the City reserves all rights to all remedies available under law or equity as to any dispute arising from or relating to the Contract Documents or performance of the Work.

- 12.10 Other Disputes.** The procedures in this Article 12 will apply to any and all disputes or legal actions, in addition to Claims, arising from or related to this Contract, including disputes regarding suspension or early termination of the Contract, unless and only to the extent that compliance with a procedural requirement is expressly and specifically waived by City. Nothing in this Article is intended to delay suspension or termination under Article 13.

### **Article 13 - Suspension and Termination**

- 13.1 Suspension for Cause.** In addition to all other remedies available to City, if Contractor fails to perform or correct Work in accordance with the Contract Documents, including non-compliance with applicable environmental or health and safety Laws, City may immediately order the Work, or any portion of it, suspended until the circumstances giving rise to the suspension have been eliminated to City's satisfaction.

(A) **Notice of Suspension.** Upon receipt of City's written notice to suspend the Work, in whole or in part, except as otherwise specified in the notice of suspension, Contractor and its Subcontractors must promptly stop Work as specified in the notice of suspension; comply with directions for cleaning and securing the Worksite; and protect the completed and in-progress Work and materials. Contractor is solely responsible for any damages or loss resulting from its failure to adequately secure and protect the Project.

(B) **Resumption of Work.** Upon receipt of the City's written notice to resume the suspended Work, in whole or in part, except as otherwise specified in the notice to resume, Contractor and its Subcontractors must promptly re-mobilize and resume the Work as specified; and within ten days from the date of the notice to resume, Contractor must submit a recovery schedule, prepared in accordance with the Contract Documents, showing how Contractor will complete the Work within the Contract Time.

(C) **Failure to Comply.** Contractor will not be entitled to an increase in the Contract Time or Contract Price for a suspension occasioned by Contractor's failure to comply with the Contract Documents.

(D) **No Duty to Suspend.** City's right to suspend the Work will not give rise to a duty to suspend the Work, and City's failure to suspend the Work will not constitute a defense to Contractor's failure to comply with the requirements of the Contract Documents.

- 13.2 Suspension for Convenience.** City reserves the right to suspend, delay, or interrupt the performance of the Work in whole or in part, for a period of time determined to be appropriate for City's convenience. Upon notice by City pursuant to this provision, Contractor must immediately suspend, delay, or interrupt the Work and secure the Project site as directed by City except for taking measures to protect completed or in-progress Work as directed in the suspension notice, and subject to the provisions of Section 13.1(A) and (B), above. If Contractor submits a timely request for a Change Order in compliance with Articles 5 and 6, the Contract Price and the Contract Time will be equitably adjusted by Change Order pursuant to the terms of Articles 5 and 6 to reflect the cost and delay impact occasioned by such suspension for convenience, except to the extent that any such impacts were caused by Contractor's failure to comply with the

Contract Documents or the terms of the suspension notice or notice to resume. However, the Contract Time will only be extended if the suspension causes or will cause unavoidable delay in Final Completion. If Contractor disputes the terms of a Change Order issued for such equitable adjustment due to suspension for convenience, its sole recourse is to comply with the Claim procedures in Article 12.

**13.3 Termination for Default.** City may declare that Contractor is in default of the Contract for a material breach of or inability to fully, promptly, or satisfactorily perform its obligations under the Contract.

(A) **Default.** Events giving rise to a declaration of default include:

- (1) Contractor's refusal or failure to supply sufficient skilled workers, proper materials, or equipment to perform the Work within the Contract Time;
- (2) Contractor's refusal or failure to make prompt payment to its employees, Subcontractors, or suppliers or to correct defective Work or damage;
- (3) Contractor's failure to comply with Laws, or orders of any public agency with jurisdiction over the Project;
- (4) evidence of Contractor's bankruptcy, insolvency, or lack of financial capacity to complete the Work as required within the Contract Time;
- (5) suspension, revocation, or expiration and nonrenewal of Contractor's license or DIR registration;
- (6) dissolution, liquidation, reorganization, or other major change in Contractor's organization, ownership, structure, or existence as a business entity;
- (7) unauthorized assignment of Contractor's rights or duties under the Contract;
- (8) any material breach of the Contract requirements; or
- (9) the occurrence of any of the following, when committed by Contractor's owner or co-owners (if Contractor is a sole proprietorship), a general partner (if Contractor is a partnership), a principal (if Contractor is a joint venture), a person who owns more than 10% of the outstanding stock of a corporation (if Contractor is a corporation), or any officer, director, shareholder, partner, employee, or agent of Contractor:
  - (a) a conviction of operating a business in violation of any Laws;
  - (b) a conviction of a crime punishable as a felony involving dishonesty;
  - (c) a conviction of an offense involving dishonesty or conviction of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public contract or subcontract;
  - (d) a conviction of any offense which indicates a lack of business integrity or business honesty which seriously and directly affects the present responsibility of Contractor or a Subcontractor; or
  - (e) the making of any false statement(s) or representation(s) with respect to the Contract.

For purposes of this subsection (A)(9), a “conviction” means a judgment or conviction of a criminal offense by any court of competent jurisdiction, whether entered upon a verdict or a plea, and includes a conviction entered upon a plea of nolo contendere within the past five years. The term “dishonesty” includes, without limitation, embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, failure to pay tax obligations, receiving stolen property, collusion or conspiracy.

(B) **Notice of Default and Opportunity to Cure.** Upon City’s declaration that Contractor is in default due to a material breach of the Contract Documents, if City determines that the default is curable, City will afford Contractor the opportunity to cure the default within ten days of City’s notice of default, or within a period of time reasonably necessary for such cure, including a shorter period of time if applicable. The City may also require that the Contractor submit a realistic and achievable written plan describing how it will cure the breach, including, evidence of necessary resources, Subcontractor commitments, and schedules and recovery schedules, as applicable, for review and acceptance by City. Contractor must then diligently cure the breach according to the written plan.

(C) **Termination.** If Contractor fails to cure the default or fails to expediently take steps reasonably calculated to cure the default within the time period specified in the notice of default, including submission of a written plan (if required by the City), City may issue written notice to Contractor and its performance bond surety of City’s termination of the Contract for default.

(D) **Waiver.** Time being of the essence in the performance of the Work, if Contractor’s surety fails to arrange for completion of the Work in accordance with the Performance Bond within seven calendar days from the date of the notice of termination pursuant to paragraph (C), City may immediately make arrangements for the completion of the Work through use of its own forces, by hiring a replacement contractor, or by any other means that City determines advisable under the circumstances. Contractor and its surety will be jointly and severally liable for any additional cost incurred by City to complete the Work following termination, where “additional cost” means all cost in excess of the cost City would have incurred if Contractor had timely completed Work without the default and termination. In addition, City will have the right to immediate possession and use of any materials, supplies, and equipment procured for the Project and located at the Project site or any Worksite on City property for the purposes of completing the remaining Work.

(E) **Compensation.** Within 30 days of receipt of updated as-builts, all warranties, manuals, instructions, or other required documents for Work installed to date, and delivery to City of all equipment and materials for the Project for which Contractor has already been compensated, Contractor will be compensated for the Work satisfactorily performed in compliance with the Contract Documents up to the effective date of the termination pursuant to the terms of Article 8, Payment, subject to City’s rights to withhold or deduct sums from payment otherwise due pursuant to Section 8.3, and excluding any costs Contractor incurs as a result of the termination, including any cancellation or restocking charges or fees due to third parties. If Contractor disputes the amount of compensation determined by City, its sole recourse is to comply with the Claim Procedures in Article 12, by submitting a Claim no later than 30 days following notice from City of the total compensation to be paid by City.

(F) **Wrongful Termination.** If Contractor disputes the termination, its sole recourse is to comply with the Claim procedures in Article 12. If a court of competent jurisdiction or an arbitrator later determines that the termination for default was wrongful, the termination will be deemed to be a termination for convenience, and Contractor’s

damages will be strictly limited to the compensation provided for termination for convenience under Section 13.4, below. Contractor waives any claim for any other damages for wrongful termination including special or consequential damages, lost opportunity costs, or lost profits, and any award of damages is subject to Section 12.8, Burden of Proof and Limitations.

**13.4 Termination for Convenience.** City reserves the right, acting in its sole discretion, to terminate all or part of the Contract for convenience upon written notice to Contractor.

(A) **Compensation to Contractor.** In the event of City's termination for convenience, Contractor waives any claim for damages, including for loss of anticipated profits from the Project. The following will constitute full and fair compensation to Contractor, and Contractor will not be entitled to any additional claim or compensation:

(1) **Completed Work.** The value of its Work satisfactorily performed as of the date notice of termination is received, based on Contractor's schedule of values and unpaid costs for items delivered to the Project site that were fabricated for incorporation in the Work;

(2) **Demobilization.** Demobilization costs specified in the schedule of values, or if demobilization costs were not provided in a schedule of values pursuant to Section 8.1, then based on actual, reasonable, and fully documented demobilization costs; and

(3) **Termination Costs.** Reasonable, actual, and documented costs to comply with the direction in the notice of termination for convenience, plus 5% markup thereof.

(B) **Disputes.** If Contractor disputes the amount of compensation determined by City pursuant to paragraph (A), above, its sole recourse is to comply with the Claim procedures in Article 12, by submitting a Claim no later than 30 days following notice from City of total compensation to be paid by City.

**13.5 Actions Upon Termination for Default or Convenience.** The following provisions apply to any termination under this Article, whether for default or convenience, and whether in whole or in part.

(A) **General.** Upon termination, City may immediately enter upon and take possession of the Project and the Work and all tools, equipment, appliances, materials, and supplies procured or fabricated for the Project. Contractor shall transfer title to and deliver all completed Work and all Work in progress to City.

(B) **Submittals.** Unless otherwise specified in the notice of termination, Contractor must immediately submit to City all designs, drawings, as-built drawings, Project records, contracts with vendors and Subcontractors, cost data, manufacturer warranties, manuals, and other such submittals or Work-related documents required under the terms of the Contract Documents, including incomplete documents or drafts.

(C) **Close Out Requirements.** Except as otherwise specified in the notice of termination, Contractor must comply with all of the following:

(1) Immediately stop the Work, except for any Work that must be completed pursuant to the notice of termination and comply with City's instructions for cessation of labor and securing the Project and any other Worksite(s).

(2) Comply with City's instructions to protect the completed Work and materials, including property in which City has or may acquire interest, using best efforts to minimize further costs.

(3) Contractor must not place further orders or enter into new subcontracts for materials, equipment, services or facilities, except as may be necessary to complete any portion of the Work that is not terminated.

(4) As directed in the notice, Contractor must assign to City or cancel existing subcontracts that relate to performance of the terminated Work, subject to any prior rights, if any, of the surety for Contractor's performance bond, and settle all outstanding liabilities and claims, subject to City's approval.

(5) As directed in the notice, Contractor must use its best efforts to sell any materials, supplies, or equipment intended solely for the terminated Work in a manner and at market rate prices acceptable to City.

(D) **Payment Upon Termination.** Upon completion of all termination obligations, as specified herein and in the notice of termination, Contractor shall submit its request for Final Payment, including any amounts due following termination pursuant to this Article 13. Payment will be made in accordance with the provisions of Article 8, based on the portion of the Work satisfactorily completed, including the close out requirements, and consistent with the previously submitted schedule of values and unit pricing, including demobilization costs. Adjustments to Final Payment may include deductions for the cost of materials, supplies, or equipment retained by Contractor; payments received for sale of any such materials, supplies, or equipment, less re-stocking fees charged; and as otherwise specified in Section 8.3, Adjustment of Payment Application.

(E) **Continuing Obligations.** Regardless of any Contract termination, Contractor's obligations for portions of the Work already performed will continue and the provisions of the Contract Documents will remain in effect as to any claim, indemnity obligation, warranties, guarantees, submittals of as-built drawings, instructions, or manuals, record maintenance, or other such rights and obligations arising prior to the termination date.

## Article 14 – Digital Data Protocol

- 14.1 E-Builder.** With the exception of a Claim submitted pursuant to Article 12, Contractor must use e-Builder for submission of all submittals and other data and documents to City. E-builder is a web-based construction management application hosted by e-Builder, Inc. E-builder will be the primary means of Project information submission and management unless otherwise approved by City in writing.
- 14.2 Access to E-Builder.** Contractor must use the City-provided license(s) to access e-Builder. Contractor's designated users will be required to set up their computers/systems to use e-Builder in accordance with the e-Builder User Training Guide. City reserves the right to limit the licenses issued to Contractor at any time.
- 14.3 E-Builder Training.** Contractor must obtain all necessary training to use the e-Builder software. Contractor must participate in a classroom training or a web-based seminar, as determined by City. A training session is approximately 1-2 hours.
- 14.4 Connectivity to E-Builder.** E-builder is a web-based environment and therefore it is subject to the inherent speed and connectivity limitations of the Internet. Contractor is responsible for its own connectivity to the Internet. E-Builder's response time is

dependent on the Contractor's equipment, including processor speed, Internet access speed, and current traffic on the Internet. City will not be liable for any delays associated with Contractor's use of e-Builder, including, but not limited to, slow response time, down time periods, connectivity problems, or loss of information. Contractor must ensure connectivity to the e-Builder system whether at a home office or the Project site. Under no circumstances will use of e-Builder be grounds for a time extension or cost adjustment to the Contract.

- 14.5 Acceptance of Information in E-Builder.** Contractor is responsible for managing, tracking, and documenting the Work as provided in the Contract Documents. The City's acceptance of documentation in e-Builder via automated system notifications or audit logs extends only to the face value of the submitted documentation and does not constitute validation of the Contractor's submitted information.
- 14.6 Format of Project Documents.** City reserves the right to require submission of Project documents in hard copy format, or both electronic and hard copy format.
- 14.7 Project Communication.** While regular email may still be used for communication when requested by City, e-Builder should be used as much as possible in connection with all document and information management required in the performance of the Project. Contractor shall be responsible for scanning or otherwise converting to electronic format all Project submittals, correspondence, drawings, sketches, and other documents, and uploading them to the e-Builder website. Contractor shall be responsible for the validity of its information placed in e-Builder. Contractor shall use the existing forms and processes in e-Builder to the maximum extent possible. If a required form does not exist in e-Builder, Contractor may include a form of its own or one provided by the City (if available) as an attachment to a submittal or process.
- 14.8 Types of Documents.** Unless otherwise specified by City, documents and information to be submitted electronically by Contractor using e-Builder include, but are not limited to, correspondence; meeting minutes; submittals; Shop Drawings; RFIs; Change Order requests; payment applications; reports, including daily job reports, quality control reports, commissioning reports; quality control documentation; operation and maintenance manuals; close out documentation; testing results; and any other documentation or information required to be submitted to the City under the Contract Documents.
- 14.9 Archive Copies.** Contractor shall keep an archive copy of all digital data created, submitted, or received by Contractor on E-Builder and data submitted or received via e-mail pertaining to the Project. (See also General Conditions, Section 2.2(J).)
- 14.10 Alternate Project Management Tools.** If the City replaces e-Builder with a different project management tool, Contractor will be required to use the new project management tool selected by the City.

## Article 15 - Miscellaneous Provisions

- 15.1 Assignment of Unfair Business Practice Claims.** Under Public Contract Code § 7103.5, Contractor and its Subcontractors agree to assign to City all rights, title, and interest in and to all causes of action it may have under section 4 of the Clayton Act (15 U.S.C. § 15) or under the Cartwright Act (Chapter 2 (commencing with § 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or any subcontract. This assignment will be effective at the time City tenders Final Payment to Contractor, without further acknowledgement by the parties.

- 15.2 Provisions Deemed Inserted.** Every provision of law required to be inserted in the Contract Documents is deemed to be inserted, and the Contract Documents will be construed and enforced as though such provision has been included. If it is discovered that through mistake or otherwise that any required provision was not inserted, or not correctly inserted, the Contract Documents will be deemed amended accordingly.
- 15.3 Waiver.** City's waiver of a breach, failure of any condition, or any right or remedy contained in or granted by the provisions of the Contract Documents will not be effective unless it is in writing and signed by City. City's waiver of any breach, failure, right, or remedy will not be deemed a waiver of any other breach, failure, right, or remedy, whether or not similar, nor will any waiver constitute a continuing waiver unless specified in writing by City.
- 15.4 Titles, Headings, and Groupings.** The titles and headings used and the groupings of provisions in the Contract Documents are for convenience only and may not be used in the construction or interpretation of the Contract Documents or relied upon for any other purpose.
- 15.5 Statutory and Regulatory References.** With respect to any amendments to any statutes or regulations referenced in these Contract Documents, the reference is deemed to be the version in effect on the date that bids were due.
- 15.6 Survival.** The provisions that survive termination or expiration of this Contract include Contract Section 11, Notice, and subsections 12.1, 12.2, 12.3, 12.4, 12.5, and 12.6, of Section 12, General Provisions; and the following provisions in these General Conditions: Section 2.2(J), Contractor's Records, Section 2.3(C), Termination, Section 3.7, Ownership, Section 4.2, Responsibility and Indemnity, Article 12, Dispute Resolution, and Section 11.2, Warranty.

END OF GENERAL CONDITIONS

**General Requirements**

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01 35 00	Cultural Resources
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01 60 00	Product Requirements
01 78 00	Project Record Documents

## DOCUMENT 01 11 00

### SUMMARY OF WORK

#### 1. GENERAL

- A. The descriptions of bid items in this Document are not intended as exclusive descriptions of the Work. Each bidder will determine, and include in its unit pricing, all things necessary and incidental for the timely performance and completion of the Project, including, but not limited to, all necessary labor, materials, supplies, tools, equipment, transportation, facilities, permits, and utilities, unless otherwise specified in the Contract Documents.

#### 2. DESCRIPTIONS

A. **Base Bid.**

1. Bonds and Insurance. Bid Item No.1 covers the Contractor's cost for the bonds and insurance required by the Contract Documents. See Article 4 of the General Conditions and Exhibit C-05 to the Special Conditions for bond and insurance requirements.

2. Safety Plan and Programs. Bid Item No. 2 covers all costs of preparing, providing, and implementing a safety program and complying with all requirements set forth in the Contract Documents and Laws.

3. Mobilization and Demobilization. Bid Item No. 3 covers all materials, labor, supervision and contractor management of all prime and subcontracted construction forces associated with the mobilization and demobilization of personnel, equipment, and other associated project site appurtenances. Such appurtenances should include but are not limited to such construction-related temporary facilities as; construction water, sanitary facilities, job site security, debris control, fire protection, project signage, field office trailers, and permit acquisition. This bid item shall also include the cost of arranging for and acquiring a laydown/staging area as needed for the construction of the project

4. Clearing/Grubbing. Contractor shall remove and dispose of landscaping and shrubs, remove vegetation, bushes, trees, stumps, roots of down trees, brush, grass, weeds, and other objectionable material that conflict with the installation of the transmission and distribution facilities of the project.

5. Line-Clearance Vegetation Trimming. This bid item includes the trimming and/or topping of trees and the trimming of other existing vegetation to provide adequate electrical clearance (10' minimum) to the newly installed transmission line. Contractor shall coordinate with the City Arborist to trim trees back to five-year growth.

6. Install/Re-Establish Restorative Landscaping & Hardscape. Contractor to replace & maintain until self-supporting/propagating all landscaping and/or ancillary landscaping and hardscape support features

(e.g. sprinklers, drip systems, vegetation training, support features, walking paths, curbs, pavement, existing concrete pads, etc.) disrupted, removed and/or damaged as a result of the work associated with this contract. All vegetation, landscaping, hardscape, curb, pavement, existing concrete pads, etc. damaged and/or removed shall be replaced by like type, size and quantity as that material which was damaged/removed at the contractor's sole expense.

7. Installation and Maintenance of Best Management Practices (BMP's). This item is to include all costs (including materials) associated with the installation and maintenance of the "Best Management Practices" (BMP's) plan as provided in the contract documents and in accordance with all applicable local, state, and federal agency standards and guidelines to prevent sediment discharge from the Project. BMPs shall include, but not be limited to, inlet protection, filter sock, street sweeping or other means necessary to prevent sediment discharge.

8. Install and Maintain Traffic Control. This item is to cover all materials, labor, supervision, equipment, and subcontractor cost to; install, erect and maintain the traffic control features in accordance with the approved traffic control plan, and the State of California, Department of Transportation Standard Specifications and Plans and Manual on Uniform Traffic Control Devices as required for the duration of the project. If any provided traffic control plan is inadequate for the Contractor's construction operations, then the Contractor will be responsible for obtaining additional traffic control plans and permitting as needed.

9-10. Excavate, Install & Backfill Structure Foundations #P0553 and #P0554. Provide all materials, labor, equipment and supervision to; transport the owner-provided anchor bolt cages from SVP's storage yard to the project site; excavate the foundations; transport the excavated soil to an approved dumping site; procure and install steel reinforcement cages; form, place concrete and strip formwork; place and grade backfill for each concrete pier foundation at the location and dimensions/elevations noted on the contract documents.

11-12. Frame & Set Pole and Install Materials for Custom Steel Structures #P0553 and #P0554. Provide all labor, equipment, supervision, and incidentals necessary to; transport owner-provided steel pole from SVP's storage yard to the project site; assemble the tubular steel pole structure, transport owner-provided attachment materials from the City's storage facility(ies) to the project site; frame the structure with the materials as shown in the contract documents and attach the structure onto the corresponding foundation. This bid item includes installing the ground rod at each structure.

13. Unclip Existing 60kV Conductors at Structures #KCC 19, #KCC 20, #KCC 21, #KCC 22, and #KCC 23 and Allow Span Tensions to Balance. Provide all labor, equipment, supervision, and incidentals necessary to unclip the existing 954 AAC "Magnolia" Conductor and allow the conductor tensions to balance across each structure.

14-15. String, Sag, and Terminate New 715 ACCR "Stilt" Conductor. The work under this item shall consist of furnishing all labor, equipment, supervision and incidentals to install the owner-provided 715 kcmil ACCR bundled conductor and all other materials required for the installation of

said conductor. This work shall consist of but is not limited to transporting the conductor from the City's storage facility to the project site, setting up the pulling sites, setting up the stringing equipment on the structures, pulling the line through, splicing at the appropriate locations (if required), sagging, and clipping in. The Contractor shall be responsible for providing a 100-ton press, dies and any other miscellaneous material required for this operation as well as the above mentioned operations.

16-18. Transfer, Attach, and Sag Existing 954 AAC "Magnolia" Conductors between Existing Wood Pole #KCC 19, New Structure #P0553, New Structure #P0554, and Existing Wood Pole #KCC 21. Provide all labor, equipment, supervision, and incidentals necessary to; transfer the existing 954 AAC "Magnolia" conductor from existing wood pole #KCC 20 to the deadend conductor attachment points located on new structure #P0553; attach the existing 954 AAC "Magnolia" to the deadend conductor attachments points located on new structure #P0554 and re-sag the conductors as necessary to match the existing tensions. The Contractor will likely need to lengthen the conductors crossing over the creek by splicing in additional conductor.

This bid item shall also include monitoring existing Structures #KCC 19 and #KCC 21 during the transfer of the 954 AAC "Magnolia" conductors, to ensure the wood pole does not experience excessive deflections. After the conductors are transferred, Contractor to check the tension in the guy wires, and re-tension them if needed.

19. Transfer Existing Riser Conduit from Structure #KCC 20 to New Structure #P0553. Provide all labor, equipment, supervision, and incidentals necessary to; expose the existing underground conduit for the existing riser and install new materials as necessary to transfer the conduit to the new structure #P0553 as specified.

20. Remove and Dispose of Existing Transmission Structure #KCC 20. Provide all labor, equipment, supervision, and incidentals necessary to; remove existing wood pole; and transport the pole to an approved SVP dumping or storage site. Contractor shall also fill the hole left by the removed pole with soil.

21. Reclip Conductors on Existing Structures #KCC 19, #KCC 21, #KCC 22, and #KCC 23. Provide all labor, equipment, supervision, and incidentals necessary to; reclip the conductors at each existing structure, ensuring that tensions are balances across structures and match prior existing tensions.

22. Provide Land Surveying Services. SVP will employ a subcontractor to initially stake all structure centers with their corresponding offset stakes and elevations. The Contractor will be responsible to provide all labor, equipment, supervision, and incidentals to; establish the top of foundation using the prescribed elevations; perform the survey work to tension the conductors to the proper sag values (if the Contractor uses the survey method for sagging the conductors); re-stake any structures due to any cause (such as relocating a structure or replacing damaged or missing stakes); and complete any other survey related tasks that may be needed to construct the project.

23. All Other Work (work not otherwise separately provided for in the above noted items; if cumulatively exceeds \$5,000, then itemization is required). Contractor to identify, list and establish value of all work necessary for the complete installation of the project as specified and illustrated within the contract documents and drawings. If all expense is captured in items 1 – 23, this line item is to have a \$0.00 value.

C. **Allowance(s).** (Line Items 24-27) Refer to Special Conditions, Section 3.

END OF DOCUMENT

**DOCUMENT 01 33 00**

**SUBMITTAL PROCEDURES**

**1. SUMMARY**

- A. This Document 01 33 00 includes general requirements for submittals. (See also Sections 2.5 and 2.6 of the General Conditions.) Specific requirements for submittals are set forth in the Specifications.

**2. GENERAL REQUIREMENTS**

- A. Contractor shall submit, at its sole expense, all submittals required by the Contract Documents, including, but not limited to, the following:
1. Submittal schedule;
  2. Contractor's programs and plans, including Contractor's safety program and Traffic Control and Detour Plan;
  3. Initial schedule (if applicable), baseline (as-planned) schedule, and progress schedules;
  4. Product data and Shop Drawings;
  5. Samples;
  6. Quality assurance/control data;
  7. Machine inventory sheets;
  8. Installation, operation, and maintenance manuals;
  9. Project Record Documents, as defined in Document 01 78 00; and
  10. Any other submittals required by the Contract Documents.
- B. Contractor shall submit submittals to Engineer for review and acceptance in accordance with the City-accepted submittal schedule.
- C. The information in the submittals shall be complete and comprehensive, including all quantities, dimensions, specified performance and design criteria, materials, and similar data, as applicable. Submittals shall be identified clearly as to material, supplier, pertinent data (e.g., catalog numbers and intended use), and as otherwise required by City.
- D. Contractor shall coordinate and verify all submittal information and will not delegate this responsibility, in whole or in part, to Subcontractors or suppliers. Subcontractors or suppliers may prepare submittals, but prior to submission, Contractor shall ensure that the submittals meet the applicable requirements of the Contract Documents. Before submitting each submittal, Contractor shall review and coordinate each submittal with other submittals and with the requirements of the Work and the Contract Documents, and determine and verify the following information (as applicable):

1. All field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto;
  2. All materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation; and
  3. All information relative to Contractor's responsibilities under the Contract Documents and of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.
- E. By submitting a submittal, Contractor represents that it has ensured that the submittal is accurate and conforms to the Contract Documents, and that it has satisfied the obligations set forth in this Document with respect to Contractor's review of that submittal.
- F. Designation of Work "by others," if shown in a submittal prepared by a Subcontractor or supplier, means that the Contractor is responsible for the Work, rather than the Subcontractor or supplier who prepared the submittal.

### **3. SUBMITTAL PROCEDURES**

- A. Transmit each submittal with the appropriate transmittal form and required information identified below. If manufacturer's standard drawings or data sheets are used, they must be marked clearly to show those portions of the data that are applicable to the Project and inapplicable portions must be marked out. Submittals must comply with the requirements in the Specifications, as applicable, and include all information requested by the Specification Section. Submittals containing information about more than one Specification Section will be returned for resubmittal. No partial submittals are allowed unless authorized in advance by City.
- B. Contractor shall submit a complete initial submittal for items where required by a specific Specification Document. A complete submittal must contain sufficient data to demonstrate that items comply with Specifications; meet minimum requirements for submission, as set forth in Specification Documents; include motor data and seismic anchorage certifications, where required; and include necessary revisions required. If Contractor submits an incomplete initial submittal when a complete submittal is required, the submittal may be returned to Contractor without review.
- C. At the time of each submission, Contractor shall provide the City with a specific written notice of all variations, if any, that the submittal may have from the requirements of the Contract Documents, and the reasons therefor. This written notice must be attached to the transmittal form. Contractor shall also include a specific notation on each submittal sheet indicating each such variation. If City accepts the variation, it will note its acceptance on the returned transmittal form.
- D. Unless otherwise specified, Contractor shall submit submittals in groups containing all associated items to ensure that related information is available for review. Identify on the submittal which submittals should be reviewed together.
- E. Contractor shall identify each submittal by number, prior to submission to City, in accordance with the following:
1. Number each submittal according to the Specification Document covering the item(s) being submitted. If possible, all items associated

with a particular Specification Document must be submitted together. If not, each individual submittal must be identified by the Specification Document number followed by "-1", "-2", "-3", etc.

2. Affix the submittal number under which each submittal is made on every copy of each Shop Drawing, product data, sample, certification, etc.
3. Number installation, operation, and maintenance manuals with original root number of the accepted submittal for the item.
4. For resubmittals, add the letter suffix designation "R1" (i.e., a resubmittal of Submittal 1 would be numbered 1-R1). Subsequent resubmittals would be identified by the submittal number and sequential designations (i.e., "1-R2", "1-R3", etc.).
5. Include all information requested by each Specification Document. The City will not accept partial submittals unless previously authorized by City. In the event a partial submittal is authorized, each subsequent submittal for the Specification Document (as opposed to resubmittal) is given a new number.

F. Submission Requirements:

1. Unless the Contract Documents specify otherwise for a particular submittal, deliver each submittal to the City for review at least 30 calendar days in advance of the time the reviewed and accepted submittal is needed for the Work.
2. Unless otherwise specified, Contractor shall submit one copy of each submittal and any resubmittals via the City's project management tool and provide hard copies to the Engineer upon request.
3. Submittals must be accompanied by a transmittal form containing the following:
  - a. Date, revision date, and submittal log number.
  - b. Project name and City's Contract number.
  - c. The name, address, and job number of Contractor, Subcontractor(s), and major supplier(s).
  - d. The applicable Specification Document, plan sheet, and detail number, clearly identified.
  - e. The quantity of samples submitted, if applicable.
  - f. Notification of variations from Contract Documents (if any).
  - g. Materials Safety Data Sheet (MSDS) for each item, in accordance with OSHA's Hazard Communication Standard 29 CFR 1910.1200.
  - h. Other pertinent data.
4. Submittals must include the following, as applicable:
  - a. Date and revision dates.
  - b. Revisions, if any, identified.
  - c. Project name and Contract number.
  - d. The names of Contractor, Subcontractor(s), supplier(s), manufacturer(s), and separate detailer(s), when pertinent and as applicable.
  - e. Identification of product material by location within the Project.
  - f. Relation to adjacent structure or materials.

- g. Field dimensions, clearly identified as such.
- h. Specification Document number and applicable detail reference number on the Plans.
- i. Applicable reference standards, such as ASTM, ANSI, FS, NEMA, SMACNA or ACI.
- j. A blank space, on each plan or data sheet, 5" x 4" for the City's stamp.
- k. Identification of variations from Contract Documents (if any).
- l. Contractor's stamp, initialed or signed, with language certifying the review of submittals and verification of field measurements, construction criteria, and technical standards in compliance with Contract Documents.

**4. CITY'S REVIEW OF SUBMITTALS**

- A. Contractor can assume a minimum review and processing period of 21 calendar days for each submittal. This assumption is provided solely for scheduling purposes and does not bind the City to complete its review of any submittal within the assumed time, and the assumed time does not account for delays attributable to Contractor's incomplete or noncompliant submittals.
- B. City's review of a submittal will not extend to the Contractor's means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto. The review and acceptance of a separate item as such does not constitute approval of the assembly in which the item functions.
- C. Incomplete or illegible submittals will not be reviewed by the City and will be returned to Contractor for resubmission.
- D. After review of each submittal, the submittal will be dispositioned with one of the following notations:
  - 1. NO EXCEPTIONS TAKEN (NET) – This means that the City accepts the submittal, subject to its compatibility with future submittals and submittals for portions of Work not covered in the submittal.
  - 2. MAKE CORRECTIONS NOTED (MCN) – This has the same meaning as item 1 above, except that the Contractor must make minor corrections as noted. The Contractor does not have to resubmit the corrections.
  - 3. REVISE AS NOTED AND RESUBMIT (RAR) – This means that the City rejects the submittal because of major inconsistencies, omissions, or errors that the Contractor must resolve or correct prior to resubmission and review by City.
  - 4. REJECTED RESUBMIT (REJ) – This means that the City rejects the entire submittal because the information provided does not conform to the Contract Documents and Contractor must resubmit.
  - 5. NOT REVIEWED (NR) – This means that the submittal is for record only and has not been reviewed by City.
- E. Limitations on Review and Acceptance.
  - 1. City's review and acceptance of a submittal will not constitute acceptance by City of any responsibility for the accuracy, coordination, and completeness of

the submittal. Contractor is solely responsible for the accuracy, coordination, and completeness of all submittals, including back-checking comments, corrections, and modifications from City's review before fabrication or performing Work.

2. City's review will be limited to determining whether the items covered by the submittal will, after installation or incorporation in the Work, conform to the Contract Documents and be compatible with the design concept of the completed Project as indicated by the Contract Documents.
3. City's review and acceptance of a submittal, method of work, or information regarding materials and equipment that Contractor proposes to furnish for the Project will not relieve Contractor of responsibility for errors therein and will not be regarded as an assumption of risk or liability by City, or any officer or employee thereof, and Contractor is not entitled to submit a claim under the Contract Documents on account of failure or partial failure, inefficiency, or insufficiency of any submittal, method of work, or material and equipment so accepted.
4. City's review and acceptance shall be considered to mean only that City has no objection to Contractor using, at its own risk, the proposed plan or method of work, or furnishing the proposed materials and equipment.

#### **5. CONTRACTOR'S RESPONSIBILITY AFTER REVIEW**

- A. After City's review of a submittal, Contractor shall revise and resubmit if required, and identify changes made since the previous submittal.
- B. Contractor shall not begin fabrication or Work that requires submittals until the City has accepted and returned the Contractor's submittals for that Work, marked with either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."
- C. Contractor shall distribute copies of reviewed and accepted submittals to Subcontractors, suppliers, vendors, and other concerned persons, and will instruct recipients to promptly report any inability to comply with the submittals.

#### **6. RESUBMITTALS**

- A. Contractor shall provide a complete and acceptable submittal at least by the second submission. City reserves the right to deduct money from payment otherwise due Contractor to cover its additional costs of review beyond the second submission. These additional costs may include the cost of engineering personnel, on an hourly basis at 2.5 times direct payroll expenses, and consultant personnel time at 1.25 times the amount billed to City.
- B. Resubmission requirements:
  1. Shop Drawings:
    - a. Revise initial Shop Drawings as required and resubmit in accordance with the requirements for initial submittals.
    - b. Indicate on Shop Drawings any changes that have been made other than those requested by City.
  2. Product Data and Samples:
    - a. Submit new product data and samples in accordance with the requirements for initial submittals.

3. Installation, Operation, and Maintenance Manuals:
  - a. Revise initial installation, operation, and maintenance manual(s) as required and resubmit in accordance with the requirements for initial submittals.

**7. SUBMITTAL SCHEDULE**

- A. Contractor shall submit a submittal schedule to the City, in accordance with Section 2.5 of the General Conditions, for review and acceptance. Contractor shall revise and resubmit the schedule until it is accepted by City.
- B. The City will use the submittal schedule to plan its review of submittals. The schedule must include specific dates when each respective submittal will be submitted for City review and identify and distinguish submittals of long-lead-time items, items that require extensive review, items that should be reviewed together, and other major items.

**8. SAFETY PROGRAM**

- A. Contractor shall submit a Project-specific safety program to the City, in accordance with Section 10.1 of the General Conditions.

**9. SCHEDULES**

- A. Contractor shall submit electronic copies of each schedule required under Section 5.2 of the General Conditions.

**10. PRODUCT DATA**

- A. If required by City, Contractor shall submit a complete list of major products proposed for use, with name of manufacturer, telephone number, trade name, and model number of each product. Tabulate product data by Specification Section.
- B. For products specified only by reference standards, provide the manufacturer, trade name, model or catalog designation, and reference standards.
- C. Product or Catalog Data:
  1. Modify the manufacturer's standard drawings to delete non-applicable data and to include or highlight applicable data.
  2. Modify the manufacturer's catalog sheets, brochures, diagrams, schedules, charts, illustrations and other standard descriptive data as follows:
    - a. Mark each copy to identify pertinent materials, products, models, or options.
    - b. Show dimensions and clearances required, performance characteristics and capacities, wiring diagrams and controls.
    - c. Include applicable MSDS.
- D. Supplement manufacturer's standard data to provide information unique to Project.
- E. Contractor shall also provide Project Record Product Data, as specified in Document 01 78 00, Project Record Documents.

**11. SHOP DRAWINGS**

- A. Mark Shop Drawings to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to Project.
- B. Include manufacturer's installation instructions when required by applicable Specification Document.
- C. Shop Drawings shall be drawn to scale and completely dimensioned, providing a plan view together with such sectional views as are necessary to clearly show construction details and methods.
- D. If Contractor submits Shop Drawings for items that Shop Drawings are not specified, City will not be obliged to review them.
- E. Original Shop Drawings will be marked with City's comments and returned to Contractor.
- F. Contractor is responsible for procuring copies of Shop Drawings for its own use as it may require for the progress of the Work.

**12. SAMPLES**

- A. Submit full range of manufacturers' standard colors, textures, and patterns for City's selection.
- B. Submit samples to illustrate functional and aesthetic characteristics of product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.
- C. Contractor must submit the number of samples required by the applicable Specification Document. If no quantity is specified, Contractor must submit at least two (2) identical samples.
- D. Attach identification labels to each sample indicating product, intended use, color, texture, other defining characteristics, etc.
- E. Sizes: Unless otherwise specified, furnish samples meeting the following size requirements:
  - 1. Paint Chips: Manufacturers' standard sizes
  - 2. Flat or Sheet Products: Minimum 6 inches square, maximum 12 inches square
  - 3. Linear Products: Minimum 6 inches, maximum 12 inches long
  - 4. Bulk Products: Minimum 1 pint, maximum 1 gallon
- F. Full size samples may be used in Work upon advance approval by City.
- G. Field Samples and Mock-ups (if applicable):

1. Erect field samples and mock-ups at Project site in accordance with requirements of applicable Specifications. If testing is conducted, record and certify results.
  2. Modify or make additional field samples and mock-ups as required to provide appearance and finishes approved by City.
  3. Approved field samples and mock-ups may be used in Work upon advance approval by City.
  4. Construct or prepare additional samples and mock-ups, as directed by City, until City determines its desired textures, finishes, and/or colors.
  5. City-accepted samples and mock-ups will serve as the standard of quality for the various units of Work.
- H. City's review and acceptance of a sample or mock-up will not constitute a modification to the requirements in the Contract Documents.
- I. Ensure that finishes, materials, and workmanship in the completed Work match accepted samples.

**13. QUALITY ASSURANCE/CONTROL SUBMITTALS**

A. Test Reports:

1. Contractor shall submit one electronic copy of each test report.
2. Contractor shall verify that the material or product tested conforms to or exceeds specified requirements.
3. Reports may be from recent or previous tests on material or product, but shall be acceptable to City. The reports shall comply with requirements in the Specifications, as applicable.

B. Certificates:

1. Contractor shall submit one electronic copy of each certificate.
2. The certificates must indicate that the material or product conforms to or exceeds specified requirements.
3. Submit supporting reference data, affidavits, and certifications as appropriate.
4. Certificates may be recent or from previous test results on material or product, but must be acceptable to City.

C. Manufacturer's Instructions:

1. Contractor shall submit one electronic copy of manufacturer's instructions.
2. Include manufacturer's printed instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing.

3. Identify any conflicts between manufacturer's instructions and Contract Documents.

D. Material Safety Data Sheets:

1. In addition to Material Safety Data Sheets (MSDS) otherwise required by the Contract Documents, submit electronic copies of MSDS for any paints, solvents, thinners, varnish, lacquer, glues and adhesives, mastics, or other materials needed for the Project as required by the Specifications.
2. MSDS required for a submittal shall be submitted with product data in order for the submittal to be reviewed.

**14. INSTALLATION, OPERATION, AND MAINTENANCE MANUALS**

Contractor shall submit installation, operation, and maintenance manuals. For specific requirements, see the Specifications.

**15. PROJECT RECORD DOCUMENTS**

Contractor shall submit Project Record Documents as specified in Document 01 78 00, Project Record Documents.

END OF DOCUMENT

**DOCUMENT 01 35 00**

**CULTURAL RESOURCES**

**1. GENERAL**

- A. Contractor shall comply with and implement the requirements set forth in this Document 01 35 00, as well as any other requirements relating to cultural resources specified in the Contract Documents.

**2. CULTURAL RESOURCES AND HUMAN REMAINS**

- A. See also General Conditions, Section 7.18 (Historic or Archeological Items).
- B. If human remains are encountered during the Work, Contractor shall immediately notify the Engineer and the Santa Clara County Coroner's Office.
- C. Archeologically Sensitive Areas
  - 1. For Work within archeologically sensitive areas, as identified by City or as specified in the Contract Documents, Contractor shall notify the City at least five full Working Days in advance of performing any earth-moving activities to enable archeological monitoring of the Work.
  - 2. Contractor shall coordinate earth-moving activities, including subsurface and grading Work, with City's archeologist to enable the archeologist to examine vertical and horizontal soil relationships for the purpose of defining positive archaeological finds (prehistoric and/or historic).
  - 3. Contractor shall notify the City a minimum of two full Working Days in advance of canceling any scheduled earth-moving activities, including subsurface and grading Work, to provide the City with sufficient notice to cancel archeological monitoring services.
  - 4. Contractor will be responsible for any costs City incurs due to Contractor's failure to provide the required notifications.
- D. Contractor must comply with the notification requirements of this Document 01 35 00 and General Conditions Section 7.18. Contractor will be responsible for any fees, fines, penalties, and costs incurred or assessed against City and/or Contractor due to Contractor's failure to comply with these obligations, which may be deducted from payment otherwise due to Contractor.

END OF DOCUMENT

**DOCUMENT 01 50 00**

**TEMPORARY FACILITIES AND CONTROLS**

**1. GENERAL**

- A. Contractor shall comply with all requirements pertaining to temporary facilities and controls, including, but not limited to, the requirements in this Document 01 50 00 and in Article 7 of the General Conditions. Temporary facilities do not include transmission and/or distribution facilities that are temporarily relocated to maintain electric service to customers during performance of the Work and/or to accommodate performance of the Work.

**2. TEMPORARY ELECTRICITY**

- A. Contractor shall provide, install, maintain, and pay for electrical power at the Project site for construction purposes and for Contractor's temporary facilities. Power may be obtained from the City, but Contractor must provide all necessary wiring and appurtenances and perform all necessary labor for connection to City's system. Contractor must meter all connections to City's system to determine usage rates.

**3. TEMPORARY WATER**

- A. Contractor shall provide, install, maintain, and pay for suitable, quality water service at the Project site for construction purposes and for Contractor's temporary facilities. Contractor may be allowed to obtain water from the City, with City's advance approval. However, City does not guarantee the availability of water. Contractor shall furnish necessary pipe, hose, nozzles, meter, and tools, and perform all necessary labor. Special hydrant wrenches shall be used for opening and closing fire hydrants; in no case shall pipe wrenches be used for this purpose.

**4. FENCES**

- A. All existing fences at the Project site shall be protected and maintained by Contractor until City accepts the Project as complete. Fences which interfere with the Work shall not be relocated or dismantled unless and until City gives written permission to do so. Where fences must be maintained across a construction easement, Contractor shall install adequate gates. Gates shall be kept closed and locked at all times when not in use.

**5. WATER CONTROL**

- A. Contractor shall grade Project site to drain.
- B. Contractor shall maintain excavations free of water.
- C. Contractor shall protect the Project site from puddling or running water.
- D. Contractor shall provide water barriers as necessary or required to protect Project site from soil erosion.
- E. Contractor shall provide drainage facilities for storm water and such water as may be applied or discharged on the Project site. The drainage facilities shall be adequate to prevent damage to the Work, the Project site, and adjacent property.

- F. Contractor shall clean, enlarge, and/or supplement existing drainage channels and conduit as necessary to carry all increased runoff attributable to Contractor's operations. Contractor shall construct dikes as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect City's facilities and the Work, and to direct water to drainage channels or conduits. Contractor shall provide ponding as necessary to prevent downstream flooding.

**6. POLLUTION CONTROL**

- A. Contractor shall provide the methods, means, and facilities required to prevent contamination of soil, water, and atmosphere by the discharge of noxious substances from construction operations.
- B. Contractor shall provide systems for control of atmospheric pollutants.
  - 1. Contractor shall prevent toxic concentrations of chemicals.
  - 2. Contractor shall prevent harmful dispersal of pollutants into the atmosphere.
  - 3. Contractor shall direct pollutants such as diesel exhaust away from building air intakes.
- C. Contractor shall implement best management practices (BMP) during construction activities. Erosion and sedimentation control practices shall include installation of silt fences, straw wattle, soil stabilization, revegetation, and runoff control to limit increases in sediment in stormwater runoff, including, but not limited to, detention basins, straw bales, silt fences, check dams, geofabrics, drainage swales, and sand bag dikes.
- D. In the event that dewatering of excavations is required, Contractor shall obtain the necessary permits for discharge of the dewatering effluent from the local jurisdiction, Regional Water Quality Control Board, and/or other agencies. Contractor is responsible for ensuring that water quality of such discharge meets the appropriate permit requirements prior to any discharge.

**7. EROSION CONTROL**

- A. Contractor shall prevent soil erosion on the Project site and adjacent property to the maximum extent possible. Contractor shall initiate BMP measures prior to clearing, grading, excavating, or performing other operations that will disturb the natural protection.
- B. Work shall be scheduled to expose areas subject to erosion for the shortest possible time, and natural vegetation shall be preserved to the greatest extent practicable. Contractor shall situate temporary facilities, including storage facilities, temporary field offices and/or trailers, in areas that will minimize erosion. Contractor shall route construction traffic in a manner that will minimize erosion. Temporary fast-growing vegetation or other suitable ground cover shall be provided by Contractor as necessary to control runoff.

**8. NOISE CONTROL**

- A. Contractor shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work. During construction activities on or adjacent to occupied buildings, and when appropriate, Contractor shall erect screens or barriers effective in reducing noise in the buildings and shall conduct its operations to avoid unnecessary noise which might interfere with the activities of building occupants.
- B. Contractor shall ensure and provide certification to City that all construction equipment and vehicles used for the Work are:
  - 1. Maintained in good mechanical condition
  - 2. Equipped with properly installed engine mufflers

**9. AIR QUALITY CONTROL**

- A. Contractor shall cover all trucks hauling soils, sand, and other loose materials.
- B. Contractor shall pave, apply water a minimum of three times daily, or apply nontoxic soil stabilizers on all unpaved roads, parking areas, and construction staging areas.
- C. Contractor shall sweep with water sweepers all paved access roads, parking areas, and staging areas at the Project site, on a daily basis and as needed, to prevent dust.
- D. Contractor shall enclose, cover, water twice daily, or apply nontoxic soil binders, to exposed stockpiles (dirt, sand, etc.).
- E. Contractor shall limit traffic speeds on unpaved roads to 5 miles per hour.
- F. Other related requirements:
  - 1. Contractor shall use dust-proof chutes to load construction debris onto trucks, unless an alternative means of loading construction debris is approved in writing by City.
  - 2. Contractor shall suspend dust-producing activities during periods of high winds when dust control measures are unable to avoid visible dust plumes.
  - 3. During the dry season (May through September), Contractor shall provide equipment and staffing for watering of all exposed or disturbed soil surfaces at least twice daily.
  - 4. Contractor shall cover or wet down any fine materials transported by truck to control dust.
  - 5. For demolition of pre-1980 buildings, Contractor shall comply with BAAQMD Regulation 11, Rule 2: Hazardous Materials, Asbestos Demolition, Renovation and Manufacturing.

**10. TRAFFIC CONTROL**

- A. The City restricts routing of construction traffic and construction vehicles and equipment parking. The Contractor's attention is directed to Section 12, CONSTRUCTION AREA TRAFFIC CONTROL DEVICES, of the Standard Specifications. Contractor shall supply and install all traffic control devices (including all warning, regulatory, and guide signs) required for the Project. The City will not provide personnel to implement traffic control, furnish signs, or furnish any traffic control devices for the Project.
- B. At the pre-construction conference, Contractor shall submit its Traffic Control and Detour Plan to City for review and approval. If there is no pre-construction conference scheduled, submit the plan to City at least two weeks prior to the start of Work. The plan shall indicate any necessary lane closures, detours, no parking areas, signing program for construction, access to private property and business establishments, pedestrian traffic, railroad crossings, transit routes, loading areas, the proposed routing of the construction vehicles, proposed parking areas for construction vehicles and equipment, hours required for access, safeguards and procedures necessary to carry out the Work, and any other matters relevant to the safe movement of traffic. The plan shall also indicate placement and type of warning signs, lights, devices, and flag persons, and it must include a schedule for implementation.
- C. Contractor shall update the Traffic Control and Detour plan if changes arise, and resubmit the plan for City's review and approval.
- D. Field traffic control must be handled in such a manner as to adequately and safely direct all traffic movements in the Project area without conflict with any adjacent traffic control devices. Contractor will not be allowed to proceed with Work if, in the opinion of the Engineer, traffic control is inadequate for the field conditions. Traffic control measures, in addition to those indicated on the approved Traffic Control and Detour Plan, may be required as field conditions dictate.
- E. For areas to be posted with "No Parking" signs, Contractor must use the City's required format for the signs, which will be provided by City in an electronic file upon request. The areas and signs must be posted a minimum of 48 hours, excluding weekends and holidays, prior to the start of construction in each area requiring parking restrictions. The areas and signs must be verified as correct by the City Police Department. The City Police Department's verification number is (408) 615-4760.
- F. Contractor shall comply with the following City-specific traffic and parking restrictions:
1. Construction Traffic and Vehicles: All inbound and outbound construction-related traffic to and from the Project site is restricted to public street(s) immediately adjacent to the Project site. Contractor shall prepare and submit a truck haul route plan for the City's review and approval prior to any hauling activities.
  2. Construction Parking: Construction vehicle and equipment parking is restricted to areas within the Project site and other areas as determined by the City.

3. Alternative Parking: Contractor may negotiate with any other entity to accommodate parking for its workers. However, the City does not make any guarantee that such parking is available to the Contractor.
- G. The following lane and sidewalk closure requirements and restrictions apply unless the City specifically approves otherwise in the Traffic Control and Detour Plan. The Engineer may review and/or modify the Traffic Control and Detour Plan at any time, for any reason, including the safety, health, welfare, or convenience of the public.
1. Contractor shall provide continuous pedestrian and bicyclist traffic access. All traffic lanes shall remain open between the hours of 6:00-9:00 a.m. and 3:30-7:00 p.m. Lanes may individually be closed between 9:00 a.m. and 3:30 p.m. Contractor shall maintain two-way traffic (one lane for each direction or movement), at all times, in a condition satisfactory to the Engineer. The full width of the traveled way shall be open for use by public traffic beginning at 3:00 p.m. on Fridays, and all day on Saturdays, Sundays, designated City holidays, and when construction operations are not actively in progress on Working Days.

Wherever it is necessary that trenches and excavations be bridged, the bridges shall permit unobstructed flow of traffic and/or pedestrians (ADA compliant) and shall meet the following criteria:

- a. Bridging shall be secured against displacement by using adjustable cleats, angles, bolts, or other devices.
  - b. Bridging shall be installed to operate with minimum noise.
  - c. The trench shall be adequately shored to support the bridging and traffic.
  - d. Only steel plates shall be used for bridging. The steel plates shall extend at least one foot beyond the edges of the trench (See ST-27, "Steel Plate Benching," in the City's Standard Details).
  - e. When multiple steel plates are used side-by-side and in the direction of travel, the plates shall be welded together at the longitudinal seams.
2. Contractor must obtain all necessary permits and comply with all Laws, including City regulations, before closing sidewalks and bike lanes.
    - a. Where walkways, pathways, or access ways are closed due to the Work, Contractor shall provide an ADA-compliant alternate walkway preferably within the immediate location of the walkway, pathway or access way to be closed, if possible. If it is necessary to divert pedestrians into a major detour and/or into a parking lane or traffic area, at no time will pedestrians be diverted into a portion of a street used for vehicular traffic. Any deviation from these requirements must have prior approval of the Engineer.
    - b. At locations where adjacent alternate walkways cannot be provided (i.e., where no pathway or access is available within the immediate location of the interruption), ADA-compliant detours shall be clearly planned, marked, and constructed. Appropriate signs and barricades must be installed at the limits of construction

and in advance of the closure (or detour) in order to divert pedestrians to the appropriate walkway or detour.

- c. Contractor shall provide sufficient signage indicating, with arrows and text, the pedestrian route closures and the new pathways and detours required for alternate pedestrian routes around the construction. Alternate pedestrian routes, the final sign configuration, the exact wording of the base sign, and all mounting locations are subject to City's review and approval prior to the proposed closure.
  - d. When bike lanes are closed due to construction, Contractor shall provide advance warning signs to alert motorists of the presence of bicyclists on the road. These signs shall comply with the most current California Manual of Traffic Control Devices (CA-MUTCD).
- 3. Contractor is responsible for all costs associated with street and sidewalk closures, including, but not limited to, the appropriate street closure and temporary directional signage, crosswalks, and flag persons as required to control construction traffic and implement the Traffic Control and Detour Plan. The City will waive the Encroachment Permit fees for street closures or diversions, but the Contractor must plan, schedule, apply for, coordinate, and implement all necessary street closures or diversions. Contractor shall take all necessary precautions to protect the public from construction activities. The directional signage and related signage must comply with Laws, including City traffic regulations.
  - 4. Contractor shall comply with all posted traffic signage on and in adjacent neighborhoods.
  - 5. Contractor shall not be relieved from responsibility for public safety by City's direction, lack thereof, or approval of the Traffic Control and Detour Plan.

## **11. SECURITY**

- A. Contractor shall coordinate and cooperate, at all times, with local law enforcement.
- B. If Contractor fails to adequately secure the Project site, as determined by City, then City may employ qualified forces to secure the Project site and may deduct the cost thereof from payment otherwise due to Contractor.
- C. Contractor shall maintain fencing at all times to protect the Project site, Work, and equipment and materials for incorporation into the Work.
- D. Contractor shall review and comply with all local ordinances related to emergency response requirements.
- E. Contractor shall develop, submit, update, and maintain an emergency response program specific to the needs of the Project.

END OF DOCUMENT

**DOCUMENT 01 60 00**

**PRODUCT REQUIREMENTS**

**1. PRODUCTS**

- A. Contractor shall source similar products from the same manufacturer, to the extent possible, unless otherwise specified.

**2. PRODUCT OPTIONS AND SUBSTITUTIONS**

- A. See also General Conditions, Section 7.7.
- B. Specified products, materials, or systems for the Project may require compliance with engineering or on-file standards of regulatory agencies. Contractor's substitution of products, materials, or systems may require additional engineering, testing, reviews, approvals, assurances, or other information for compliance with regulatory agency requirements. Contractor shall provide all agency approvals and other additional information required for the substitution. Contractor is responsible for all additional costs and time associated with the substitution, including the cost for any City services made necessary by the substitution.

**3. PRODUCT DELIVERY REQUIREMENTS**

- A. Contractor shall deliver products in accordance with manufacturer's instructions.
- B. Contractor shall promptly inspect shipments to ensure that products comply with the requirements in the Contract Documents, quantities are correct, and products are undamaged.

**4. SHIPPING REQUIREMENTS**

- A. Preparation for Shipment. All materials and equipment shall be suitably packaged to facilitate handling and to protect against damage during transit and storage. All materials and equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All materials and equipment shall be protected from exposure to the elements and shall be kept dry at all times.
  - 1. Painted and coated surfaces shall be protected against impact, abrasion, discoloration, and other damage. Painted and coated surfaces which are damaged shall be repainted to the satisfaction of City.
  - 2. Grease and lubricating oil shall be applied to all bearings and similar items.
- B. Shipping. Before shipping, each item of material or equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

**5. PRODUCT STORAGE AND HANDLING REQUIREMENTS**

- A. Contractor shall store products in safe staging or storage areas.

- B. Contractor shall handle, store, and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive products in weather-tight, climate-controlled enclosures.
- C. For exterior storage of fabricated products, Contractor shall place such products on appropriate supports, above ground.
- D. Contractor shall cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.
- E. Contractor shall store loose granular materials on solid, flat surfaces in a well-drained area.
- F. Contractor shall provide equipment and personnel to store products by methods to prevent soiling, disfigurement, and damage.
- G. Contractor shall arrange storage of products to permit access for inspection and shall periodically inspect the products to ensure products are undamaged and are maintained under specified conditions.
- H. Without limiting the foregoing:
  - 1. Contractor shall bear responsibility for delivery of equipment, spare parts, tools, and materials to any Worksite and shall comply with the requirements specified herein and provide required information to City concerning the shipment and delivery of the materials, as specified in the Contract Documents.
  - 2. All items shall be checked against packing lists immediately upon delivery to any Worksite for damage and for shortages. Contractor shall promptly remedy any damage or shortages to ensure timely completion of the Work.
  - 3. No metalwork (miscellaneous steel shapes and reinforcing steel) shall be stored directly on the ground. Masonry products shall be handled and stored in a manner to hold breakage, chipping, cracking, and spalling to a minimum. Cement, lime, and similar products shall be stored off the ground on pallets and shall be covered and kept completely dry at all times. Pipe fittings and valves may be stored outside but must be placed on wooden blocking. PVC pipe, geomembranes, plastic liner, and other plastic materials shall be stored off the ground on pallets and protected from direct sunlight.
  - 4. Pumps, motors, electrical equipment, and all equipment with antifriction or sleeve bearings shall be stored in weathertight structures maintained at a temperature above 60°F. Electrical equipment, controls, and insulation shall be protected against moisture and water damage. All space heaters, including those for control cabinets, furnished in equipment shall be connected and operated continuously.
  - 5. Equipment having moving parts such as gears, bearings, and seals, shall be stored fully lubricated with oil, grease, or other lubrication, as appropriate, unless otherwise instructed by the manufacturer. Manufacturer's storage instructions shall be carefully followed by Contractor.

6. When required by the equipment manufacturer, moving parts shall be rotated a minimum of twice a month to ensure proper lubrication and to avoid metal to metal "welding." Upon installation of the equipment, Contractor shall, at the discretion of City, start the equipment at one-half load for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.
  7. When required by the equipment manufacturer, lubricant shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment by Contractor as a condition precedent to Final Completion.
  8. Equipment and materials shall not show any pitting, rust, decay, or other deleterious effects of storage when installed in the Work.
  9. In addition to the protection specified for prolonged storage, the packaging of spare units and spare parts shall be for export packing and shall be suitable for long-term storage in a damp location. Each spare item shall be packed separately and shall be completely identified on the outside of the container.
  10. Stored items shall be laid out to facilitate their retrieval for use in the Work. Care shall be taken when removing the equipment for use to ensure the precise piece of equipment is removed and that it is handled in a manner that does not damage the equipment.
- I. The requirements of this document apply to new products, salvaged items to be re-used in the Work, and salvaged items to be turned over to City.

END OF DOCUMENT

**DOCUMENT 01 78 00**

**PROJECT RECORD DOCUMENTS**

**1. SUMMARY**

- A. This Document 01 78 00 includes administrative and procedural requirements for Project Record Documents. The term "Project Record Documents" means all the documents identified in B., below, and any other documentation pertaining to the completed Project which must be submitted by Contractor to the City as a condition precedent to Final Completion.
- B. Contractor shall submit the following "Project Record Documents" as a condition of Final Completion:
  - 1. Project Record Drawings, as defined in Section 2, below, in accordance with the requirements herein and Section 7.11 of the General Conditions;
  - 2. Project Record Product Data, as defined in Section 3, below; and
  - 3. Miscellaneous Project Record Submittals, as defined in Section 4, below, including field notes and photos for any variable or concealed conditions.

**2. PROJECT RECORD DRAWINGS**

- A. Mark-up Procedure: During construction, Contractor shall update and maintain, on a daily basis if necessary, an as-built set of the Plans, mark-up copies of the Shop Drawings, and mark-up copies of samples, for the purpose of recording changes made in any portion of the original Plans, approved Shop Drawings, or approved samples (collectively, the "Project Record Drawings"), in accordance with this Document 01 78 00 and General Conditions Section 7.11. Contractor shall label each document (on first sheet or page) "PROJECT RECORD" in 2-inch high printed letters.
  - 1. Mark all Project Record Drawings to indicate the actual installation where the installation varies from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items required to be marked include, but are not limited to:
    - a. Depths of various elements of foundation in relation to main floor level or survey datum.
    - b. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
    - c. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
    - d. Establish locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub outs, invert elevations, and similar items.
    - e. Locations of underground Work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub outs, invert elevations, and similar items.
    - f. Actual numbering of each electrical circuit.
    - g. Field changes of dimension and detail.

- h. Changes to routing of piping and conduits.
  - i. Changes to electrical circuitry.
  - j. Actual equipment locations.
  - k. Duct size and routing.
  - l. Minor field changes and changes made by Change Order.
  - m. Details not on original Plans.
2. Mark completely and accurately Project Record Drawing prints of Plans or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Plans location.
  3. Mark Project Record Drawing sets in red to indicate changes.
  4. Mark important additional information that was either shown schematically or omitted from original Plans.
  5. Identify Change Order numbers, RFI numbers, or other source of the modification.
  6. Contractor will provide complete and accurate as-built information of the rough grade elevations on the Project Record Drawings for the City's use for subsequent work.
  7. Responsibility for Mark-up: Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer, Subcontractor, or similar entity, must prepare the associated mark-up for the Project Record Drawings.
    - a. Accurately record information in an understandable and legible drawing technique.
    - b. Record data as soon as changes occur. In the case of concealed installations, record and check the mark-up prior to concealment. Contractor will not permanently conceal any Work until required information has been recorded.
- B. Preparation of Project Record Drawings: Prior to requesting final inspection, Contractor shall review and verify the completed Project Record Drawings; deliver a complete set to the Engineer, along with any other information requested by the Engineer; and review the Project Record Drawings with the Engineer, upon request. If requested by Engineer, Contractor shall make corrections to the Project Record Drawings based on input from Engineer (including hand-drawn drawings, if applicable) and provide the corrected Project Record Drawings to the Engineer. The Project Record Drawings must be sufficiently detailed to enable the Engineer to prepare a full set of AutoCAD record drawings.
1. Contractor shall incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each drawing; include the printed designation "PROJECT RECORD DRAWINGS" in a prominent location on each drawing.
  2. Whether or not changes and additional information were recorded, Contractor shall organize and bind original marked-up set of prints that were maintained during the construction into manageable sets. Bind the

set with durable paper cover sheets, with appropriate identification, including titles, dates, and other information on cover sheets. Contractor shall submit the Project Record Drawings via the City's project management tool and provide the bound hard copies to the Engineer.

### **3. PROJECT RECORD PRODUCT DATA**

- A. During construction, Contractor shall update and maintain, on a daily basis if necessary, one copy of each product data submittal for the purpose of recording changes to any portion of the original, approved product data submittal ("Project Record Product Data").
  - 1. Contractor shall include information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Contractor shall identify related Change Orders and mark-up of Project Record Drawings, where applicable.
  - 3. Where Project Record Product Data is required as part of maintenance manuals, submit Project Record Product Data as an insert in the manual, instead of a separate submittal.
  - 4. Upon completion of mark-up, Contractor shall submit a complete set of Project Record Product Data to the Engineer for City's review and acceptance.
- B. Material, Equipment, and Finish Data
  - 1. Prior to requesting final inspection, Contractor shall submit an electronic copy via the City's project management tool and three hard copies of all material, equipment, and finish data, for City's review and acceptance. The hard copies of the material, equipment, and finish data shall be bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers; provide typewritten table of contents for each volume.
  - 2. Contractor shall arrange the data by Specification division; provide names, addresses, and telephone numbers of Subcontractors and suppliers; and list the following for each material, equipment, and finish:
    - a. Trade names
    - b. Model or type numbers
    - c. Assembly diagrams
    - d. Operating instructions
    - e. Cleaning instructions
    - f. Maintenance instructions
    - g. Recommended spare parts
    - h. Product data

### **4. MISCELLANEOUS PROJECT RECORD SUBMITTALS**

- A. Refer to other Contract Documents for recordkeeping requirements and submittals in connection with the Work. Prior to requesting final inspection, Contractor shall prepare miscellaneous records and place them in good order, properly identified and bound or filed, ready for use and reference, and submit them to the Engineer for City's review and acceptance.
- B. Additional miscellaneous records include, but are not limited to, the following:

1. Field records on excavations and foundations
2. Field records on underground construction and similar Work
3. Survey showing locations and elevations of underground lines
4. Invert elevations of drainage piping
5. Surveys establishing building lines and levels
6. Authorized measurements utilizing unit prices or allowances
7. Records of plant treatment
8. Ambient and substrate condition tests
9. Certifications received in lieu of labels on bulk products
10. Batch mixing and bulk delivery records
11. Testing and qualification of tradespersons
12. Documented qualification of installation firms
13. Load and performance testing
14. Inspections and certifications by governing authorities
15. Submittals as required by governing agencies
16. Leakage and water-penetration tests
17. Fire resistance and flame spread test results
18. Final inspection and correction procedures

**5. SUBMITTAL REQUIREMENTS**

- A. Prior to requesting final inspection, Contractor shall deliver Project Record Documents to the Engineer.
- B. Contractor shall “cloud” all affected areas of the Project Record Drawings.
- C. Contractor shall stamp each Project Record Document with the following information:
  1. Project Record Document
  2. Prepared by: Contractor’s name, permanent address
  3. Date prepared
  4. Contractor’s signature
  5. City Project number

- D. Contractor shall accompany the submittal of Project Record Documents with a transmittal letter containing:
1. Date
  2. Project title and number
  3. Contractor's name and address
  4. Number and title of each Project Record Document
  5. Certification that each document as submitted is complete and accurate
  6. Contractor's signature

END OF GENERAL REQUIREMENTS

## Special Conditions

**1. Insurance.** The insurance requirements for the Project are set forth in the following exhibit, Exhibit C-05, which is attached to the Special Conditions and incorporated herein.

**2. Compliance with Walsh Data Center Proposed Mitigated Negative Declaration Mitigation Measures and Mitigation Monitoring or Reporting Program.**

The Mitigated Negative Declaration and Mitigation Monitoring or Reporting Program for the associated Walsh Data Center identifies construction-related activities that must be followed. These include but are not limited to nesting bird survey reporting, Native American cultural resource monitoring, and qualified archeologist monitoring during all excavation activities. Specific requirements for the Project are described in Archaeological Special Conditions exhibit, which is attached to the Special Conditions and incorporated herein: Archaeological Special Conditions.

**3. Allowance.** An Allowance will cover the cost to Contractor for the scope of Work identified for each Allowance below. Contractor will not proceed with Allowance Work until directed by City in writing. Contractor shall identify Allowance Work on its progress schedules and applications for payment. If the actual scope of Work under an Allowance is more or less than the amount of the Allowance, the Contract Price will be adjusted by Change Order to reflect the actual cost of the Work. At close out, any funds remaining in the Allowance will be credited to City by Change Order. The Allowance will be included as a line item in the Bid Schedule. Funds will be drawn from the Allowance only if approved by City in writing. The Project includes the following Allowance(s):

- 3.1** Allowance of \$50,000 for stand by time in the event of an archaeological feature encounter as described in the Archaeological Special Conditions exhibit. Payment for Work under this Allowance will be made on a time and materials basis, in accordance with Sections 6.3 and 6.4 of the General Conditions.
- 3.2** Allowance of \$50,000 for archaeological feature recovery support as described in the Archaeological Special Conditions exhibit. Payment for Work under this Allowance will be made on a time and materials basis, in accordance with Sections 6.3 and 6.4 of the General Conditions.
- 3.3** Allowance of \$50,000 for unforeseen underground work. Payment for Work under this Allowance will be made on a time and materials basis, in accordance with Sections 6.3 and 6.4 of the General Conditions.
- 3.4** Allowance of \$100,000 for unforeseen overhead line work. Payment for Work under this Allowance will be made on a time and materials basis, in accordance with Sections 6.3 and 6.4 of the General Conditions.

**4. Construction Manager Role and Authority.** Electrical Consultants, Inc. is the Construction Manager for this Project. The Construction Manager will assist City in the management of the construction of the Project. The Construction Manager may perform services in the areas of supervision and coordination of the work of Contractor and/or other contractors, scheduling the Work, monitoring the progress of the Work, providing City with evaluations and recommendations concerning the quality of the Work, recommending the approval of progress payments to Contractor, or other services for the Project in accordance with the Construction Manager's contract with City.

- 4.1 Communications.** Contractor must submit all notices and communications relating to the Work directly to the Construction Manager in writing with a copy to the Engineer.
- 4.2 On-Site Management and Communication Procedures.** The Construction Manager will provide and maintain a management team on the Project site to provide contract administration as an agent of City, and will establish and implement coordination and communication procedures among City, the Design Professional, Contractor, and others.
- 4.3 Contract Administration Procedures.** The Construction Manager will establish and implement procedures for reviewing and processing requests for clarifications and interpretations of the Contract Documents, Shop Drawings, samples, other submittals, schedule adjustments, Change Order proposals, written proposals for substitutions, payment applications, and maintenance of logs.
- 4.4 Pre-Construction Conference.** Contractor shall attend the pre-construction conference, during which the Construction Manager will review the Contract administration procedures and Project requirements.
- 4.5 Contractor's Construction Schedule.** The Construction Manager will review Contractor's construction schedules and will verify that each schedule is prepared in accordance with the requirements of the Contract Documents.
- 5. Laydown/Staging Area.** Contractor must comply with the following requirements:

  - 5.1** No City owned parcels or properties are available for use by Contractor for a laydown/staging area. Contractor shall secure, at the Contractor's own expense, any areas necessary for plant sites, storage of equipment or materials, or for other purposes.
  - 5.2** The right of way shall be used only for purposes that are necessary to perform the required Work. Contractor shall not occupy the right of way, or allow others to occupy the right of way, for purposes which are not necessary to perform the required Work.
  - 5.3** If Contractor proposes use of City-owned parcels or properties, the Contractor shall be aware that use of City-owned parcels or properties requires the Contractor to enter into a License Agreement with the City and is subject to approval by City. A License Agreement takes a minimum of two months to process. Any proposals made by the Contractor for use of City-owned parcels or properties shall be made to the Engineer within 15 days of the Notice of Award. Nothing in this Section implies or guarantees that City-owned parcels or properties are available for use by Contractor. Use of City-owned parcels or properties shall be at the Contractor's own risk, and subject to the provisions of the License Agreement.

## Archaeological Special Conditions

- All ground disturbance must be monitored by an archaeological and Tribal monitor (Monitor).
- There must be an archaeological and Tribal monitor for each piece of equipment performing ground disturbance work
  - For example, if the Contractor decides to operate 2 drill rigs (1 at each pole location) there should be 2 archaeological monitors and two tribal monitors total.
  - Coordination is required with Rosso Environmental (use Jon Russo contact) whom will work as a liaison to Tribal monitor.
- Cultural sensitivity training (estimated hour long) required for all contractors on site during construction prior to construction.
- The contractor is responsible for complying with directions by monitors and for providing safe access to any cultural features discovered in spoils or in-progress excavations.
- **In using a drilling rig or an excavator (or equivalent), certain conditions apply:**
  - **For a drilling rig (for foundation holes):**
    - ***Preferred implement:*** Flight Auger – without teeth, if possible
      - A bucket auger may be used after groundwater is encountered in the borehole
    - Drilling must occur in **1- to 2- foot increments** (as is practical) to a **minimum depth of 10 feet bgs or until groundwater is encountered**, whichever comes first
    - Soil spoils may be inspected by the monitors while still on the auger and/or after deposition on the ground nearby
    - Monitors may request that the spoil piles be separated by lift increments for inspection
      - Contractors will need to ensure that there is space to lay out several soil piles to safely perform inspection
      - Spoils will be released to be handled in accordance with the site management plan after inspection
    - **Once groundwater is encountered and/or beyond a depth of 10 feet bgs:**
      - drilling fluids, such as slurry, may be used
      - there are no restrictions on lift increments
      - monitoring as described above may continue for the first few feet, at the discretion of the monitors, if practical
  - **For an excavator (for things such as utility trenching):**
    - Bucket must have a smooth flat edge (ie, without teeth)
    - Excavation must occur in 2-inch lifts or less to a minimum depth of 10 feet below ground surface (bgs), to groundwater, or to the bottom of the trench, whichever comes first.
      - Monitors/Archaeological staff may determine monitoring is necessary beyond a depth of 10 feet bgs based on observations and/or Site conditions.
    - Monitors will be observing the lifts as they are being excavated.
    - Contractors must stop work at the request of the monitors if further examination of soils, sidewalls, and/or trench floor is necessary. Work may resume once directed by monitors.

- Spoils piles not containing drilling fluids must be inspected by the monitors before being loaded and/or off-hauled.
  - Contractors will need to place the spoils in a safe and accessible area for inspection.
- **Contractor is responsible for creating a safe environment for the monitors to inspect the sidewalls, bottom of the trench, and spoils.**
  - The contractor is responsible for providing all equipment such as bucket trucks, ladders, and shoring to ensure a safe environment, if needed.
  - The contractor is responsible for providing and using equipment to allow monitors to safely access the trench in the event that a cultural feature is encountered in an accessible location. Such activities would include, but are not limited to, pulling back sidewalls, removing overburden, and placing shoring.
- **In the event that a feature is encountered in a trench (*not the foundation holes*), all work must stop.**
  - All equipment must be moved a minimum of 50 feet away from the find.
  - Work may continue outside of the 50-foot radius only if monitors are available to monitor the work.
  - Depending on the find, work may be delayed for a period of time ranging from several hours to a few days (2–3) depending on the nature of the find and the accessibility of the find location.
  - Contractors may be asked to help the archaeologists access the find by pulling back sidewalls, removing overburden, and/or placing shoring.
  - All spoils generated from the excavation must be kept onsite to be screened by the monitors. This may require contractors to provide a designated location for such spoils. Once released by monitors, spoils can be handled in accordance with the site management plan.
  - Work may not resume in the area until directed by the archaeologists and Tribal monitors.

## EXHIBIT C-05

Without limiting the Contractor's indemnification of the City, and prior to commencing any of the Services required under this Agreement, the Contractor shall provide and maintain in full force and effect, at its sole cost and expense, the following insurance policies with at least the indicated coverages, provisions and endorsements:

### A. COMMERCIAL GENERAL LIABILITY INSURANCE

1. Commercial General Liability Insurance policy which provides coverage at least as broad as Insurance Services Office form CG 00 01. Policy limits are subject to review, but shall in no event be less than, the following:

\$5,000,000 Each occurrence  
\$5,000,000 General Aggregate  
\$5,000,000 Products/Completed Operations Aggregate  
\$5,000,000 Personal Injury  
\$5,000,000 Project Aggregate

2. Exact structure and layering of the coverage shall be left to the discretion of Contractor; however, any excess or umbrella policies used to meet the required limits shall be at least as broad as the underlying coverage and shall otherwise follow form.
3. The following provisions shall apply to the Commercial Liability policy as well as any umbrella policy maintained by the Contractor to comply with the insurance requirements of this Agreement:
  - a. Coverage shall be on a "pay on behalf" basis with defense costs payable in addition to policy limits;
  - b. There shall be no cross liability exclusion which precludes coverage for claims or suits by one insured against another; and
  - c. Coverage shall apply separately to each insured against whom a claim is made or a suit is brought, except with respect to the limits of liability.

### B. BUSINESS AUTOMOBILE LIABILITY INSURANCE

Business automobile liability insurance policy which provides coverage at least as broad as ISO form CA 00 01 with policy limits a minimum limit of not less than five million dollars (\$5,000,000) each accident using, or providing coverage at least as broad as, Insurance Services Office form CA 00 01. Liability coverage shall apply to all owned, non-owned and hired autos.

In the event that the Work being performed under this Agreement involves transporting of hazardous or regulated substances, hazardous or regulated wastes and/or hazardous or regulated materials, Contractor and/or its subcontractors involved in such activities shall provide coverage with a limit of two million dollars (\$2,000,000) per accident covering transportation of such materials by the addition to the Business Auto Coverage Policy of Environmental Impairment Endorsement MCS90 or Insurance Services Office endorsement form CA 99 48, which amends the pollution exclusion in the standard Business Automobile Policy to cover pollutants that are in or upon, being transported or towed by, being loaded onto, or being unloaded from a covered auto.

C. WORKERS' COMPENSATION

1. Workers' Compensation Insurance Policy as required by statute and employer's liability with limits of at least one million dollars (\$1,000,000) policy limit Bodily Injury by disease, one million dollars (\$1,000,000) each accident/Bodily Injury and one million dollars (\$1,000,000) each employee Bodily Injury by disease.
2. The indemnification and hold harmless obligations of Contractor included in this Agreement shall not be limited in any way by any limitation on the amount or type of damage, compensation or benefit payable by or for Contractor or any subcontractor under any Workers' Compensation Act(s), Disability Benefits Act(s) or other employee benefits act(s).
3. This policy must include a Waiver of Subrogation in favor of the City of Santa Clara, its City Council, commissions, officers, employees, volunteers and agents.

D. POLLUTION LIABILITY

In the event that this contract involves hazardous or regulated wastes and/or hazardous or regulated materials, Contractor and/or its subcontractors shall provide a Contractor's Pollution Liability Insurance policy with coverage limits not less than two million dollars (\$2,000,000) each claim in connection with the Work performed under this Contract. All activities contemplated in this agreement shall be specifically scheduled on the policy as "covered operations." Any deductible must be declared to and approved by City. Such policy shall cover, at a minimum, liability for bodily injury, damage to and loss of use of property, and clean-up costs arising from sudden, accidental and gradual pollution and remediation in connection with the Work under this Agreement. Contractor will use its best efforts to have the City, Council, officers, employees and volunteers added as additional insureds under this policy. The following provisions shall apply:

1. The policy shall provide coverage for the hauling of waste from the project site to the final disposal location, including non-owned disposal sites.
2. Products/completed operations coverage shall extend a minimum of three (3) years after project completion.
3. Coverage shall be included on behalf of the insured for covered claims arising out of the actions of independent contractors.
4. If the insured is using subcontractors the Policy must include work performed "by or on behalf" of the insured.
5. Policy shall contain no language that would invalidate or remove the insurer's duty to defend or indemnify for claims or suits expressly excluded from coverage. Policy shall specifically provide for a duty to defend on the part of the insurer.

E. COMPLIANCE WITH REQUIREMENTS

All of the following clauses and/or endorsements, or similar provisions, must be part of each commercial general liability policy, and each umbrella or excess policy.

1. Additional Insureds. City of Santa Clara, its City Council, commissions, officers, employees, volunteers and agents are hereby added as additional insureds in respect to liability arising out of Contractor's work for City, using Insurance Services Office (ISO) Endorsement CG 20 10 11 85 or the combination of CG 20 10 03 97 and CG 20 37 10 01, or its equivalent.

2. Primary and non-contributing. Each insurance policy provided by Contractor shall contain language or be endorsed to contain wording making it primary insurance as respects to, and not requiring contribution from, any other insurance which the indemnities may possess, including any self-insurance or self-insured retention they may have. Any other insurance indemnities may possess shall be considered excess insurance only and shall not be called upon to contribute with Contractor's insurance.
3. General Aggregate. The general aggregate limits shall apply separately to Contractor's work under this Agreement providing coverage at least as broad as Insurance Services Office (ISO) Endorsement CG 2503, 1985 Edition, or insurer's equivalent (CGL);
4. Cancellation.
  - a. Each insurance policy shall contain language or be endorsed to reflect that no cancellation or modification of the coverage provided due to non-payment of premiums shall be effective until written notice has been given to City at least ten (10) days prior to the effective date of such modification or cancellation. In the event of non-renewal, written notice shall be given at least ten (10) days prior to the effective date of non-renewal.
  - b. Each insurance policy shall contain language or be endorsed to reflect that no cancellation or modification of the coverage provided for any cause save and except non-payment of premiums shall be effective until written notice has been given to City at least thirty (30) days prior to the effective date of such modification or cancellation. In the event of non-renewal, written notice shall be given at least thirty (30) days prior to the effective date of non-renewal.
5. Other Endorsements. Other endorsements may be required for policies other than the commercial general liability policy if specified in the description of required insurance set forth in Sections A through E of this Document 00820.

F. ADDITIONAL INSURANCE RELATED PROVISIONS

Contractor and City agree as follows:

1. Requirements of specific insurance coverage features described in this Agreement shall not be construed to be a limitation of liability on the part of Contractor or any of its subcontractors, nor to relieve any of them of any liability or responsibility under the Contract Documents, as a matter of law or otherwise. Such requirements are not intended by any Party to be limited to providing coverage for the vicarious liability of the City or to the supervisory role, if any, of City. All insurance coverage provided pursuant to this Agreement in any way relating to City is intended to apply to the full extent of the policies involved.
2. Contractor shall maintain all required insurance policies in full force and effect during entire period of performance of the Services under this Agreement of Contract Documents. Contractor shall also keep such insurance in force during warranty and guarantee periods. At time of making application for extension of time, Contractor shall submit evidence that insurance policies will be in effect during requested additional period of time.

3. City reserves the right, at any time during the term of this Agreement to change the amounts and types of insurance required by giving the Contractor thirty (30) days advance written notice of such change. If such change results in substantial additional cost to the Contractor, the City will negotiate in good faith additional compensation proportional to the increased benefit to City.
4. Any type of insurance or any increase of limits of liability not described in this Exhibit which Contractor requires for its own protection or in compliance with applicable statutes or regulations, shall be Contractors' responsibility and at its own expense.
5. No liability insurance coverage provided by Contractor to comply with the terms of this Agreement shall prohibit Contractor, or Contractor's employees, or agents, from waiving the right of subrogation prior to a loss. Contractor waives its right of subrogation against Indemnitees. Any property insurance policies affected by Contractor shall be endorsed to delete the subrogation condition as to indemnitees or shall specifically allow Contractor to waive subrogation prior to a loss. Contractor hereby waives any right of recovery against the indemnitees and agrees to require any subcontractor to do so.
6. Contractor agrees to ensure that subcontractors, and any other party involved with the Services who is brought onto or involved in the performance of the Services by Contractor, provide the same minimum insurance coverage required of Contractor, except as with respect to limits. Contractor agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this Agreement. Contractor agrees that upon request by City, all agreements with, and insurance compliance documents provided by, such subcontractors and others engaged in the project will be submitted to City for review.
7. Contractor shall cooperate fully with City and Contractor's insurance companies in any safety and accident prevention program and claims handling procedures as established for the performance of Services under this Agreement.
8. All coverage types and limits required under this Agreement are subject to approval, modification and additional requirements by the City, as the need arises. Contractor shall not make any reductions in scope of coverage which may affect City's protection without City's prior written consent.
9. For purposes of applying insurance coverage only, all contracts pertaining to the performance of services will be deemed to be executed when finalized and any activity commences in furtherance of performance under this agreement.
10. Contractor acknowledges and agrees that any actual or alleged failure on the part of City to inform Contractor of non-compliance with any of the insurance requirements set forth in this Agreement in no way imposes any additional obligations on City nor does it waive any of the City's rights under this Agreement or any other regard.
11. Any provision in this Agreement dealing with the insurance coverage provided pursuant to these requirements, is subordinate to and superseded by the requirements contained herein. These insurance requirements are intended to be separate and distinct from any other provision in this Agreement and are intended by the Parties here to be interpreted as such.

12. Contractor agrees to be responsible for ensuring that no contract used by any party involved in any way with the project reserves the right to charge City or Contractor for the cost of additional insurance coverage required by this Agreement. Any such provisions are to be deleted with reference to City. It is not the intent of City to reimburse any third party for the cost of complying with these requirements. There shall be no recourse against City for payment of premiums or other amounts with respect thereto.
13. Contractor agrees to obtain and provide to City evidence of Professional Liability insurance for Architects or Engineers if engaged by Contractor to perform any of the Services required under this Agreement. City shall determine the minimum coverage and policy limits required, after consultation with Contractor.
14. The City acknowledges that some insurance requirements contained in this Agreement may be fulfilled by self-insurance on the part of the Contractor. The Contractor's insurance obligations under this Agreement under may be satisfied in whole or in part by adequately funded self-insurance retention, but only after approval from the City Attorney's Office upon satisfactory evidence of financial capacity.
15. The City reserves the right to withhold payments from the Contractor in the event of material noncompliance with the insurance requirements set forth in this Agreement.

G. EVIDENCE OF COVERAGE

Prior to commencement of any Services under this Agreement, Contractor, and each and every subcontractor (of every tier) shall, at its sole cost and expense, provide and maintain not less than the minimum insurance coverage with the endorsements and deductibles indicated in this Agreement. Such insurance coverage shall be maintained with insurers, and under forms of policies, satisfactory to City and as described in this Agreement. Contractor shall file with the City all certificates and endorsements for the required insurance policies for City's approval as to adequacy of the insurance protection.

H. EVIDENCE OF COMPLIANCE

Contractor or its insurance broker shall provide the required proof of insurance compliance, consisting of Insurance Services Office (ISO) endorsement forms or their equivalent and the ACORD form 25-S certificate of insurance (or its equivalent), evidencing all required coverage shall be delivered to City, or its representative as set forth below, at or prior to execution of this Agreement. Upon City's request, Contractor shall submit to City copies of the actual insurance policies or renewals or replacements. Unless otherwise required by the terms of this Agreement, all certificates, endorsements, coverage verifications and other items required to be delivered to City pursuant to this Agreement shall be mailed to:

EBIX Inc. C/O City of Santa Clara Electric Department P.O. Box 100085 – S2 Duluth, GA 30096	or	1 Ebix Way John's Creek, GA 30097
Telephone number: 951-766-2280		
Fax number: 770-325-0409		
Email address: <a href="mailto:ctsantaclara@ebix.com">ctsantaclara@ebix.com</a>		

I. QUALIFYING INSURERS

All of the insurance companies providing insurance for Contractor shall have, and provide written proof of, an A. M. Best rating of at least A minus 6 (A- VI) or shall be an insurance company of equal financial stability that is approved by the City or its insurance compliance representatives.

END OF SPECIAL CONDITIONS

**Attachment A – Change Order**

**CONTRACT CHANGE ORDER NO. \_\_\_\_\_**

PROJECT NAME: Laurelwood Substation Transmission Line Extension PROJECT ID NO.: CIP 2443 CITY CONTRACT COMMITMENT NO.: ORIGINAL CONTRACT PRICE: \$ PREVIOUS APPROVED CHANGE ORDERS (TOTAL NET CHANGE): \$ CURRENT CHANGE ORDER (INCREASE/DECREASE, IF ANY): \$ ADJUSTED CONTRACT PRICE: \$	
CONTRACTOR:	
<b>DESCRIPTION OF CHANGE ORDER:</b> The City hereby authorizes the following change(s) in the Work or the Contract Documents:	
<b>CHANGE IN CONTRACT PRICE:</b> Net Change This Change Order:	<b>CHANGE IN CONTRACT TIME:</b> Net Change in Contract Time Per This Change Order: - <b>Working Days</b>
<p> <b>Contractor Certification:</b> By signing this Change Order, Contractor certifies that it will provide all labor, materials, supplies, tools, equipment, transportation, traffic control, facilities, permits, utilities, services, and incidentals necessary to timely perform and complete the Work in this Change Order in accordance with the Contract Documents. Contractor agrees that this Change Order is complete and comprehensive with respect to the subject matter of this Change Order, including any added, deleted, or changed Work. This Change Order is fully inclusive of all costs related to the changes in this Change Order, including direct and indirect costs (including, but not limited to, any and all overhead and costs incurred due to lost efficiency or delays of any kind), and any other costs, expenses, or time extensions not included herein are deemed waived. The terms set forth in this Change Order constitute full resolution, settlement, accord and satisfaction with respect to the subject matter of this Change Order as to any adjustment of the Contract Price or Contract Time or any modification of the Contract Documents in relation thereto. Contractor hereby waives and releases the City from any pending or future claims, including, but not limited to, subcontractor or supplier claims, relating to the subject matter of this Change Order and waives any further adjustment to the Contract Price or Contract Time or further modification of the Contract Documents in relation thereto. With regard to this release, Contractor expressly waives the terms of Civil Code § 1542 which provides:                 </p> <p style="margin-left: 40px;">                     “A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party.”                 </p>	

**Failure to Execute:** If Contractor fails to promptly execute this Change Order or if Contractor disputes the terms of this Change Order, City may unilaterally approve this Change Order as set forth in Article 6 of the General Conditions. Contractor may dispute the terms of a unilateral Change Order by submitting a timely Claim pursuant to Article 12 of the General Conditions.

All other terms and conditions in the Contract Documents and all previous Change Orders which have not been addressed in this Change Order remain unchanged and continue in full force and effect. This Change Order is not valid until signed by City.

<b>CONTRACTOR</b>	<b>Accepted and Agreed By:</b>	<b>Date:</b>
<b>CITY OF SANTA CLARA</b>	<b>Approved By:</b>	<b>Date:</b>

## Attachment B – Escrow Agreement for Security Deposits In Lieu of Retention

This Escrow Agreement (“Agreement”) is made and entered into on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the City of Santa Clara, a chartered Municipal Corporation of the State of California, whose address is 1500 Warburton Avenue, Santa Clara, California 95050, hereinafter called “Owner”; \_\_\_\_\_, whose address is \_\_\_\_\_, hereinafter called “Contractor”; and <[City, as escrow agent ...OR... [\_\_\_\_\_] >, a state or federally chartered bank in the State of California, whose address is \_\_\_\_\_, hereinafter called “Escrow Agent”.

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

- (1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract (Contract Number 2443) entered into between the Owner and Contractor for Northwest Loop Capacity Upgrade Project in the amount of <\$\_\_\_\_\_ > dated <\_\_\_\_\_, 20\_\_ > (hereinafter referred to as the “Contract”). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the Escrow Agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in name of the City of Santa Clara, and shall designate the Contractor as the beneficial owner.
- (2) The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.
- (3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this Agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.
- (4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.
- (5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.
- (6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.
- (7) The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days’ written notice to the Escrow Agent from the Owner of the

default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

- (8) Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.
- (9) Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this Agreement and the Owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.
- (10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of Owner:

On behalf of Contractor:

\_\_\_\_\_

Title

\_\_\_\_\_

Title

\_\_\_\_\_

Name

\_\_\_\_\_

Name

\_\_\_\_\_

Signature

\_\_\_\_\_

Signature

\_\_\_\_\_

Address

\_\_\_\_\_

Address

\_\_\_\_\_

City/State/Zip

\_\_\_\_\_

City/State/Zip

On behalf of Escrow Agent:

\_\_\_\_\_

Title

\_\_\_\_\_

Name

\_\_\_\_\_

Signature

\_\_\_\_\_

Address

\_\_\_\_\_

City/State/Zip

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

Owner:

Contractor:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Title

\_\_\_\_\_

Title

\_\_\_\_\_

Name

\_\_\_\_\_

Name

\_\_\_\_\_

Signature

\_\_\_\_\_

Signature

REVIEWED AS TO FORM:

\_\_\_\_\_

City Attorney

\_\_\_\_\_, 20\_\_

Date

**Attachment C – Agreement and Release of Any and All Claims**

This Agreement and Release of Any and All Claims (“Agreement and Release”) is made and entered into on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ (the “Effective Date”), by and between the City of Santa Clara, California, a chartered California municipal corporation, whose primary place of business is located at 1500 Warburton Avenue, Santa Clara, CA 95050 (“City”), and \_\_\_\_\_ <insert Contractor’s name>, a \_\_\_\_\_ <choose one: corporation/partnership/individual>, whose primary place of business is located at \_\_\_\_\_ <insert Contractor’s address> (“Contractor”). City and Contractor may be referred to in this Agreement and Release individually as a “Party” or collectively as the “Parties.”

RECITALS

- A. City and Contractor entered into Contract Number 2443 (“Contract”) for Work on the City’s Northwest Loop Capacity Upgrade Project (“Project”).
- B. The Work under the Contract has been completed.
- C. City wishes to close out the Project and tender Final Payment to Contractor, including release of all undisputed retention, if any, pursuant to Public Contract Code § 7107.
- D. Defined terms used in this Agreement and Release have the meaning provided in Article 1 of the Contract General Conditions unless otherwise specified.

Now, therefore, it is mutually agreed between City and Contractor as follows:

AGREEMENT

- 1. City’s determination of Final Payment, including deductions for liquidated damages, if any, or other deductions or withholdings is as follows:

Original Contract Price	\$ _____
Modified Contract Price	\$ _____
Total Payment to Date	\$ _____
Liquidated Damages	\$ _____
Other Deductions*	\$ _____
Other Withholding**	\$ _____
Payment Due Contractor	\$ _____

\*Other Deductions includes the following:  
< \_\_\_\_\_ >

\*\* Other Withholding includes the following:  
< \_\_\_\_\_ >

- 2. Subject to the provisions of this Agreement and Release, City will pay Contractor \$< \_\_\_\_\_ > as Final Payment.

3. Contractor acknowledges that its sole and exclusive remedy for any claims against City arising from the Contract is to submit a timely, written Claim pursuant to Article 12 of the General Conditions.
4. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against City arising from or related to the Contract, except for the Claims listed below, whether pending or not yet submitted. The following Claims are disputed (the "Disputed Claims") and are specifically excluded from the operation of this Agreement and Release:

<u>Claim No. of Claim</u>	<u>Date Submitted</u>	<u>Description of Claim</u>	<u>Amount</u>
-------------------------------	-----------------------	-----------------------------	---------------

*[Contractor: Complete as indicated, using an attachment if needed. If there are no Disputed Claims, write "No Disputed Claims" above.]*

5. This Agreement and Release will be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against City, and each of its officers, employees, consultants, and agents, including, but not limited to, the City Council and Engineer, arising from or related to the Contract, except for the Disputed Claims set forth in Section 4, above. Nothing in this Agreement and Release shall limit or modify Contractor's continuing obligations described in Section 7 of this Agreement and Release, below.
6. Consistent with and subject to the limitations of California Public Contract Code § 7100, Contractor hereby agrees that, in consideration of the payment set forth in Section 2 of this Agreement and Release, Contractor hereby releases and forever discharges City, and each of its officers, employees, consultants, and agents, including, but not limited to, the City Council and Engineer, from any and all liability, claims, demands, actions or causes of action of whatever kind or nature arising out of or in any way relating to the Contract, with the exception of the Disputed Claims set forth in Section 4, above.
7. Guarantees and warranties for the Work, and any other continuing obligations of Contractor, including, but not limited to, bond and indemnity obligations, shall remain in full force and effect as specified in the Contract Documents.
8. Contractor hereby waives the provisions of California Civil Code § 1542, which provides as follows:
 

A general release does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party.
9. The provisions of this Agreement and Release are contractual in nature and not mere recitals, and shall be considered independent and severable. If any provision of this Agreement and Release or any part thereof is held invalid in whole or in part under any Laws, then that provision or part shall remain in force and effect only to the extent permitted by Laws, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.

10. Contractor represents and warrants that it is the true and lawful owner of all Claims and other matters released pursuant to this Agreement and Release. Each party represents and warrants that it has been represented by counsel of its own choosing in connection with this Agreement and Release.
11. City's rights under the Contract survive completion of the Work, termination of the Contract, and execution of this Agreement and Release.
12. The individuals executing this Agreement and Release represent and warrant that they have the full right, title, power, legal capacity, and authority to enter into and to execute this Agreement and Release on behalf of the respective legal entities of the Contractor and the City. If Contractor is a corporation, signatures from two officers of the corporation are required pursuant to California Corporations Code § 313.

*[Signatures are on the following page.]*

**\*\*\* CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING \*\*\***

The Parties acknowledge and accept the terms and conditions of this Agreement and Release as evidenced by the following signatures of their duly authorized representatives. It is the intent of the Parties that this Agreement shall become operative on the Effective Date.

**CONTRACTOR:** \_\_\_\_\_  
Business Name

s/ \_\_\_\_\_

\_\_\_\_\_  
Name, Title

Date: \_\_\_\_\_

Second Signature (See Section 13):

s/ \_\_\_\_\_

\_\_\_\_\_  
Name, Title

Date: \_\_\_\_\_

**CITY:**

s/ \_\_\_\_\_

\_\_\_\_\_  
Name, Title

Date: \_\_\_\_\_

## Technical Specifications

Division 2 Site Construction

02 06 00 Asphalt Concrete Demolition  
02 41 00 Site Demolition

Division 3 Concrete

03 10 00 Concrete Forming and Accessories  
03 20 00 Concrete Reinforcement  
03 30 00 Cast-n-Place Concrete  
03 39 00 Concrete Curing

Division 31 Earthwork

31 00 00 Earthwork  
31 25 00 Erosion Control  
31 64 00 Caissons

Division 32 Exterior Improvements

32 80 00 Irrigation  
32 90 00 Landscaping

Division 33 Utilities

33 00 00 Utility Trenching and Backfill  
33 71 16 Utility Poles  
33 71 26 Transmission and Distribution Equipment  
33 71 74 Transmission and Distribution De-Energization Coordination  
33 79 00 Site Grounding

Appendix

A Geotechnical Report  
B City of Santa Clara General Notes  
C ACCR Installation Guidelines

**Technical Specifications**

**DOCUMENT 00 01 07**

**SEALS PAGE**

**CITY OF SANTA CLARA  
LAURELWOOD TRANSMISSION LINE  
CIP-2443**

Applies to the Transmission Line portion of the project.

Signature: \_\_\_\_\_

Date: 2025-11-19



**END OF DOCUMENT 00 01 07**

DOCUMENT 00 01 10

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<u>DIVISION</u>	<u>SECTION</u>	<u>TITLE</u>
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	02 06 00	Asphalt Concrete Demolition
	02 41 00	Site Demolition
<u>DIVISION</u>	<u>SECTION</u>	<u>TITLE</u>
3		CONCRETE
	03 10 00	Concrete Forming and Accessories
	03 20 00	Concrete Reinforcement
	03 30 00	Cast-in-Place Concrete
	03 39 00	Concrete Curing
<u>DIVISION</u>	<u>SECTION</u>	<u>TITLE</u>
31		EARTHWORK
	31 00 00	Earthwork
	31 25 00	Erosion Control
	31 64 00	Caissons
<u>DIVISION</u>	<u>SECTION</u>	<u>TITLE</u>
32		EXTERIOR IMPROVEMENTS
	32 80 00	Irrigation
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<u>DIVISION</u>	<u>SECTION</u>	<u>TITLE</u>
33		UTILITIES
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	A	Geotechnical Report
	B	City of Santa Clara General Notes
	C	ACCR Installation Guidelines
	D	Tapered Utility Pole Installation Guidelines

## SECTION 02 06 00

### ASPHALT CONCRETE DEMOLITION

#### PART 1 – GENERAL

##### 1.1 SCOPE

- A. This specification addresses demolition and removal, or pulverization of asphalt concrete during execution of the contract work. Do not begin demolition until authorization is received from the Owner. Remove rubbish and debris from the job site daily. Store materials that cannot be removed daily in areas specified by the Owner. Contractor shall determine if pulverized asphalt concrete is needed for rough grading fill or should be removed from site and disposed in a legal manner.

##### 1.2 RELATED SECTIONS

- A. Document 02 05 00, Site Demolition
- B. Section 02 30 00, Earthwork

##### 1.3 REFERENCE STANDARDS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only, and the latest, accepted revision of the text shall apply.
- B. General: Conform to the latest editions, unless indicated, of the following reference standards to the extent specified.
  - 1. ANSI A10.6 – Demolition Operations/Safety Requirements
  - 2. Bay Area Air Quality Management District – Regulation 11 Hazardous Pollutants Rule 2
- C. Ordinances, codes and regulations: The existing improvements shall be demolished in accordance with all of the requirements of all legally constituted authorities having jurisdiction, including all local ordinances, codes and the safety orders of the State Division of Industrial Safety.

##### 1.4 SUMMARY

- A. This section includes the following:
  - 1. Demolition and removal or pulverization of site improvements.

##### 1.5 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, or otherwise indicated to remain the owner's property, all demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

## 1.6 SUBMITTALS

- A. General – Submit each item in this Article according to the Contract Documents, unless otherwise indicated.
  - 1. Proposed dust control measures.
  - 2. Proposed noise control measures.
  - 3. Schedule of demolition activities indicating the following:
    - a. Detailed sequence of demolition and removal or pulverization work, with starting and ending dates for each activity.
    - b. Dates for shutoff, capping, and continuation of utility services.
  - 4. Photographs, sufficiently detailed, of existing conditions or adjoining construction and site improvements that might be misconstrued as damage caused by demolition operations.
  - 5. Record Drawings at Project closeout.
    - a. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.
  - 6. Recycling Plan

## 1.7 QUALITY ASSURANCE

- A. Demolition Firm Qualifications – Engage an experienced firm that has successfully completed demolition work similar to that indicated for this project.
- B. Regulatory Requirements – Comply with governing EPA notification regulations before starting demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Predemolition Conference – Conduct conference at Project site.

## 1.8 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by the Owner as far as practical.
- B. Asbestos – It is not expected that asbestos will be encountered in the course of this Contract. If any materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Owner.
- C. Storage or sale of removed items or materials on-site will not be permitted.

## PART 2 – PRODUCTS (Not applicable)

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- A. Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.
- B. Perform surveys as the Work progresses to detect hazards resulting from demolition activities.

### **3.2 PREPARATION**

- A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area.
  - 1. Erect protection, such as walks, fences, railings, canopies, and covered passageways, where shown on the drawings.
  - 2. Protect existing site improvements, appurtenances, and landscaping to remain.

### **3.3 EXPLOSIVES**

- A. Explosives – Use of explosives will not be permitted.

### **3.4 POLLUTION CONTROLS**

- A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust, dirt and debris. Comply with governing environmental protection regulations.
  - 1. Do not create hazardous or objectionable conditions, such as flooding, and pollution, when using water.
  - 2. Provide street sweeper as needed to clean debris on public streets.
- B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 1. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage to vehicles.
  - 2. Provide street sweeper as needed to clean debris on public streets.
- C. Clean adjacent buildings and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing before start of demolition.

### **3.5 DEMOLITION**

- A. Asphalt Concrete Demolition – Break up and remove asphalt concrete completely and remove from site. Use methods required to complete work within limitations of governing regulations and as follows:
  - 1. Where only a portion of the asphalt concrete is to be demolished, the asphalt concrete shall be cut along the demolition limit in a neat line to a minimum depth of 0.17 foot with a power driven saw before the asphalt concrete is removed.
  - 2. Removal of base material under asphalt concrete pavement is not required.
- B. Damages – Promptly repair damages to adjacent facilities caused by demolition operations.

### **3.6 DISPOSAL OF DEMOLISHED MATERIALS**

- A. General – Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Disposal – Transport demolished materials off Owner’s property and legally dispose of them.

### **3.7 PULVERIZATION OF ASPHALT CONCRETE**

- A. General: Asphalt concrete may be utilized as fill material provided the materials are crushed and pieces are 2-inches or less in size.

**END OF SECTION 02 06 00**

## SECTION 02 41 00

### SITE DEMOLITION

#### PART 1 – GENERAL

##### 1.1 SCOPE

- A. Furnish equipment and materials and perform labor required to execute this work as indicated on the drawings, as specified and as necessary to complete the Contract, including, but not limited to these major items:
  - 1. Coordinate the work of this Section with other trades including on-site construction.
  - 2. Removal and disposal of above-grade improvements.
  - 3. Removal and disposal of below-grade improvements.
  - 4. Capping, disconnecting, sealing and removing site utilities.

##### 1.2 RELATED SECTIONS

- A. Section 02 06 00, Asphalt Concrete Demolition
- B. Section 02 30 00, Earthwork

##### 1.3 REFERENCE STANDARDS

- A. Ordinances, codes and regulations: The entire system shall be installed in accordance with all of the requirements of all legally constituted authorities having jurisdiction, including all local ordinances, codes and the safety orders of the State Division of Industrial Safety.

##### 1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, or otherwise indicated to remain the owner's property, all demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

##### 1.5 SUBMITTALS

- A. General – Submit each item in this Article according to the Contract Documents, unless otherwise indicated.
  - 1. Proposed dust control measures.
  - 2. Proposed noise control measures.
  - 3. Schedule of demolition activities indicating the following:
    - a. Detailed sequence of demolition and removal work, with starting and ending dates for each activity.

- b. Dates for shutoff, capping, and removal of utility services.
- 4. Photographs, sufficiently detailed, of existing conditions or adjoining construction and site improvements that might be misconstrued as damage caused by demolition operations.
- 5. Record Drawings at Project closeout.
  - a. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.
- 6. Recycling Plan

## **1.6 QUALITY ASSURANCE**

- A. General: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work in this Section.
- B. Perform work as indicated on plans, comply with all safety regulation of authorities having jurisdiction over work, including hauling and disposal.

## **1.7 DELIVERY, STORAGE AND HANDLING**

- A. Materials to be salvaged for the owner shall be bundled or packaged if necessary, and stored on site, protected from theft or damage and delivered to the owner, at a location described on the plans or provided by the owner.
- B. Materials to be salvaged for reuse shall be protected from damage and theft. These items become the Contractors responsibility from removal to reinstallation. All items are to be stored and organized in a weather-protected environment where appropriate.

## **PART 2 – PRODUCTS (Not applicable)**

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- A. Site and drawings: Carefully examine the site and compare the drawings with existing conditions. By the act of submitting bids, the Contractor shall be deemed to have made such examination and to have accepted such conditions, and to have made allowance therefore in preparing his figure.
- B. Verify of the size, quantity, and type of existing improvements to be demolished, or salvaged.
- C. Clear site of all materials not indicated to be saved and legally dispose of materials offsite.
- D. Verify that all utilities shown to be disconnected have been disconnected and capped or removed as indicated on the plans.

**END OF SECTION 02 41 00**

## SECTION 03 10 00

### CONCRETE FORMING AND ACCESSORIES

#### PART 1 – GENERAL

##### 1.1 WORK INCLUDED

- A. Formwork for cast-in-place concrete, with shoring, bracing, and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

##### 1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Section 03 30 00, Cast-In-Place Concrete
  - 1. Supply of concrete accessories for placement by this Section.

##### 1.3 RELATED SECTIONS

- A. Section 31 00 00, Earthwork
- B. Section 03 20 00, Concrete Reinforcement
- C. Section 03 30 00, Cast-In-Place Concrete

##### 1.4 REFERENCES

- A. ACI 347, Guide to Formwork for Concrete
- B. ACI 318, Building Code Requirements for Structural Concrete and Commentary
- C. PS-1, Construction and Industrial Plywood
- D. ACI 301, Specifications for Structural Concrete
- E. California Code of Regulations, Title 24, Part 2, of current California Building Code (CBC)

##### 1.5 DESIGN REQUIREMENTS

- A. Design and construction of formwork shall be the responsibility of the Contractor. Design, engineer, and construct formwork, shoring and bracing to conform to design and code requirements; resultant concrete to conform to required shape, line, and dimension.

## **1.6 QUALITY ASSURANCE**

- A. Perform Work in accordance with ACI 347 and ACI 318.

## **1.7 REGULATORY REQUIREMENTS**

- A. Conform to current version of CBC for design, fabrication, erection, and removal of formwork.

## **1.8 COORDINATION**

- A. Coordinate this Section with other Sections of work which require attachment of components to formwork.
- B. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement, request instructions from Engineer before proceeding.

## **PART 2 – PRODUCTS**

### **2.1 WOOD FORM MATERIALS**

- A. Form Materials
  - 1. At the discretion of the Contractor.

### **2.2 PREFABRICATED FORMS**

- A. Preformed Steel Forms
  - 1. Minimum 16 gage matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
- B. Glass Fiber Fabric Reinforced Plastic Forms
  - 1. Matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished concrete surfaces.

### **2.3 FORMWORK ACCESSORIES**

- A. Form Ties
  - 1. Snap-off type, galvanized metal, adjustable length, cone type, free of defects that could leave holes larger than 1/4-inch in concrete surface.
- B. Form Release Agent
  - 1. Colorless mineral oil which will not stain concrete, absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.

## **PART 3 – EXECUTION**

### **3.1 EXAMINATION**

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with Drawings.
- B. All surfaces of foundations upon or against which concrete is to be placed shall be free from standing water, mud and debris. Earth shall be free from frost or ice. The surfaces of absorptive forms, soils and existing foundations against which concrete is to be placed shall be moistened thoroughly so that moisture will not be drawn from the freshly placed concrete. Polyethylene film shall be used as a moisture barrier. The surfaces of construction joints shall be clean, rough and surface dry when covered with fresh concrete. Cleaning shall consist of the removal of loose concrete, coatings, sand, curing compound (if used), and other foreign material. The surfaces of construction joints shall be roughened, if necessary, washed thoroughly, and thoroughly surface dried prior to placement of adjoining concrete.

### **3.2 EARTH FORMS**

- A. Earth forms are not permitted.

### **3.3 ERECTION – FORMWORK**

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over-stressing by construction loads.
- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.
- E. Obtain approval before framing openings in structural members which are not indicated on Drawings.
- F. Provide chamfer strips on external corners of beams, joists, columns and equipment pads.
- G. Forms shall be sufficiently tight to prevent loss of mortar from the concrete and shall be maintained rigidly in position until the concrete has hardened sufficiently to prevent damage by form removal. In no instance shall forms be removed less than twenty-four (24) hours after placing concrete.
- H. Formed concrete shall be placed in continuous, approximately horizontal layers, the depths of which generally shall not exceed twenty (20) inches. Concrete shall be vibrated until it has been consolidated to the maximum practicable density, is free from pockets of coarse aggregate, and conforms to all surfaces of forms and embedded materials.

### **3.4 APPLICATION - FORM RELEASE AGENT**

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

### **3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS**

- A. Provide formed openings where required for items to be embedded in or passing through concrete work.
- B. Locate and set in place items which will be cast directly into concrete.
- C. Coordinate work of other Sections in forming and placing openings, slots, ringlets, recesses, chases, sleeves, bolts, anchors, and other inserts.
- D. Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- E. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- F. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitting so joints will not be apparent in exposed concrete surfaces.

### **3.6 FORM CLEANING**

- A. Clean and remove foreign matter within forms as erection proceeds.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

### **3.7 FORMWORK TOLERANCES**

- A. Construct formwork to maintain tolerances required by ACI 301.

### **3.8 FIELD QUALITY CONTROL**

- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

### **3.9 FORM REMOVAL**

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.

- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

**END OF SECTION 03 10 00**

## SECTION 03 20 00

### CONCRETE REINFORCEMENT

#### PART 1 – GENERAL

##### 1.1 WORK INCLUDED

- A. Reinforcing steel bars and accessories for cast-in-place concrete.

##### 1.2 RELATED SECTIONS

- A. Section 03 10 00, Concrete Forming and Accessories
- B. Section 03 30 00, Cast-in-Place Concrete
- C. Section 03 39 00, Concrete Curing

##### 1.3 REFERENCES

- A. ACI 301, Specifications for Structural Concrete
- B. ACI 315R-18, Guide to Presenting Reinforcing Steel Design Details
- C. ACI 318, Building Code Requirements for Structural Concrete and Commentary
- D. ACI 336.1, Specification for the Construction of Drilled Piers
- E. ACI SP-66, –ACI Detailing Manual
- F. ASTM A82, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement
- G. ASTM A497, Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete
- H. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- I. ASTM A617 Standard Specification for Axle-Steel Deformed and Plain Bars for Concrete Reinforcement
- J. ASTM A706, Standard Specification for Low-Alloy Steel, Deformed and Plain Bars for Concrete Reinforcement
- K. ANSI/AWS D1.4, Structural Welding Code - Reinforcing Steel
- L. CRSI, Concrete Reinforcing Steel Institute Manual of Practice
- M. California Code of Regulations, Title 24, Part 2, of current California Building Code (CBC), Chapter 19

#### **1.4 SUBMITTALS**

- A. Submittals shall be in accordance with Division 1, Section 01 33 00 "Submittal Procedures". The following shall be submitted:
  - 1. Shop Drawings
  - 2. Indicate bar sizes, spacings, locations, and quantities of reinforcing steel, bending and cutting schedules, and supporting and spacing devices.
- B. Manufacturer's certificate: Certify that products meet or exceed specified requirements.

#### **1.5 QUALITY ASSURANCE**

- A. Perform Work in accordance with ACI 318 and current edition of CBC, Chapter 19.
- B. Submit certified copies of mill test report of reinforcement materials analysis.

#### **1.6 COORDINATION**

- A. Coordinate with placement of formwork, formed openings and other Work.

### **PART 2 – PRODUCTS**

#### **2.1 REINFORCEMENT**

- A. Reinforcing Steel
  - 1. Reinforcing Bars: Reinforcing bars shall conform to ANSI/ASTM A615, Grade 60; or ANSI/ASTM A617, Grade 60.
  - 2. Shall be new, free from rust, scale, oil, and dirt.

#### **2.2 ACCESSORY MATERIALS**

- A. Tie Wire
  - 1. Minimum 16 gage annealed type patented system.
- B. Chairs, Bolsters, Bar Supports, Spacers
  - 1. Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor barrier puncture.
- C. Anchor Bolt Cage

#### **2.3 FABRICATION**

- A. Fabricate concrete reinforcing in accordance with ACI 318 and current edition of CBC, Chapter 19.
- B. Weld reinforcement in accordance with ANSI/AWS D1.4.
- C. Provide reinforcing splices only as indicated on Drawings.

## **PART 3 – EXECUTION**

### **3.1 PLACEMENT**

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Conform to ACI 318 code for concrete cover over reinforcement.
- E. Reinforcing steel shall be tied and supported so that it will remain within the allowable tolerances.
- F. Steel reinforcement shall be installed in excavations as shown on the Drawings or the manufacturer's shop drawings prior to placing concrete. Before being placed, surfaces of the reinforcement shall be cleaned of heavy flaky rust, loose-mill scale, dirt, grease, and other foreign substances. The reinforcement shall be accurately placed and secured in position so that it will not be displaced during the placing of the concrete. Welding or tack-welding of reinforcing bars will not be permitted except as shown on the Drawings or the manufacturer's shop drawings.
- G. The placement of reinforcing steel shall be done in accordance with ACI 301 and ACI 336.1, unless otherwise shown on the Drawings.
- H. The reinforcing steel shall be securely wired and supported to provide clear spacing, as shown on the Drawings.
- I. Splicing of reinforcing steel shall be in accordance with ACI standards unless otherwise shown. The Contractor shall not splice adjacent bars at the same points unless approved by the Owner. Compression and Tension splices shall be per ACI specifications.
- J. Anchor bolt cage assemblies consisting of anchor bolts and anchor bolt templates shall be provided by the Owner and shall be completely loaded, transported, assembled and placed by the Contractor as a unit immediately after the shaft excavation is inspected and approved, and prior to concrete placement. The Contractor shall install reinforcing ties where required, as shown on the Drawings. Procurement of the reinforcing bar is the responsibility of the Contractor.
- K. The Contractor shall provide blocking and holding devices to maintain the required position during concrete placement. The anchor bolt cage is designed so that the top template projects beyond the top of the finished concrete and will be removed after placement. The exposed ends of the anchor bolts shall be protected from mechanical damage during construction.
- L. Projection of the anchor bolts allows for the thickness of the base plate, nuts (including leveling nuts), and raking if required. The required projection dimensions are shown on the Drawings or the manufacturer's shop drawings.

- M. Orientation of the anchor bolts in relation to the direction of the transmission line shall be checked carefully by the Contractor and the Owner using data from the manufacturer's shop drawings and Drawings. An orientation mark, such as a V-notch or welded bead, is included in the top plate of the anchor bolt cage assembly for this purpose. Anchor bolts shall be plumbed by leveling the top cage plate.
- N. After concrete has set, the top cage plate shall be removed. Nuts shall be retained for installation of the steel structure.
- O. Leveling nuts shall be adjusted before installing the pole and typically shall be in a horizontal plane. However, leveling nuts can be used to obtain a desired rake.
- P. Concrete spacers or other approved noncorrosive spacing devices shall be used at sufficient intervals including near the bottom and at intervals not exceeding ten (10) feet up the shaft, to ensure concentric spacing for the entire cage length. Spacers shall be constructed of approved material equal in quality and durability to the concrete specified for the shaft. The spacers shall be of an adequate dimension to ensure a minimum three (3) inch annular space between the outside of the reinforcing cage and the side of the excavated hole.
- Q. In no case shall concrete cover over the reinforcement be less than three (3) inches clear.

### **3.2 FIELD QUALITY CONTROL**

- A. Field inspection will be performed under provisions of Section 01450 "Testing and Inspection".
- B. The Contractor and the Owner shall inspect the reinforcement for compliance with requirements as to size, shape, length, splicing, position, and amount prior to installation of the reinforcement.
- C. Welding reinforcing steel to the anchor bolt assemblies shall not be allowed.
- D. The Contractor and the Owner shall verify all details of the anchor bolt cage assemblies including size, length and grade of steel prior to installation of the assemblies.
- E. Mud, ice, hardened concrete and any other deleterious substances shall be removed from the anchor bolt cage assemblies by the Contractor prior to installation of the assemblies.
- F. Should the method of drilled pier construction employed require the removal of sheeting or casing, the Contractor shall exercise care to ensure that the reinforcement or other embedded metal is not disturbed or exposed to surrounding soil during the removal process. Spacers, capable of sliding on the casing, shall be securely attached to the reinforcement.

**END OF SECTION 03 20 00**

## SECTION 03 30 00

### CAST-IN-PLACE CONCRETE

#### PART 1 - GENERAL

##### 1.1 WORK INCLUDED

- A. Cast-in-place concrete drilled piers.
- B. Slabs on grade.

##### 1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Section 03 10 00 – Concrete Forming and Accessories

##### 1.3 RELATED SECTIONS

- A. Section 03 10 00, Concrete Forming and Accessories
- B. Section 03 20 00, Concrete Reinforcement
- C. Section 03 39 00, Concrete Curing

##### 1.4 REFERENCES

- A. The following specifications, standards, codes and guides shall govern except where the provisions of these Specifications are more stringent, in which case these Specifications shall govern. The Contractor may elevate conflicts to the Owner between these Specifications and the references below for clarification. The references below refer to the most recent year of adoption, unless otherwise stated.
- B. American Concrete Institute (“ACI”)
  - 1. ACI 214, Guide to Evaluation of Strength Test Results of Concrete
  - 2. ACI 301, Specifications for Structural Concrete
  - 3. ACI 302.1R, Guide for Concrete Floor and Slab Construction
  - 4. ACI 305, Recommended Practice for Hot Weather Concreting
  - 5. ACI 306, Recommended Practice for Cold Weather Concreting
  - 6. ACI 308.1, Standard Specification for Curing Concrete
  - 7. ACI 318, Building Code Requirements for Structural Concrete and Commentary
  - 8. ACI 336.1, Specification for the Construction of Drilled Piers
  - 9. ACI 336.3R, Design and Construction of Drilled Piers
- C. American Society for Testing and Materials (“ASTM”)
  - 1. ANSI/ASTM D994, Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)

2. ASTM D6690, Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
3. ASTM D6760 Standard Test Method for Integrity Testing of Concrete Deep Foundations by Ultrasonic Crosshole Testing
4. ASTM D1241 Standard Specification for Materials for Soil-Aggregate Subbase, Base, and Surface Courses
5. ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>))
6. ASTM C33, Standard Specification for Concrete Aggregates
7. ASTM C39 Standard Method of Test for Compressive Strength of Molded Concrete Cylinders
8. ASTM C94, Standard Specification for Ready-Mixed Concrete
9. ASTM C143 Standard Test Method for Slump of Hydraulic-Cement Concrete
10. ASTM C150, Standard Specification for Portland Cement
11. ASTM C172 Standard Method of Sampling Fresh Concrete
12. ASTM C494, Standard Specification for Chemical Admixtures for Concrete
13. ASTM C618, Standard Specification for Coal Fly Ash and Raw or Calcinated Natural Pozzolan for Use in Concrete
14. ASTM C1064 Standard Test Methods for Temperature of Freshly Mixed Portland Cement Concrete

D. Miscellaneous

1. California Code of Regulations, Title 24, Part 2, of current California Building Code (CBC), Chapter 19
2. FHWA Drilled Shafts: Construction Procedures and LRFD Design Methods, Publication No, FHWA-NHI-10-016

## 1.5 SUBMITTALS

- B. Submittals shall be in accordance with Division 1, Section 01 33 00 "Submittal Procedures". The following shall be submitted:
1. Product Data:
    - a. Provide data on joint devices, attachment accessories and admixtures.

## 1.6 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01 78 00 "Project Record Documents".

- B. Accurately record actual locations of embedded utilities and components which are concealed from view.

## 1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.
- B. Acquire cement and aggregate from same source for all work.
- C. Conform to ACI 305R when concreting during hot weather.
- D. All concrete foundations shall be constructed to the prescribed lines, grades, and dimensions as shown on the Drawings. All concrete foundations and concrete construction shall conform to the requirements of this section.
- E. The *Contractor* shall notify the *Owner* immediately of any excavations which reveal soil conditions of high compressibility, low loading capability, extensive groundwater or other conditions which are considered marginal or uncommon, and may not have been considered in the design process.

## 1.8 COORDINATION

- A. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.
- B. Also refer to Section 2.5 for submittal requirements for the concrete mix design.

## PART 2 – PRODUCTS

### 2.1 MATERIAL PROCUREMENT STATEMENT

- A. The *Contractor* shall furnish all materials for use in concrete, including cement, water, fine and coarse aggregate and any specified admixtures; and shall furnish all reinforcing bars (except the anchor bolt cage), shear ties, forms, fabric, and materials required for curing of the concrete. All materials shall conform to these Specifications as follows:

### 2.2 CONCRETE MATERIALS

- A. Cement: Portland cement shall be Type II, unless otherwise specified, and shall meet the requirements of ASTM C150 and C175. Where required, Type II cement shall meet the low-alkali and false-set limitations further specified by ASTM standards. The cement shall be free from lumps and contamination by water and other foreign matter when used in concrete.
- B. Water: Water shall be fresh, clean, free from objectionable quantities of silt, organic matter, salts and other impurities.
- C. Fine Aggregate: Fine aggregate shall be natural sand conforming to ASTM C33 and shall be free of dirt, organic matter and other deleterious substances.
- D. Coarse Aggregate: Coarse aggregate shall consist of either angular (crushed) or round gravel conforming to ASTM C33. Course aggregate shall be clean, hard, dense, durable and free of dirt, organic matter and other deleterious substances.

## 2.3 ADMIXTURES

- A. Other Admixtures: The Contractor may use other admixtures only with the Owner's approval. Chemical or plasticizing admixtures approved by the Owner shall conform to ASTM C494, Type A or D.
- B. Flyash: Flyash may be used as a partial substitute for Portland cement only with the Owner's approval. Flyash shall conform to ASTM C618.
- C. Chlorides: Calcium chloride and other chlorides shall not be used under any circumstances.

## 2.4 ACCESSORIES

- A. Bonding Agent: Polymer resin emulsion.
- B. Non-Shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.

## 2.5 CONCRETE MIX

- A. The *Contractor* shall submit to the *Owner* a mix design report prepared by an independent testing agency meeting the requirements of these Specifications. In lieu of a new mix design, the *Contractor* may submit test results for a mix, used in construction within the previous six (6) months, indicating performance in accordance with these Specifications. Either shall include compressive strength test results and all other relevant mix information as is possible as follows:
  - 1. All materials to be used shall meet the requirements of these Specifications.
  - 2. The mix design procedure shall be in accordance with the latest revision of ACI 318 and ACI 336.3R.
  - 3. Unless specified on the Contract Drawings, the minimum ultimate compressive strength of a standard six (6) inch diameter by twelve (12) inch high cylinder shall be four thousand (4000) pounds per square inch (psi) at twenty-eight (28) day age for concrete. In lieu of the twenty-eight (28) day test results, accelerated strength test results per ASTM C684 shall be acceptable.
  - 4. The slump of the concrete, when placed, shall be:
    - a. Six (6) inches  $\pm$  one (1) inch for drilled piers placed in dry conditions; for concrete placed in wet holes, the slump shall be seven (7) inches  $\pm$  one (1) inch.
    - b. Four (4) inches  $\pm$  one (1) inch for slabs, footings and other concrete works.
  - 5. The maximum size of aggregate shall not exceed one (1) inch for dry holes, and three-fourths (3/4) inches for tremie holes.
  - 6. The maximum water/cement ratio for the concrete mix is limited to 0.50.

7. All other information relevant to the mix design shall be included with the report including ambient air temperature at time of test, concrete temperature, weight of concrete per cubic foot, etc.
  8. Addition of water to the mix after leaving the plant is not permitted.
- B. Adjustment of mix designs that prove unsatisfactory shall be subject to the Owner's review. Concrete that does not exhibit the specified control characteristics will be considered unsatisfactory. Additional costs for adjustment of the mix design shall be the Contractor's responsibility.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL EXECUTION**

A. Composition

1. Minimum cement content shall be approximately six and one-half (6-1/2) sacks per yard. Superplasticizers may be added on-site only with the Owner's approval to increase the workability of the concrete. When used properly, this will increase the slump for a short duration without causing any long-term strength reductions.
2. The Owner also reserves the right to test any of the concrete materials and if required, the Contractor shall submit, for preliminary tests and approval, representative samples of the fine and coarse aggregate, cement, water, fly-ash, AEA and any other admixtures proposed for use in the concrete work.
3. The Owner will test the concrete for compliance with these Specifications and reserves the right to design and adjust mix proportions.

B. Batching

1. The concrete, excluding admixtures, shall be proportioned on the basis of batch weights. Batching shall be such that combined inaccuracies in feeding and measuring the materials will be minimized. The concrete shall be uniform in composition and consistency throughout the mixed batch, and from batch to batch, except where changes in composition or consistency are directed by the Owner. The minimum amount of concrete proportioned per truckload shall be three (3) cubic yards. The mix shall be kept as dry as possible to place a finish without creation of voids. The mixing time shall be sufficient to thoroughly mix the concrete, but excessive over mixing requiring the addition of water to preserve the required consistency will not be permitted.
2. Concrete shall be measured, mixed, transported and placed in accordance with the latest revisions of ACI 301 and ASTM C94.

C. Mixing

1. Mixing time shall be adequate to ensure that the concrete throughout the mixed batch and from batch to batch is uniform. Each batch of concrete delivered by a truck mixer to the construction site shall conform to ACI 301. Adding water to unworkable concrete at the construction site shall not be permitted unless the Owner approves the procedure and observes and records the additions of any water, or the concrete is still unworkable after mix design adjustments to the proportions. No admixtures other than superplasticizers shall be added to the concrete at the construction site. Superplasticizers may only be added with the Owner's approval.

D. Concrete Transportation

1. Where time in transit between the batch plant and construction site exceeds forty-five (45) minutes, water and cement shall not be mixed with the aggregate prior to arrival at the construction site unless an Owner approved set retarding admixture is utilized.
2. Where time in transit prevents mixing at a batch plant, bulk cement and aggregates can be transported dry in the mixer truck, provided that care is taken that no materials are lost or re-routed and that the mixer is not rotated prior to reaching the construction site and adding water. Under such conditions where cement is transported in contact with moist aggregate, the entire batch will be rejected unless mixed within ninety (90) minutes after contact. Where transport time exceeds ninety (90) minutes, the cement shall be transported separately from other ingredients.
3. The methods and equipment used for transporting concrete and the time that elapses during transportation shall be such as will not cause appreciable segregation of concrete ingredients or slump loss in excess of one (1) inch in the concrete as it is delivered to the site.
4. Concrete will be considered unacceptable if it undergoes initial set or if not deposited within ninety (90) minutes of the time the water is introduced. If the concrete is to be transported a long distance, then the "Ninety (90) minute requirement" can be modified with the proper use of set retarding admixture as approved by the Owner.
5. Under no circumstances shall cold joints be allowed in drilled piers without prior approval and express direction from the Owner. Time between cement trucks shall be planned and monitored to prevent cold joints from forming in a drilled pier.
6. With each load of concrete delivered to the site, the ready-mixed concrete producer shall furnish one copy of the batch ticket to the Owner. Delivery tickets shall provide the following minimum information:
  - a. Date;
  - b. Name of ready-mix concrete plant, Contractor and project;
  - c. Type of cement and other additives;
  - d. Mix proportions per cubic yard of concrete and total amount of various ingredients in the truckload;

- e. Whether the concrete is heated or not;
- f. Truck number and time the truck was loaded at the batch plant, including drum rotation count;
- g. Amount of concrete in the load in cubic yards;
- h. Maximum size aggregate;
- i. Water added at the construction site, if any.

E. Concrete Testing

1. Routine testing of materials, of proposed mix designs and of resulting concrete for compliance with technical requirements shall be the duty of the testing agency designated by the Owner and be performed without expense to the Contractor.
2. To facilitate the testing services, the Contractor shall furnish material samples, submit proposed mix designs, furnish casual labor to handle and obtain samples and advise the Owner in advance of operations requiring testing.
3. The Contractor shall provide and maintain equipment required for inspection of excavations and cooperate with inspection and testing personnel to expedite this work.
4. The Contractor shall notify the testing agency at least twenty-four (24) hours in advance of the time that excavations are expected to be ready for inspection.
5. The testing agency will prepare an excavation report for each structure site, recording the actual elevation at bottom and top of excavation, diameter and depth of all soil types, diameter and depth of any rock encountered, final centerline location at top of excavation, variation of shaft from plumb, results of tests performed, description of bearing stratum, depth of rock embedment, cleanout of bottom, seepage of water, still water level (if allowed to flood), dewatering, elevation of bottom and top of any casing left in place, any unusual conditions, dates of starting excavation, completion of excavation, inspection, testing, and placement of concrete including any delays in concreting and location of construction joints in shafts, actual volume of concrete used, the theoretical volume of the drilled pier (based on actual length and diameter) and the ratio of actual to theoretical volumes.
6. The concrete testing program shall consist of compression, slump, and temperature tests.
7. Concrete specimens for preparing standard four (4) inch by eight (8) inch test cylinders for compression testing shall be secured in accordance with ASTM C172. Concrete test cylinders shall be prepared in accordance with ASTM C31. Concrete cylinders shall be tested for compressive strength in accordance with ASTM C39.

8. A test set shall consist of seven (7) cylinders. A minimum of one (1) test set of seven (7) cylinders shall be taken in every drilled pier. This test set shall be collected from the last concrete truck used to pour the top cap area of the pier. For piers larger than fifty (50) cubic yards, additional test sets shall be collected for every fifty (50) cubic yards of concrete placed. For slabs, footings and other concrete works, one (1) test set shall be taken for every fifty (50) yards of concrete placed, and a minimum of one (1) test set per day.
9. The slump and temperature shall be tested from the first concrete truck used for installing piers or other concrete structures. After the first truck, the slump and temperature tests shall be performed at the same rate that concrete test set cylinders are collected. Slump tests shall be performed in accordance with ASTM C143, and temperature tests in accordance with ASTM C1064.
10. In the event that the Owner and testing agency identify questionable result from slump and temperature testing, then additional testing, including cylinder samples, may be required at no additional cost to the Owner.
11. One (1) test set of cylinders shall be laboratory tested at three (3) days, seven (7) days, two (2) test cylinders at fourteen (14) days, and two (2) tests at twenty-eight (28) days. One (1) test cylinder shall be retained as a spare.
12. The average strength of the laboratory cured specimens representing each strength of concrete shall be equal to or greater than the specified twenty-eight (28) day compressive strength. Not more than one (1) twenty-eight (28) day strength test in ten (10) shall have a value less than ninety (90) percent of the specified strength. If the laboratory cured cylinders fail to meet this requirement, the proportions of the concrete shall be changed sufficiently for the remainder of the foundations to be installed to increase the strength to the specified value at no additional cost to the Owner. The concrete strength shall then be evaluated in accordance with ACI 214.
13. A testing agency may also take core samples of in-place concrete when test results indicate that there is sufficient doubt that specified concrete strengths have not been attained.
14. Complete continuous coring of large drilled piers may be required at the Contractor's expense when observations of placement operations indicate suspicious concrete quality, presence of voids, segregation, or other possible defects.
15. If these tests indicate that the concrete provided does not conform to the Specifications, then the Contractor shall correct this deficiency as directed by the Owner at no additional cost to the Owner.

F. Preparation for Concrete Placement

1. Excavations shall be filled with concrete no more than twenty-four (24) hours after completion, inspection, and Owner's approval. No excavation shall be left open longer than overnight unless a tight fitting casing is installed. The Contractor shall use protective sheets over the excavation openings, extending at least twelve (12) inches beyond the edge of the excavation unless a casing has been installed.

2. Where a high water table combined with granular soils is encountered, the bentonite slurry method may be used for the installation of drilled piers. Where such a seal against ground water is not possible, a dewatering system shall be installed which will permit proper excavation, inspection and concreting of the drilled pier. Extreme caution shall be used to make sure that the unbalanced water head that is created will not cause a "blow" (bottom heave or quick condition) and disturb the proposed bearing stratum or walls of the excavation.

G. Temperature Requirements

1. Concrete shall not be placed when the ambient air temperature is expected to reach ten degrees Fahrenheit (10° F) or below.
2. When the ambient air temperature is less than forty degrees Fahrenheit (40° F) or likely to drop below forty degrees Fahrenheit (40° F) within the twenty-four (24) hour period after concrete placement; the mixing, handling, placement and curing of concrete shall be in accordance with the recommendations of ACI 306. Additionally, the Contractor shall submit a Cold Weather Plan to the Owner's for approval. The Cold Weather Plan shall explain the specific actions to be taken by the Contractor to ensure that the concrete mixing, handling, placing and curing is in compliance with these Specifications.
3. When the ambient air temperature is greater than eighty-five degrees Fahrenheit (85° F); the mixing, handling, placement and curing of concrete shall be in accordance with the recommendations ACI 305. Additionally, the Contractor shall submit a Hot Weather Plan to the Owner for approval.
4. The Hot Weather Plan shall explain the specific actions to be taken by the Contractor to ensure that the concrete mixing, handling, placing and curing is in compliance with these Specifications.
5. The temperature of the concrete when it is being placed shall not be less than fifty degrees Fahrenheit (50°F) nor more than eighty degrees Fahrenheit (80°F).

H. Tolerances

1. This section establishes tolerances that are consistent with modern construction practice. Deviations from the established lines, grades, and dimensions will be permitted to the extent set forth herein. Concrete work that exceeds the tolerance limits specified in these Specifications or shown on the Drawings shall be remedied or removed and replaced at the expense of and by the Contractor.
2. Standard tolerances for formwork and concrete placement shall be as follows, unless otherwise noted on drawings:

TABLE 3.0-1 TOLERANCES	
DESCRIPTION OF VARIATION	SPECIFIED TOLERANCE (IN.)
<b>DRILLED PIERS (&lt; 4.0 FT. DIA.), SLABS, FOOTINGS AND OTHER CONCRETE WORKS</b>	
OF INDIVIDUAL STRUCTURES FROM THE PLAN	± 0.5
FROM SPECIFIED TOP OF CONCRETE ELEVATION	± 0.5
OF FOOTING DIMENSIONS	± 2.0
OF PIER DIAMETER	+ 3.0; - 0.5
OF PIER SHAFT FROM PLUMB	< 1.5 % OF SHAFT LENGTH
FROM LEVEL OF SURFACE OF SLAB	± 0.025 / FT. OF LENGTH 0.75 FOR ENTIRE LENGTH (MAX)
DEFLECTION OF EXPOSED SIDES OF CONCRETE WALLS & SLABS	± 0.05 / FT. OF LENGTH 1.0 FOR ENTIRE LENGTH (MAX)
OF ANCHOR BOLT SPACING IN A SINGLE BASE PLATE OR SUPPORT	± 0.0625
BETWEEN GROUPS OF ANCHOR BOLTS	± 0.125
<b>DRILLED PIERS – 4.0 FT DIA. AND GREATER</b>	
OF INDIVIDUAL PIERS FROM THE PLAN	0.5 / FT. OF PIER DIA.
OF PIER DIAMETER	MIN. AS SHOWN ON PLANS; MAX AS APPROVED BY OWNER
OF PIER SHAFT FROM PLUMB	< 1.5 % OF SHAFT LENGTH
BETWEEN GROUPS OF ANCHOR BOLTS	± 1.0

I. CSL Testing

1. Where specified, Crosshole Sonic Log (CSL) testing will be performed. The Owner will retain an independent testing agency to perform CSL testing, analysis and interpretation of results. The Contractor shall furnish and install access tubes as part of their drilled pier construction responsibility. The Contractor shall cooperate with the testing agency to perform this work. The Contractor shall notify the testing agency at least twenty-four (24) hours in advance of the time that concrete placement will occur.

2. CSL testing shall be in accordance with ASTM D6760, except as listed below:
  - a. Plastic access tubes and drilled boreholes will not be allowed, unless approved by the Owner.
  - b. A minimum of four (4) access tubes per drilled pier are required.
  - c. CSL testing shall be performed after the shaft concrete has cured at least forty-eight (48) hours but no later than seven (7) calendar days.
3. The Contractor shall furnish and install one (1) access tube per one (1) foot of drilled pier diameter, but no less than four (4) access tubes per drilled pier. Access tubes shall be round, two (2) inch diameter, schedule 40 pipe conforming to ASTM A53, Grade A or B, type E, F, or S. The inside shall be free of defects and obstructions, including all pipe joints, in order to permit the unobstructed passage of source and receiver probes used for the CSL tests. Access tubes shall be watertight and free from corrosion with clean internal and external faces to ensure a good bond between the concrete and the access tubes. The access tubes shall be fitted with a watertight cap on the bottom and a removable, watertight cap on the top to prevent debris from entering the access tubes. Watertight joints shall be installed to achieve the required length. Access tubes shall be securely attached to the interior of the reinforcing cage so that each access tube is equally spaced within the reinforcing cage. Access tubes shall be installed in straight alignment and parallel to the vertical axis of the reinforcing cage. Access tubes shall have two (2) inches of concrete cover at the bottom of the drilled pier. Access tubes shall extend at least two (2) feet above the top of the drilled pier. Access tubes damaged during installation of the reinforcing cage shall be immediately replaced at the expense of the Contractor.
4. The Contractor shall fill the access tubes with clean water prior to concrete placement. Access tubes shall be immediately resealed after water placement to prevent debris from entering the access tubes. Prior to CSL testing, the Contractor shall flush any access tubes containing debris, refill with water of similar temperature and reseal.
5. The testing agency shall submit test results, analysis and interpretation of test results to the Owner within seven (7) calendar days of testing. The Owner will determine final acceptance of each drilled pier within five (5) working days after receiving the test results and analysis. No subsequent construction shall be performed on the completed drilled pier until the CSL tests are approved and the drilled pier is accepted by the Owner. For drilled piers determined to be unacceptable, the Contractor shall submit a plan to the Owner for additional investigation, remedial action, and correction procedures and designs. Remedial and corrective actions shall not commence unless approved by the Owner.
6. Upon Owner approval of test results and acceptance of the drilled pier, the Contractor shall dewater all access tubes and fill with grout. The grout for filling access tubes shall be a neat cement grout with a minimum water/cement ratio of 0.45. The Contractor shall cut access tubes flush with the top of the drilled pier.

### 3.2 SLABS, FOOTINGS, AND OTHER CONCRETE WORKS, EXCLUDING DRILLED PIERS

#### A. Concrete Placement

1. In no case shall concrete be placed in standing water or on muddy, spongy, or frozen subgrade. All wood scraps and debris shall be removed from the areas in which concrete is to be placed. All areas where concrete is to be placed shall be thoroughly cleaned to ensure proper placement and bonding. Forms and subgrade shall be wetted and all standing water removed prior to placing concrete. All transporting and handling equipment shall be thoroughly cleaned. Concrete shall not be placed in layers over twenty-four (24) inches thick.

#### B. Concrete Compaction

1. All concrete shall be mechanically vibrated except for slabs less than six inches thick. Each layer shall be consolidated by mechanical internal-vibrating equipment supplemented by hand spading, rodding, and tamping to work concrete into all angles and narrow places. The duration of vibration shall be limited to time necessary to produce satisfactory consolidation without causing objectionable segregation. Vibrators shall be applied vertically and at uniformly spaced points not farther apart than the visible effectiveness of the machine. The vibrator shall not be inserted into lower courses that have begun to set. Vibrators shall not be used to transport concrete inside forms.

#### C. Embedded Items

1. Anchor rods, embedded metals, waterstops, expansion joint fillers, joint sealers, vapor barriers, felt joints, electrical conduits, sleeves and other embedded features shall meet the requirements shown on the Drawings, and be installed in strict conformance with the manufacturer's instructions and specifications. Concrete shall not be placed until all embedded items are properly positioned and secured against displacement.
2. Cast in place anchor rods shall be set true to the lines and grades shown on the Drawings and shall be set plumb and be securely braced to prevent displacement during placing of concrete. Exposed threads shall be protected by coating with oil or grease and encasing them in burlap or paper. Upon completion of concrete placement, anchor rods shall be rechecked for correct location and elevations. When any anchor rod exceeds acceptable tolerances such corrections as are necessary shall be made at no additional cost to the Owner. Post-installed anchor rods shall be installed in strict conformance with the manufacturer's instructions.

#### D. Joints

1. Construction, control and expansion joints shall be placed as indicated on Drawings. Use of construction and control joints not shown on the drawings shall be in accordance with ACI 318 and ACI 301, and subject to approval of the Owner. Saw cutting of control joints shall be done as soon as concrete hardens sufficiently so as not to be torn or damaged by the blade. Sawing shall not be done while concrete temperature is falling. Construction and control joints shall be filled with an approved sealant with pre-molded joint filler and backer rod as shown on the Drawings.

2. All reinforcing shall be continued across construction joints. Keys shall be provided only if shown on the Drawings. The concrete surface at construction joints shall be roughened uniformly to approximately one-fourth (1/4) inch. Laitance, loosened aggregate or damaged surface concrete shall be removed. The existing surfaces shall be thoroughly cleaned of all foreign material and laitance before depositing new concrete on old concrete or against concrete which has set. Existing surfaces shall be coated with a bonding agent in accordance with ASTM specification C881, with Type, Grade and Class to be determined by existing conditions.

**END OF SECTION 03 30 00**

**SECTION 03 39 00**  
**CONCRETE CURING**

**PART 1 – GENERAL**

**1.1 WORK INCLUDED**

- A. Initial and final curing of horizontal and vertical concrete surfaces.

**1.2 RELATED SECTIONS**

- A. Section 03 10 00, Concrete Forming and Accessories
- B. Section 03 20 00, Concrete Reinforcement
- C. Section 03 30 00, Cast-In-Place Concrete

**1.3 REFERENCES**

- A. ACI 301, Specifications for Structural Concrete.
- B. ACI 308.1, Standard Practice for Curing Concrete.
- C. ASTM C31 Standard Method of Making and Curing Concrete Compression and Flexure Test Specimens in the Field
- D. ASTM C171, Standard Specification for Sheet Materials for Curing Concrete.
- E. ASTM C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- F. ASTM C684 Standard Test Method for Making, Accelerated Curing, and Testing Concrete Compression Test Specimens
- G. ASTM D2103, Standard Specification for Polyethylene Film and Sheeting.

**1.4 SUBMITTALS**

- A. Submittals shall be in accordance with Division 1, Section 01330 "Submittal Procedures". The following shall be submitted:
  - 1. Product Data
    - a. Provide data on curing compounds, product characteristics, compatibility and limitations.
  - 2. Manufacturer's Installation Instructions
    - a. Indicate criteria for preparation and application.

**1.5 QUALITY ASSURANCE**

- A. Perform work in accordance with ACI 301.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect and handle products under provisions of Section 01600, "Product Requirements".

- B. Deliver curing materials in-manufacturer's packaging including application instructions.

## **PART 2 – PRODUCTS (Not Applicable)**

### **2.1 MATERIALS**

- A. Membrane Curing Compound Type A: ASTM C309, Type 2, Class A.
- B. Absorptive Mats, Type B: ASTM C171, cotton fabric or burlap-polyethylene, minimum 8 oz/sq yd bonded to prevent separation during handling and placing.
- C. Water: Potable and not detrimental to concrete.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify substrate conditions.
- B. Verify that substrate surfaces are ready to be cured.
- C. All tie holes and porous spots visible on removal of forms shall be filled with concrete mortar of the same proportions as originally used in the structures.

### **3.2 HORIZONTAL SURFACES**

- A. Membrane Curing Compound: Apply curing compound in accordance with manufacturer's instructions in 2 coats with second coat at right angles to first.
- B. Horizontal surfaces that are exposed shall receive a floated finish. Floating shall begin when the water sheen has disappeared. Trueness of surface shall be checked with a ten (10) foot straight edge at not less than two (2) different angles to ensure that the tolerance is met as specified.

### **3.3 VERTICAL SURFACES**

- A. Cure surfaces in accordance with ACI 308.
- B. Membrane Curing Compound: Apply curing compound in accordance with manufacturer's instructions in 2 coats with second coat at right angles to first.
- C. All vertical surfaces that are exposed above finish grade shall receive a sand floated finish. The surface shall be wetted and rubbed with a wood float in a uniform circular motion with fine sand being rubbed into the texture until the resulting surface is even and uniform in color and texture.

### **3.4 PROTECTION OF FINISHED WORK**

- A. The Contractor shall protect all concrete against damage until final acceptance by the Owner. Concrete shall be protected against freezing temperatures by being kept at a temperature not less than fifty degrees Fahrenheit (50° F) for at least seventy-two (72) hours after it is placed. In addition, concrete which is water cured shall be protected against freezing temperatures for the duration of the curing period. Where artificial heat is employed, special care shall be taken to prevent the concrete from drying.

- B. Concrete and concrete-curing membrane shall be protected against heavy foot traffic and other construction activities by covering with plywood, sand, or other suitable material. After the possibility of damage is no longer a concern, the Contractor shall remove and dispose of such covering and all other foreign materials.
- C. If concrete is cured by water curing, the concrete shall be kept continuously moist after being placed for at least seven (7) days.
- D. Resin based curing compound shall be a white-pigment scaling compound which forms a water-retaining membrane on the surface of the concrete. Curing compound shall be applied to concrete surfaces by spraying one coat to provide a continuous uniform white membrane over all areas. Coverage shall not exceed one hundred and fifty (150) square feet per gallon. The application shall be increased on rough surfaces, as necessary, to obtain a required continuous membrane. All surfaces shall be kept continually moist until a sealing compound is applied. As soon as the surface film of moisture disappears, but while the surface still has a damp appearance, the sealing compound shall be applied.
- E. Curing with polyethylene film shall be accomplished by completely covering the designated concrete surfaces with polyethylene film to provide an airtight, water-retaining film over the entire concrete surface for at least seven (7) days. As soon as the concrete has hardened sufficiently to prevent damage, all surfaces shall be thoroughly moistened by spraying them lightly with water and then covering them completely with the polyethylene film. Edges of the polyethylene strips shall be lapped to effect a seal to adjacent strips, and, at the extreme edge of the curing area, held tightly against the concrete surface. The polyethylene film shall be secured adequately to withstand wind and to prevent circulation of air inside the curing film.
- F. If concrete is placed during cold weather, the temperature inside the enclosures shall be kept at a minimum of fifty degrees Fahrenheit (50° F) for at least three (3) days for (6) foot diameter and less drilled piers, four (4) days for seven (7) to eight (8) foot diameter drilled piers, and five (5) days for drilled piers with a diameter greater than eight (8) feet. After this initial curing period, drilled piers shall not be subjected to the normal outside temperatures abruptly and shall be covered with hay and plastic for an additional four (4) days.
- G. Protect finished Work under provisions of Section 01100, "Summary of Work" and Section 01500, "Temporary Facilities and Controls".

### **3.5 CONCRETE REPAIR**

- A. All concrete that is damaged or defective from any cause; concrete that is honeycombed, fractured, or otherwise defective; and concrete which, because of excessive surface depressions, must be excavated and built up to bring the surfaces to the prescribed lines, shall be removed and replaced. The repair of damaged or defective concrete and the correction of surface imperfections and irregularities shall be made with concrete, dry pack, cement mortar, epoxy-bonded concrete, or epoxy-bonded epoxy mortar. The cost of furnishing all materials and performing all work required for the repair of concrete and the correction of surface imperfections and irregularities shall be the responsibility of the Contractor.

**END OF SECTION 03 39 00**

## SECTION 31 00 00

### EARTHWORK

#### PART 1 – GENERAL

##### 1.1 SCOPE

- A. All labor, materials, tools, equipment, transportation, and temporary construction of any nature necessary for a complete operational installation of drilled piers and direct embedded poles as shown on the Plans and/or specified hereinafter, in conformance with the project geotechnical report and these specifications.

##### 1.2 RELATED SECTIONS

- A. Section 02 41 00, Site Demolition
- B. Section 02 06 00, Asphalt Concrete Demolition
- C. Section 31 64 00, Caissons
- D. Section 33 71 16, Utility Poles

##### 1.3 REFERENCE STANDARDS

- A. General: Conform to the latest editions, unless indicated, of the following reference standards to the extent specified.
  - 1. American Society for Testing and Materials (ASTM):
    - a. D1557: Moisture-Density Relations of Soils and Soil-Aggregate Mixture Using 10-lb. (4.5 kg) Rammer and 18 in. (457 mm) Drop.
  - 2. California Administrative Code, Title 24, Part 2 – Basic Building Regulations, Chapter 24 – Excavations, Foundations, and Retaining Walls.
  - 3. CAL/OSHA, Title 8.

##### 1.4 SITE CONDITIONS

- A. General:
  - 1. The Contractor shall conduct his operations and schedule his cleanup so as to cause the least possible obstruction and inconvenience to public traffic, pedestrians, and adjacent landowners.
  - 2. Protect open excavations, trenches, and the like with fences, covers, and railings as required to maintain safe pedestrian and vehicular traffic passage.
  - 3. Prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.
  - 4. Fill material shall be temporarily stockpiled in an orderly and safe manner in a location approved by the Owner.

5. All benchmarks, monuments, signs, and other reference points shall be maintained; if disturbed or destroyed, they shall be replaced by the Contractor as directed by the Construction Coordinator or the Engineer.
  6. Earthwork operations shall be conducted so as to prevent windblown dust and dirt from interfering with the surrounding normal operations. Contractor shall assume liability for all claims related to windblown dust and dirt. Water shall be applied by means of pressure-type distributors equipped with nozzles that will ensure a uniform application of water and in conformance with Section 1590 (e) of CAL/OSHA, Title 8.
- B. Environmental Requirements: When unfavorable weather conditions necessitate interrupting filling and grading operations, areas shall be prepared by compaction of surface and grading to avoid collection of water. Adequate temporary drainage shall be provided to prevent erosion. After interruption, compaction specified in last layer shall be re-established before resuming work.

## **1.5 SUBMITTALS**

- A. Imported Materials: Samples of all proposed imported materials, minimum 40 pounds, tagged with source location and supplier shall be submitted to the Geotechnical Consultant at least 15 days prior to import. Materials shall not be imported to jobsite without written approval by the Geotechnical Consultant.

## **1.6 RELATED DOCUMENTS**

- A. Geotechnical Report as provided in the Contract Documents.

## **PART 2 - PRODUCTS**

### **2.1 NATIVE BACKFILL**

- A. Existing excavated native backfill shall be unsaturated, free of clay lumps and deleterious materials. Inorganic or organic silts, clays and peat soil types are not suitable for backfill. Native backfill shall contain no aggregate larger than one and one-half (1-1/2) inches in diameter.

### **2.2 ENGINEERED BACKFILL**

- A. The Contractor shall submit the mix design for engineered fill to the Owner for review and approval. The mix for engineered backfill shall be free of organic material and conform to the requirements for Type I, Gradation C, surface-course materials, ANSI/ASTM D1241, except that one hundred percent (100%) shall pass the one and one-half (1-1/2) inch screen and that a minimum of eight percent (8%) shall pass the No. 200 screen in lieu of the minimum percentage shown in Table I for Gradation C.

B. Percentages by sieve size for the engineered backfill are as follows:

GRADATION REQUIREMENTS FOR ENGINEERED BACKFILL	
SIEVE SIZE (SQUARE OPENINGS)	PERCENT PASSING SIEVE (BY WEIGHT)
1-1/2"	100
3/8"	50 – 85
NO. 4	35 – 65
NO. 10	25 – 50
NO. 40	15 – 30
NO. 200	8 – 15

C. If material conforming to this gradation is costly to provide and/or difficult to locate, the Contractor may review samples of road base mix which may be locally available and submit these mix designs for the Owner to review the suitability of proposed material.

### 2.3 CONTROLLED LOW STRENGTH MATERIAL BACKFILL

A. The Contractor shall furnish all required materials for CLSM backfill. The Contractor shall submit to the Owner a mix design report prepared by an independent testing agency meeting the requirements of these Specifications. All mixture components must be environmentally acceptable. A Safety Data Sheet (SDS) for each component in the mixture must be available upon request.

The CLSM shall have a minimum 7-day unconfined compressive strength of 2000 psi. Total air content shall not exceed 20 percent. Flowability shall be normal with slump range between 6 and 8 inches. Pumpable CLSM shall be proportioned to allow transport by pumping methods without aggregate/cement segregation or excessive bleeding. The CLSM shall contain the following:

1. Portland Cement: ASTM C150, Type II
2. Fly Ash: ASTM C618, Class F. Fly ash shall not inhibit air entrainment
3. Air-Entraining Admixture: ASTM C260
4. Aggregate: ASTM C33, graded aggregate, maximum size of 3/8 inch, and the 3/8 inch aggregate shall comprise no more than 20 percent of the total aggregate. Amount passing a No. 200 sieve shall not exceed 12 percent. No plastic fines shall be present
5. Water: shall meet the requirements of ASTM C94

## **PART 3 EXECUTION**

### **3.1 GENERAL SPECIFICATIONS**

#### **A. Over-Excavation:**

1. Any excess excavation or over-excavation performed by the Contractor for any purpose or reason, and any backfilling, compacting of backfill, and concrete work occasioned thereby shall be the responsibility of the Contractor and at the Contractor's expense. All exceptions to these Specifications must be previously approved by the Owner.

#### **B. Compacting Cohesionless Materials:**

1. Where compaction of cohesionless free-draining materials, such as sands and gravels, is required, the materials shall be deposited in horizontal layers and compacted to the relative density specified below. The excavating and placing operations shall be such that the materials, when compacted, will be blended sufficiently to secure the highest practicable unit weight and best stability. Water shall be added to the materials as may be required to obtain the specified density by the method of compaction being used.
2. The thickness of each horizontal layer, after compaction, shall not be more than six (6) inches. Compaction shall be performed using pneumatic tampers or like means to ensure required densities.
3. The relative density of the compacted material shall be not less than ninety (90) percent of a laboratory determined Moisture-Density Relationship Curve per ASTM D698(A), as may be determined by standard relative density tests for cohesionless free-draining soils.

#### **C. Compacting Cohesive Materials:**

1. Where compaction of earth materials containing appreciable amounts of clay or silt is required, the materials shall be deposited in horizontal layers. The thickness of each horizontal layer after compaction shall be not more than six (6) inches. The excavating and placing operations shall be such that the materials, when compacted, will be blended sufficiently to secure the highest practicable unit weight and best permeability and stability.
2. Prior to and during compaction operations, the materials shall have a moisture content of not greater than two (2) percent or less than two (2) percent of optimum moisture, as determined by a Moisture-Density Relationship Curve, per ASTM D698(A). The moisture content shall be as uniform as possible throughout each layer. Insofar as practicable, moistening of the material shall be performed at the site of excavation. Such moistening shall be supplemented by sprinkling at the site of compaction, if necessary. If the moisture content is less than optimum for compaction by more than two (2) percentage points, or is greater than optimum for compaction by more than two (2) percentage points, the compaction operations shall not proceed, except with the specific approval of the Owner, until the material has been wetted or allowed to dry out, as may be required to obtain optimum moisture content within the tolerances permitted above.

3. The dry density of the soil fraction in the compacted material shall not be less than ninety-five percent (95%) of the standard maximum soil dry density as determined by a Moisture-Density Relationship Curve per ASTM D698(A) for the material being compacted. Density shall be determined by either a nuclear densometer or by sandcone methods.
4. The excavation, placing, moistening, and compacting operations shall be such that the material will be uniformly compacted throughout the required section and will be homogeneous, free of lenses, pockets, streaks, laminations, or other imperfections.

### **3.2 EXCAVATION FOR DIRECT EMBEDDED POLES AND DRILLED PIERS**

#### **A. Requirements for Excavation:**

1. The Contractor shall perform the work to construct the excavations required for shafts as shown on the Drawings, through whatever materials are encountered, to the dimensions and elevations shown on the Drawings or otherwise required by these Specifications and any special provisions. The Contractor's methods and equipment shall be suitable for the intended purpose and materials encountered.
2. The dry construction method shall be used at sites where the groundwater level and soil conditions are suitable to permit construction of the shaft in a relatively dry excavation, and where the sides and bottom of the shaft may be visually inspected by the Owner prior to placing the engineered backfill or concrete. The dry method consists of drilling the shaft excavation, removing accumulated water and loose material from the excavation, placing the embedded steel pole or anchor bolt cage assembly and placing the engineered backfill or concrete in the shaft in a relatively dry excavation.
3. The wet construction method may be used at sites where a dry excavation cannot be maintained for placement of the shaft concrete. This method consists of using liquid slurry to maintain stability of the hole perimeter while advancing the excavation to final depth. It may be necessary that direct embedded poles at wet locations will require Rigid Corrugated Metal Pipe (RCMP) or other permanent casing installation. The Contractor shall place the RCMP, fill the void between the soil and the RCMP, and dewater the interior prior to placing the steel pole. Compaction of the interior shall be performed in accordance with Sections 3.1.B or 3.1.C of these Specifications. Concreting of anchor bolt cages in a wet hole shall be accomplished by use of a tremie or pumping techniques to displace the drilling slurry and water with fresh concrete.
4. The casing method may be used at sites where the dry or wet construction methods are inadequate to prevent hole caving or excessive deformation of the hole. The casing may be either placed in a predrilled hole or advanced through the ground by twisting, driving or vibration before being cleaned out.
5. The excavation and drilling equipment shall have adequate capacity including power, torque and down thrust to excavate a hole of both the maximum diameter and to a depth of twenty percent (20%) beyond the depths shown on the Drawings.

6. The excavation and over-reaming tools shall be of adequate design, size and strength to perform the work shown on the Drawings and described in these Specifications. When the material encountered cannot be drilled using conventional earth augers with soil or rock teeth, drill buckets, and/or under-reaming tools, the Contractor shall provide special drilling equipment, including but not limited to rock core barrels, rock tools, air tools, and other equipment as necessary to construct the shaft excavation to the size and depth required.
7. The Contractor shall locate existing underground utilities before starting excavation operations. If utilities are to remain in place, the Contractor shall provide protection from damage during excavation operations.
8. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, the Contractor shall consult the Owner immediately for directions. The Contractor shall cooperate with the Owner and utility companies in keeping services and facilities in operation, and in repairing damaged utilities to the satisfaction of the owner of the facilities.
9. The Contractor shall not interrupt existing utilities except when permitted in writing by the Owner and after acceptable temporary utility services have been provided.
10. The Owner will layout and stake all excavation locations along centerline. All other staking and layout work will be the responsibility of the Contractor.
11. The Owner will provide a single benchmark for establishing structure elevation. All other grade stakes and elevations are the responsibility of the Contractor.
12. The Contractor is responsible to perform surveys, layouts, and measurements for all excavations and conduct layout work for each drilled pier to lines and levels required before excavation, and actual measurements of each excavation's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, locations of anchor bolts, and other data as required.
13. Material removed from the excavation and not suitable or required for backfill, embankments, or other required earthwork shall be spread evenly along the right-of-way or removed from the immediate site and disposed of by the Contractor. Excavated material shall not be used as backfill unless approved by the Owner.

### **3.3 PLACING AND COMPACTING BACKFILL**

- A. The type of material used for backfill, the amount thereof, and the manner of depositing the material shall be subject to approval of the Owner. Material shall be native backfill, engineering backfill or Controlled Low Strength Material (CLSM), as specified on the Drawings. Requirements for CLSM are specified elsewhere in this section.
- B. Backfill shall be placed and compacted to the lines and grades shown on the Drawings, prescribed in these Specifications, or as directed by the Owner. All backfill shall be placed, moistened, and compacted in accordance with the requirements of Section 3.1.B and 3.1.C. No backfill shall be placed in excavated areas when either the material or the surfaces on which it is to be placed is frozen.

- C. Controlled Low Strength Material:
1. CLSM material shall not be placed when the ambient air temperature is expected to reach ten degrees Fahrenheit (10° F) or below. Under no circumstances shall cold joints be allowed in the CLSM foundation.
  2. Infiltration of groundwater, from a source at or near the bottom, at a rate of less than one-fourth (1/4) inch rise per minute at the bottom of the pier shall be considered a dry excavation and CLSM may be placed by buckets, chuting or elephant trunks in such a manner as not to cause aggregate/cement segregation; however, the total theoretical height of water in the bottom of the excavation may not exceed two (2) inches at the time that sufficient CLSM has been placed to balance the water head.

### **3.4 FIELD QUALITY CONTROL**

- A. All excavation, filling, and compaction shall be performed under the direct supervision of the Geotechnical Consultant or other Inspector designated by the Owner. The Contractor shall cooperate with the Inspector in all aspects of the work. Any materials placed or improvements constructed in the absence of the Inspector's approval to proceed shall be presumed to be defective and, at the discretion of the Inspector and Owner shall be removed and replaced at no cost to the Owner. The Owner shall be notified at least 48 hours prior to required inspection or testing.

**END OF SECTION 31 00 00**

**SECTION 31 25 00**  
**EROSION CONTROL**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. Furnish all labor, materials, facilities, transportation and services to complete all erosion control and related work as shown on the Drawings and specified herein.

**1.2 SCOPE OF WORK**

- A. The general extent of the erosion control measures is shown on the Drawings and can include, but may not be limited to the following:
  - 1. Stabilized construction entrance
  - 2. Storm drain inlet protection
  - 3. Fiber roll installation
  - 4. Erosion control maintenance period

**1.3 RELATED DOCUMENTS**

- A. Document 02 41 00, Site Demolition
- B. Document 31 00 00, Earthwork
- C. Document 32 90 00, Landscaping

**1.4 REFERENCES**

- A. Field Manual, Erosion and Sediment Control, California Regional Water Quality Control Board, San Francisco Bay Region
- B. Caltrans Storm Water Quality Handbooks, Construction Contractors Guide and Specifications.

**1.5 SUBMITTALS**

- A. Submittals shall be in accordance with Division 1, Document 01330 "Submittal Procedures".
- B. Materials and Products:
  - 1. Substitutions: If substitutions are required, they shall be brought to the attention of the Owners Representative, at time of submittal, for any requested substitutions.

**1.6 SOURCE/QUALITY ASSURANCE**

- A. Contractor shall employ on-site at all times during execution of this Document at least one person who is thoroughly familiar and experienced with the materials and products being installed and proper methods of their installation. Notify the Owners Representative immediately of all changes in supervision.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. General:
  - 1. Handle and store all products of this Document in such a manner as to protect them from damage at all times.
  - 2. The contractor shall coordinate storage of products on-site in an orderly manner so as not to unnecessarily impede the work or reasonable use of project site.

## **1.8 GUARANTY**

- A. All work executed and all materials provided or used under this Document shall be guaranteed to be free of defects and poor workmanship for a period of one year after Final Acceptance.
- B. Repair all defective materials and work as acceptable to the Owners Representative during guaranty period.

## **1.9 MAINTENANCE**

- A. Any damage caused by soil erosion or construction equipment shall be repaired before the end of each working day throughout the construction period.

## **PART 2 – PRODUCTS**

### **2.1 FIBER ROLLS**

- A. Fiber rolls (9"-12" diameter) shall be laid where shown on the plans in excavated trenches (minimum 3" depth).
- B. Fiber rolls shall fit snugly in the trenches. No gap shall be allowed between the fiber roll bottom/sides and the excavated trench area.
- C. Fiber rolls shall be secured with 1" x 2" x 12" long wooden stakes at each end and at 4'-6' spacing on center. Additional stakes shall be used on loose soils.
- D. Stakes shall be driven in on alternating sides of the roll. Taking care that the stakes penetrate the outermost layer of the roll. The end of the roll shall be abutted securely to the next roll to provide a tight joint.

### **2.2 STABILIZED ENTRANCEWAY**

- A. As a lining for stabilized entranceway, use gravel. The size of the coarse aggregate shall be 3"-6", pressed into the soil in layer of at least 8" thick. Geotextile fabrics shall be used to improve stability.
- B. The gravel entranceway shall extend at least 50' into the unpaved area. The width of the pad shall be at least 20'.
- C. The entrance shall be maintained in a condition that will prevent tracking or following of sediment onto public rights-of-way. This will require periodic top dressing with additional stone as conditions demand, and repair and/or maintenance of any measures used to trap sediment.
- D. All sediment spilled, dropped, washed or tracked onto public right-of-way shall be removed immediately.

- E. When necessary, wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with crushed stone that drains into a sediment trap.
- F. All sediment shall be prevented from entering any storm drain, ditch or watercourse through use of sandbags, gravel, straw bales, or other approved methods.

### **PART 3 – EXECUTION**

#### **3.1 PREPARATION**

- A. Make provisions and take necessary precautions to protect all existing and new improvements from damage during execution of this work.

#### **3.2 FIELD QUALITY CONTROL**

- A. The Owners Representative shall review and accept the following prior to contractor proceeding with subsequent work:
  - 1. Preparation - At completion of finish grading and prior to planting, grading tolerances and soil preparation shall be checked for conformance to Construction Documents.
  - 2. Pre-maintenance review - At completion, work shall be reviewed to check conformance with Construction Documents. Acceptance shall mark beginning of the specified maintenance period. If acceptance is not given, a punch-list of items requiring attention will be issued to the contractor. One more review will be allowed after contractor certifies in writing that the punch-list has been completed. Punch-list shall be completed to the satisfaction of the Owners Representative prior to commencement of the Specified Maintenance Period.
- B. All costs incurred from repeat reviews required due to contractor not being prepared or non-conformance with Construction Documents shall be back charged to the contractor.

**END OF DOCUMENT 31 25 00**

## SECTION 31 64 00

### CAISSONS

#### PART 1 - GENERAL

##### 1.1 WORK INCLUDED

- A. The work included under this section consists of furnishing all materials, supplies, equipment, tools, transportation and facilities and performing all labor and services necessary for, required in connection with or properly incidental to drilling caissons, casing holes and dewatering prior to concrete placement as described in this section of the specifications, shown on the accompanying drawings or reasonably implied therefrom.

##### 1.2 RELATED SECTIONS

- A. Section 03 20 00, Concrete Reinforcement
- B. Section 03 30 00, Cast-in-Place Concrete

##### 1.3 REFERENCES

- A. ACI 336.3R, Design and Construction of Drilled Piers
- B. FHWA, "Drilled Shafts: Construction Procedures and LRFD Design Methods," Publication No. FHWA-NHI-10-016

##### 1.4 QUALITY ASSURANCE

- A. The Contractor shall notify the City's representative at least 48 hours in advance of any drilling operations to allow for arrangement of the Geotechnical Consultant to make inspections.

##### 1.5 SEQUENCING AND SCHEDULING

- A. The Contractor shall obtain information and instructions from all trades and suppliers in ample time to schedule and coordinate the installation of items furnished by them to be embedded in concrete caissons.

**PART 2 - PRODUCTS** - See other portions of specifications.

#### PART 3 - EXECUTION

##### 3.1 CAISSONS – GENERAL INFORMATION

- A. All holes for caissons shall be drilled to the diameter and depth as shown on the plans.
  - 1. All holes shall be examined for straightness and any hole which on visual inspection from the top shows less than one-half the diameter of the hole at the bottom of the hole shall be rejected. Suitable casings shall be furnished and placed when necessary to control water or to prevent caving of the hole as determined by the Geotechnical Consultant and approved by the Engineer.

2. All loose material existing at the bottom of the hole after drilling operations have been completed shall be removed before placing concrete in the hole.
3. Material resulting from drilling holes shall be disposed of at the Contractor's expense.
4. Drilling mud or chemical stabilizers shall not be used except when permitted by the Geotechnical Consultant. Surface water shall not be permitted to enter the hole and for dry hole construction all water which may have infiltrated into the hole shall be removed before placing concrete therein.

### **3.2 CAISSON REQUIREMENTS**

#### **A. Drilled Shaft Installation Plan**

1. The Contractor shall prepare and submit a Drilled Shaft Installation Plan (DSIP) to the Owner for approval at least 15 business days prior to the start of drilled pier construction. The contents of the DSIP shall be based on that specified by the Federal Highway Administration's "Drilled Shafts: Construction Procedures and LRFD Design Methods," Publication No. FHWA-NHI-10-016. The plan shall fully document the equipment and procedures to be used in the work to allow the Owner to confirm, in advance, compliance with these Specifications and Drawings.

#### **B. Concrete Placement**

1. The reinforcing steel cage shall be placed and secured symmetrically about the axis of the caisson and shall be securely blocked to clear the sides of the hole prior to placement of concrete.
2. Under no circumstances shall cold joints be allowed in the drilled pier without approval and express direction from the Owner.
3. Infiltration of groundwater, from a source at or near the bottom, at a rate of less than one-fourth (1/4) inch rise per minute shall be considered a dry hole and concrete may be placed by buckets, chuting or elephant trunks in such a manner as not to cause cement-aggregate segregation; however, the total theoretical height of water in the bottom of the pier may not exceed two (2) inches at the time that sufficient concrete has been placed to balance the water head.
4. For dry holes, the free-fall of concrete is permitted for heights up to 10 feet, so long as it can be directed vertically down the center of the drilled pier without hitting the reinforcing cage, sides of the hole, anchor bolt assembly or any other obstruction. Larger free-fall distances must be approved by the Owner in writing. Concrete shall not be directed using a shovel as it is placed.
5. Casing or other methods of maintaining the excavation shall be employed if significant water infiltration occurs some distance above the bottom. Infiltration of groundwater exceeding one-fourth (1/4) inch rise per minute shall constitute a wet hole, and concrete shall be placed by the tremie method. Before placing concrete by the tremie method, the excavation shall be filled with water to the natural water level so that the water head inside and outside the pier are balanced. In all cases where concrete is

placed by an approved tremie method; sheeting, casing, or bentonite slurry shall retain the sides of the excavation during the concreting process. The tremie must be watertight and of sufficient diameter to allow Free flow of concrete. The tremie shall be used for the entire length of the pier. At no point after the pour has commenced shall the tremie be removed, until the pier is completed. When the pour is nearing completion, the concrete shall be continually added so as to overfill the hole a minimum of six (6) inches in order to remove all water, debris, and bentonite slurry from the pier.

6. If the Owner has sufficient reason to doubt the integrity of the tremied concrete, test cylinders shall be cast for testing purposes from the drilled pier after cleanout of the tremie work has been performed. If compressive strength tests performed on these cylinders prove to be inadequate, the Contractor shall take all necessary corrective measures as directed by the Owner at no additional cost to the Owner.
7. If ground conditions are such that the casing may be removed during the concreting of caissons, the equipment and procedures used shall ensure that the concrete will not be disturbed, pulled apart or be pinched off by earth movement. The level of the concrete shall always be maintained a minimum of five (5) feet above the bottom of the casing during the removal of the temporary casing.
8. When penetration into rock is specified, such penetration shall be obtained by approved methods such as drilling, coring, chipping and chopping. Blasting shall not be permitted in confined areas where such blasting may cause damage to sheeting or casing or affect the surrounding soil and property.

C. Concrete Compaction

1. The free unobstructed fall of un-tremied concrete greater than five feet will produce adequate compaction. The concrete shall be continuously vibrated for free-fall heights less than five feet. Additionally for reinforcing cage designs, the concrete in the portion of the drilled pier from the bottom of the anchor bolt cage or stub angle to the top of the drilled pier shall be continuously vibrated in dry hole construction. The lack of vibration in the upper portion of the shaft can create a considerably weaker concrete and shall not be allowed. Segregated concrete and laitance shall be removed before proceeding with construction of the cap.

D. Casings

1. In hard, firm soils with little or no groundwater seepage, casing shall not be required except for safety. Loose casings, used solely for the purpose of protecting workmen and inspectors shall be of at least one-fourth (1/4) inch thick steel. These shall be normally removed from the hole when the inspection is completed. Under other circumstances, depending on the method of installation, ground and water conditions and surrounding facilities, sheeting, tight casing, bentonite slurry, or other means shall be required to retain the earth. Where subsidence must be prevented or kept to a minimum, retaining of the earth shall be mandatory.
2. Belling of caissons, where specified, shall be performed by machine or by hand. Where the nature of the soil being belled requires, or if groundwater is present, bells shall be properly sheeted and braced to maintain their

shape and permit proper placing of concrete.

3. Casings shall be maintained in good shape and free from old concrete on the inside surfaces that would tend to make pulling difficult. When ground movements are suspected, frequent measurements shall be made by the Contractor, of the shaft diameter in at least two (2) right angle horizontal directions and at reasonably spaced elevations to assure that the specified minimum shaft diameter is being maintained and that out-of-roundness does not indicate imminent collapse. Casing which is too short and exposes soil in the lower portion of the shaft which may cave or squeeze, or which has a diameter too small and creates an annular space permitting water and soil to seep and fall or squeeze behind the casing, shall not be used.
4. In cases where drilled caissons penetrate very unstable strata, such as peat, and casing is required to maintain the shape of the pier through these layers, then the casing shall not be removed but shall remain in place.

**END OF SECTION 31 64 00**

## DOCUMENT 32 80 00

### IRRIGATION

#### PART 1 - GENERAL

##### 1.1 SCOPE

- A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all water supply, irrigation system and related work as shown on the Drawings and specified herein.
- B. The general extent of the water supply and irrigation system work is shown on the Drawings and may include, but is not necessarily limited to the following:
  - 1. Installation of water backflow prevention system
  - 2. Installation of automatic irrigation systems and controls

##### 1.2 RELATED SECTIONS

- A. Section 33 00 00 - Utility Trenching and Backfill
- B. Section 32 90 00 - Landscaping

##### 1.3 REFERENCES AND REGULATORY REQUIREMENTS

- A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
  - B 62-85 Standard Specifications for Composition Bronze or Ounce Metal Castings.
  - D 1784-81 Standard Specifications for Rigid (PVC) Compounds and Chlorinated Poly (vinyl Chloride) (CPVC) compounds.
  - D 1785-86 Standard Specifications for (PVC) Plastic Pipe, Schedules 40 and 80.
  - D 2241-84 Standard Specifications for PVC Pressure-Rated Pipe (SDR Series).
  - D 2564 Standard Specifications for Solvent Cements for (PVC) Plastic Pipe and Fittings.
  - F477 Specification for Elastomeric seals (gaskets) for joining plastic pipe.
- B. NATIONAL SANITATION FOUNDATION (NSF)
  - 1. Requirements for Seal of Approval.
- C. PLASTIC PIPE INSTITUTE (PPI)
  - 1. Recommendations for hydrostatic design stresses for PVC pipe.
- D. Permits and Fees: Contractor is responsible to obtain all required permits and pay all associated fees unless otherwise noted.

#### 1.4 SUBMITTALS

- A. Submittals shall be in accordance with Division 1, Section 01330 "Submittal Procedures".
- B. Submit the following at the beginning of the project:
  - 1. Four (4) copies of Materials List of all products specified.
  - 2. Four (4) copies of the Product Data or cut sheets of all products specified. No substitutions shall be permitted without written acceptance by the Owner's Representative.
- C. Submit the following at project close-out:
  - 1. Final Record Drawings: Two sets of these shall be produced, one for placement at or within the irrigation controller cabinet reduced to 11" x 17". One full size set for storage at another location desired by the Owner's Representative.
  - 2. Both sets shall have all the irrigation valve zone lateral lines color-coded so as to readily distinguish between adjacent zones. The valve size, station number and gallons per minute shall be legible at each valve and shall match how the controller is wired. Additionally, each valve shall be annotated to describe which type of irrigation it is, ie: spray, rotor, bubbler, etc.
  - 3. The color-coded copies shall then be professionally laminated in minimum 5 mil clear plastic.
  - 4. Turn-over Materials: Provide one (1) each of the following to the Owner's Representative:
    - One (1) Quick Coupler attachment key equipped with standard thread hose bib per (5) Quick Couplers installed on the project.
    - One (1) key for locking Quick Coupler covers per (5) Quick Couplers installed on the project.
  - 5. Full set of remaining nozzles for each rotor sprinkler

#### 1.5 RECORD DOCUMENTS

- A. Comply with Division 1 Section 01780 and other applicable Division 1 and above specifications, General Conditions and/or Special Provisions.
- B. Accurately record locations of all piping and equipment that varies from what is shown on the Drawings horizontally to within one (1) foot and vertically to within 0.5 feet.

#### 1.6 QUALITY ASSURANCE

- A. Unless otherwise specified, install all materials in accordance with manufacturer's recommendations.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Store PVC pipe in a neat and orderly manner fully supported and protected from sunlight.
- B. All equipment shall be delivered, unloaded and handled so as to protect from damage at all times.

## **1.8 PROJECT/SITE CONDITIONS**

- A. PVC shall not be cemented during wet conditions per the discretion of the Owner's Representative.
- B. Trench excavation and backfilling shall not be performed during excessively wet conditions per the discretion of the Owner's Representative.

## **1.9 SEQUENCE AND SCHEDULING**

- A. Contractor shall be solely responsible for coordinating, sequencing and scheduling all work with all applicable trades and/or sub-contractors so as to insure proper and timely performance.

## **1.10 GUARANTY**

- A. Conform to applicable Division 1 and above specifications, General Conditions and Special Provisions.
- B. Contractor shall provide a written guaranty covering entire system against defects in installation, workmanship and equipment for a period of one year from date of Final Acceptance.
- C. Contractor shall make necessary repairs to the system as well as to other work affected by defects in the system during guaranty period. Repairs shall be made at the Contractor's sole expense. at the Contractor's sole expense.

## **1.11 MAINTENANCE**

- A. Conform to Section 02970 - Landscape Maintenance.
- B. Service: Contractor shall service and maintain system during specified Landscape Maintenance Period.
- C. The entire irrigation system shall be under full automatic operations for a period of two days prior to any planting.
- D. Final Acceptance and start of guaranty period shall occur no later than the end of the specified Landscape Maintenance Period.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. Use only new materials of brands shown on Drawings, specified herein or as acceptable to the Owner's Representative.

### **2.2 PIPE**

- A. PVC Pipe: For newly installed water lines use Polyvinyl chloride (Type I) plastic pipe PVC 1120, and NSF-approved per plan. For existing water lines that are to

be re-routed, replaced, or repaired, Contractor shall use pipe that matches the type, size, and quality of the existing pipe. As applicable, if system is designed for recycled water, pipe is to be purple with "Recycled Water" labeling.

### **2.3 PVC FITTINGS**

- A. PVC Fittings: Polyvinyl chloride (Type I) plastic fittings 1120, Schedule 40 or Schedule 80 as may be noted in the Drawings. As applicable, if system is designed for recycled water, fittings is to be purple.
- B. PVC Nipples: Polyvinyl chloride (Type I) plastic fittings 1120, Schedule 80.

### **2.4 BACKFLOW PREVENTER DEVICE**

- A. As specified on Drawings.

### **2.5 BACKFLOW PREVENTER ENCLOSURE**

- A. As specified on Drawings.
- B. Cage size to be verified by Contractor to installed size of backflow device.

### **2.6 VALVES**

- A. Remote Control Valves: As specified on Drawings. Provide purple valve keys if system is designed for recycled water.
- B. Master Valve: As specified on Drawings.
- C. Quick Coupling Valves: As specified on Drawings. Provide purple valve covers if system is designed for recycled water.
- D. Gate Valves / Ball Valves: As specified on Drawings.

### **2.7 VALVE BOXES**

- A. Remote Control Valves: As specified on Drawings. RCV boxes shall be rectangular model equivalent to Carson Model 1419-12 with 1419-4 lid. Boxes shall be labeled as "Irrigation – RCV" on lid.
- B. Quick Coupling Valves: As specified on Drawings. Valve boxes shall be round model equivalent to Carson Model 910-10 with 910-4 lid. Boxes shall be labeled as "Irrigation – QC" on lid.
- C. Gate Valves / Ball Valves: As specified on Drawings. Valve boxes shall be round model equivalent to Carson Model 910-10 with 910-4 lid. Boxes shall be labeled as "Irrigation – Valve" on lid.
- D. Valve Boxes: Valve boxes shall have bolt down type lids. Other approved equal box manufactures are: Applied Engineering Inc., NDS, or Christy Concrete.
- E. Color of plastic boxes shall be green, unless the irrigation system is designed for recycled water, in which case boxes shall be purple.

### **2.8 AUTOMATIC CONTROLLER AND ENCLOSURE**

- A. Controller: As specified on Drawings.

## 2.9 VALVE WIRING

- A. Low Voltage:
  - 1. Conductors:
    - a. Control wires shall be UL rated for direct burial, Type UF, 14 gauge wire. Insulating jacket color shall be red.
    - b. Common wires shall be UL rated for direct burial, Type UF, 12 gauge wire. Insulating jacket color shall be white.
    - c. Spare control wires shall be UL rated for direct burial, Type UF, 14 gauge wire, Insulating jacket color shall be blue.
    - d. Spare common wire shall be UL rated for direct burial, Type UF, 12 gauge wire. Insulating jacket color shall be green.
  - 2. Splice connectors: 3M "DBY" splice connectors or acceptable equal.

## 2.10 CONNECTING COMPOUNDS

- A. Primer: IPS Corporation Weld-on #P-70.
- B. Cement:
  - 1. IPS Corporation Weld-on #705 for Class 200 P.V.C. or schedule 40 P.V.C. (up to 6" diameter). IPS Corporation Weld-on #711 shall be used for larger pipe diameters and schedule 80 P.V.C.
  - 2. IPS Corporation Weld-on #795 for flexible P.V.C. to rigid P.V.C. connections.

## 2.11 SPRINKLER HEADS

- A. Sprinkler Heads: As specified on Drawings. As applicable, if system is designed for recycled water, provide pop-up bodies with purple caps and rotor with purple covers.
- B. Bubblers: As specified on Drawings.

## 2.12 ADDITIONAL MATERIALS

- A. Pipe Detection Tape: "Sentry Line" three (3) inch wide, detectable, "Caution Water Line Buried Below" tape as available from Terra Tape Inc. Houston, Texas (800)-231-6074 or acceptable equal.
- B. Pipe Sleeving: Four inch and smaller shall be class 315 PVC, Six (6) inch and larger shall be class 200 PVC, unless noted otherwise.
- C. Teflon tape shall be of a variety commonly used for wrapping threaded connections.
- D. Valve Tags: Plastic pre-labeled station tags.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Prior to starting work, test and verify that water pressure levels meet the requirements specified on the Drawings. Notify the Owner's Representative immediately of any discrepancies.
- B. Irrigation plans are diagrammatic. Pipelines shown parallel in the Drawings may be placed in a common trench, provided that a minimum horizontal distance of three inches (3") is maintained between buried lines.
- C. Sprinkler heads are shown schematically. Suspected discrepancies in coverage or sizes of areas to be irrigated shall be brought to the attention of the Owner's Representative prior to installation. Contractor shall re-direct work to avoid delay while awaiting resolution.

### **3.2 PREPARATION**

- A. Contractor shall make provisions and take necessary precautions to protect existing work or features.
- B. Layout: Coordinate lay-out of system with Owner's Representative as necessary.

### **3.3 TRENCHING**

- A. Conform to Section 02310 "Utility Trenching and Backfill" and/or applicable Division 1 and above specifications, General Conditions and Special Provisions.
- B. Excavate trenches with vertical walls, uniform bottom, free of deleterious materials, and wide enough for pipes to lay side by side, fully supported on bottom. There shall be a minimum three-inch (3") clearance between all pipes.
  - 1. No lines shall be installed parallel to and directly over another line.
  - 2. When lines must cross, the angle shall be forty-five to ninety degrees, and a minimum of three inch (3") vertical clearance shall be maintained.
- C. Provide minimum coverage depths as follows:
  - 1. Mainline: 18" in landscape areas, 30" under paving.
  - 2. Lateral Lines: 12" in landscape areas, 30" under paving.
  - 3. Sleeves: 18" under paving.
- D. Hydraulic driving methods shall not be used under paved surfaces.

### **3.4 PIPE INSTALLATION**

- A. Comply with applicable Division 1 and above specifications, General Conditions and/or Special Provisions and manufacturer's instructions.
- B. Solvent Welded Joints:
  - 1. Assemble above ground where possible.
  - 2. Cut square, ream, and thoroughly clean.

3. Make joint using specified primer and cement, continuously wiping off excess.
  4. Allow sixty (60) minutes of set-up time before handling and twenty-four (24) hours curing before applying water pressure.
- C. Threaded Joints:
1. Use Teflon tape on all pressurized, threaded plastic to plastic and plastic to steel joints.
  2. Hand tighten and use only light strap-type friction wrench pressure to complete.
- D. Snake pipe a minimum of one (1) additional foot per one hundred (100) feet of pipe to allow for expansion and contraction.
- E. Pipe shall be installed as specified and generally as shown in Drawings.
- F. Cap or plug openings as soon as pipes have been installed to prevent intrusions of debris.
- G. Sleeves:
1. Install pipe sleeves where necessary, where shown under paved surfaces and at all points where pipes pass through concrete or masonry. In footings, install sleeving that allows one inch (1") min. clearance around pipe(s).
  2. Each end of sleeve shall extend a minimum six inch (6") beyond edge of paving or structure above. Provide removable non-decaying plug or cap at each of sleeve end, to prevent earth from entering pipe.
- H. Thoroughly flush system prior to installing valves and nozzles.
- I. Install pipe detection tape above mainline.

### **3.5 EQUIPMENT AND INSTALLATION**

- A. Reduced Pressure Backflow Prevention Device: Install in accordance with local codes and as shown in Drawings.
- B. Remote Control Valves:
1. Install as shown in Drawings.
  2. Valve boxes shall be set plumb and square with adjacent structures.
  3. Install valve tags in an acceptable manner with valve station and controller number.
  4. Provide twelve (12) inches minimum separation when valve boxes are grouped together and align in a neat and orderly manner.
  5. Locate valves in shrub/ground cover areas whenever possible.
- C. Quick Coupler Valves:
1. Install as shown in Drawings.

D. Gate Valves

1. Install as shown in Drawings.

E. Controller:

1. Install as shown in Drawings.
2. Owner's Representative shall determine final approved location(s) per manufacturer's Specifications.
3. Label cabinet door exterior with permanent, one (1) inch tall (minimum) letter or number designations corresponding with plan designations (as applicable).
4. Affix reclaimed water warning on controller enclosure (as applicable).

F. Control Wire:

1. Connect control wires to controller in sequential arrangement according to identification number in the Drawings. Label each controller station with permanent non-fading labels indicating identification number of valve controlled.
2. Install as shown in Drawings.
3. Bundle multiple wires with tape or ties at twenty (20) foot intervals maximum. Do not tape wires in sleeves.
4. Make all splices in valve boxes using only specified connectors.
5. Provide thirty-six (36) inch wire coil at each remote control valve and at all mainline directional changes.
6. Install two spare control wires and one looped spare common wire to run by, and loop into, every remote control valve on system. Terminate wires inside controller enclosure unconnected and clearly labeled as extra.
7. All wiring under paving shall be installed in a PVC pipe sleeve large enough to allow withdrawal and insertion of individual wires.
8. If any control wire run is over 2000', up-size applicable control wire to be 12 gauge.

G. Sprinkler Heads:

1. Install as shown in Drawings.
2. Install plumb with finish grade.
3. Thoroughly flush all lines prior to installing nozzles.

H. Tree and Shrub Bubblers:

1. Install in drain pipe sump as may be shown in Drawings.
2. Coordinate installation with planting operations to ensure timely and proper placement of heads.

### 3.6 FIELD QUALITY CONTROL

#### A. General:

1. Notify Owner's Representative for the following reviews, with 2 working days minimum notice:
  - a. Pressure testing mains and laterals
  - b. Coverage test prior to planting
  - c. Pre-maintenance observation
  - d. Final observation
2. Contractor shall provide all equipment and personnel required to conduct tests.
3. Provide up-to-date Project Record Drawings at each review.
4. If Owner's Representative is called out for review prior to the system being ready as specified, the contractor shall be back-charged for the full cost of the review.

#### B. Pressure Tests:

1. Do not install remote control valves, quick couplers, or any other valve assembly until testing of pressure main lines has been accepted by the Owner's Representative.
2. Testing shall occur with trenches open. Small amounts of backfill between fittings shall be allowed to prevent pipe displacement. All fittings shall be visible prior to testing.
3. Test all pressure supply lines under hydrostatic pressure of 125 p.s.i. minimum. Pipe shall hold pressure for a period of six (6) consecutive hours with no more than five (5) p.s.i. loss in order to pass test.
4. Lateral lines shall be tested under full line pressure for a period of one (1) hour prior to backfilling. Cap all heads and center load pipe between fittings prior to testing.
5. Correct all deficiencies revealed by tests to the satisfaction of the Owner's Representative.

#### C. System Flushing:

1. After sprinkler pipelines and risers are in place and connected, and prior to installation of automatic valves, quick couplers, and sprinkler nozzles, thoroughly flush all lines with water to completely clean lines of debris.
2. Install sprinkler nozzles only after lines have been flushed to the satisfaction of the Owner's Representative.

#### D. Coverage Tests:

1. Perform coverage tests after all systems are completed and operational, after finish grading (Refer to Section 02900 - Landscaping) has been

completed, but prior to any planting, in the presence of the Owner's Representative.

2. Correct all deficiencies to the satisfaction of the Owner's Representative prior to planting.

### **3.7 BACKFILLING**

#### **A. General:**

1. Backfill only after specified tests have been performed and accepted.
2. Clean trenches of all debris and deleterious material before backfilling.
3. Backfill, as shown in Drawings, with native material granular in nature and free from deleterious material. Install pipe detection tape over entire run of mainline as shown in Drawings.
4. Compact trenching to 95% relative density under pavement and 85% relative density within planting areas.
5. Dress off trench surfaces flush with finish grade.

### **3.8 ADJUSTING**

- A. Adjust and balance system to eliminate overspray and fogging/misting and as directed by Owner's Representative.

### **3.9 DEMONSTRATION**

- A. Instruct Owner's personnel in complete and proper operation of system prior to Final Acceptance.

### **3.10 FINAL REVIEW**

- A. Provide Owner's Representative with all Record Drawing submittals, turnover materials, salvaged items and warranty requirements prior to Final Review.

**END OF SECTION 32 80 00**

**DOCUMENT 32 90 00**

**LANDSCAPING**

**PART 1 - GENERAL**

**1.1 SCOPE**

- A. Furnish all labor, materials, facilities, transportation and services to complete all landscaping and related work as shown on the Drawings and specified herein.
- B. The general extent of the landscaping is shown on the Drawings and can include, but may not be limited to the following:
  - 1. Soil preparation
  - 2. Fine grading
  - 3. Turf planting
  - 4. Tree, shrub, and ground cover planting
  - 5. Turf Establishment Period
  - 6. Landscape Maintenance Period

**1.2 RELATED SECTIONS**

- A. Document 32 80 00 - Irrigation

**1.3 REFERENCES AND REGULATORY REQUIREMENTS**

- A. AMERICAN JOINT COMMITTEE ON HORTICULTURE NOMENCLATURE (AJCHN):
  - 1. Standardized Plant Names
- B. AMERICAN ASSOCIATION OF NURSERYMEN, INC. (AAN):
  - 1. American Standard for Nursery stock
- C. Sunset Western Garden Book, Lane Publishing CO.
- D. Agricultural Code of California.
- E. State of California Department of Transportation Standard Specifications, Current Edition.

**1.4 SUBMITTALS**

- A. Submittals shall be in accordance with Division 1, Section 01330 "Submittal Procedures".
- B. Plant Materials and Products:
  - 1. Thirty (30) days prior to planting, submit four (4) copies of documentation that all plants specified have been ordered. Include names and addresses of all suppliers.

2. Substitutions: If substitutions are required, they shall be brought to the attention of the Owner's Representative, at time of submittal, for any requested substitutions.
  3. Submit four (4) copies of product data or "cut-sheets" for all products proposed for use.
- C. Samples: Submit four (4) samples of the following (1 quart size "zip-lock" plastic bag min. each):
1. Soil amendment (with current evaluation and sieve analysis)
  2. Bark mulch top dress
  3. Topsoil (as applicable, with current fertility and structure analyses)
- D. Certificates: Submit "cut-sheets" or other product literature showing certified chemical analysis of the following:
1. All fertilizers
  2. All herbicides

## **1.5 SOURCE/QUALITY ASSURANCE**

- A. Control of work: Comply with City Standard Specifications.
- B. Control of materials: Comply with City Standard Specifications.
- C. Contractor shall employ on-site at all times during execution of this Section at least one person who is thoroughly familiar and experienced with the materials and products being installed and proper methods of their installation. Notify the Owner's Representative immediately of all changes in supervision.
- D. General: Ship plant material and seed with certificates of inspection required by governing authorities. Comply with regulations applicable to plant materials (as applicable).
- E. Tree, Shrubs and Plants: Provide trees, shrubs and plants of quantity, size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock." Provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, etc., larvae, and defects such as girdling or bound roots, knots, sun-scald, injuries, abrasions or disfigurement.
- F. Analysis and Standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
- G. Quality Review: The Owner's Representative shall review all trees and shrubs before planting for compliance with specified requirements for genus, species, variety, size and quantity. Owner's Representative retains right to further review trees and shrubs for size and condition of root systems, trunks, stems branches or structure, buds, etc., and to disqualify unsatisfactory or defective material at any time during the progress of work. Remove disqualified trees or shrubs immediately from project site with materials acceptable to Owner's Representative.

## 1.6 DELIVERY, STORAGE, AND HANDLING

### A. General:

1. Handle and store all products of this Section in such a manner as to protect them from damage at all times.
2. Storage of products on-site shall be coordinated by the contractor in an orderly manner so as not to unnecessarily impede the work or reasonable use of project site.

### B. Plants:

1. Delivery: Coordinate with Owner's Representative. Provide proper identification for landscape labor force and vehicles at all times while on site.
2. Storage: Coordinate with Owner's Representative. Provide exposure as required by plant variety and provide wind protection for all plants. Water regularly to maintain thorough moisture in root zone. Temporary, automatic irrigation system will be required at discretion of Owner's Representative if extended storage period becomes necessary. Protect dark colored plant containers from direct exposure to the sun.
3. Labeling: At least one plant of each variety or type shall be legibly labeled at all times clearly indicating correct plant name as indicated on Drawings. Labels shall be durable with waterproof ink.

### C. Fertilizers:

1. Deliver in original, unopened containers with original labels intact and legible which state the guaranteed chemical analysis.

### D. Bulk Material:

1. Coordinate delivery and storage of bulk material with Owner's Representative.
2. Confine materials to neat piles in areas acceptable to the Owner's Representative.

## 1.7 PROJECT/SITE CONDITIONS

### A. Planting operations shall not be conducted under the following conditions, subject to the discretion of the Owner's Representative:

1. Freezing weather
2. Excessive heat
3. High winds
4. Excessively wet conditions

**1.8 GUARANTEE**

- A. All work executed and all materials provided or used under this Section shall be guaranteed to be free of defects and poor workmanship for a period of one year after Final Acceptance.
- B. All plant materials shall be guaranteed to be in a healthy and thriving condition one (1) year after Final Acceptance, unless it can be proven that the unhealthy or non-thriving material is due to causes other than the contractor's materials or workmanship.
- C. Replace all dead plants and plants not in vigorous condition immediately upon notification by Owner's Representative during Guaranty Period. Replaced plants shall be subsequently guaranteed by the contractor for an additional year following date of replacement.
- D. Repair all defective materials and work as acceptable to the Owner's Representative during guaranty period.

**1.9 TURF ESTABLISHMENT PERIOD**

- A. Turf Establishment period shall include rooting of ALL sod turf as specified herein, prior to the commencement of the specified Landscape Maintenance Period.

**PART 2 – PRODUCTS (Not Applicable)**

**2.1 TOPSOIL**

- A. All import topsoil proposed for use shall be submitted to the Owner's Representative for review and acceptance prior to use. Submit samples and current soil fertility and structure analyses in the quantity previously specified.

**2.2 FERTILIZERS**

- A. General:
  - 1. All fertilizers shall be of an acceptable brand with a guaranteed chemical analysis as required by USDA regulations.
  - 2. All fertilizers shall be dry and (except plant tabs) free flowing.
- B. Pre-Plant Fertilizer: Shall be of the following chemical analysis:
  - 1. 6% Nitrogen.
  - 2. 20% Phosphoric Acid.
  - 3. 20% Soluble Potash.
- C. Post-Plant Fertilizer: Shall be of the following chemical analysis:
  - 1. 16% Nitrogen
  - 2. 6% Phosphoric Acid
  - 3. 8% Soluble Potas

D. Plant Tabs: Shall be "Gro-Power" 7 gram tabs designed for 12 month slow release with the following chemical analysis by weight (no known equal):

1. 12% Nitrogen
2. 8% Phosphoric Acid
3. 8% Soluble Potash
4. 20% Humus
5. 4% Humic Acid
6. 3.5% Sulfur
7. 2% Iron
8. Micronutrients

### 2.3 SOIL ADDITIVES

A. Soil Amendment

1. Shall be "Super Humus" Compost: As available from BFI Organics Inc. 1995 Oakland Road, San Jose, California, 95131 Ph.: (408) 262-1401 Fx.: (408) 262-0603. Or "Organic Compost" as available from Z-Best Products Inc. 705 Los Esteros Road, San Jose Ca. 95134 Ph.: (408) 934-6152 Fx.: (408) 263-2393. Or acceptable equal. Acceptable material shall meet or exceed the following criteria:

a. Gradation: A minimum of 90% of the material shall pass a 2" screen. Material passing shall meet the following criteria:

<u>% Passing</u>	<u>Sieve Designation</u>
85-100	9.51 mm (3/8")
50-80	2.38 mm (No. 8)
0-40	500 Micron (No. 35)

b. Organic Content: Minimum 25% based on dry weight and determined by ash method. Minimum 240 lbs. organic matter per cubic yard of compost.

c. Carbon to Nitrogen Ratio: Maximum 35:1 if material is claimed to be nitrogen stabilized.

d. PH: 5.5-8.0 as determined in saturated paste.

e. Soluble Salts: Refer to manufacturers specification guidelines.

f. Moisture Content: 25-60%

g. Contaminants: Shall be free of glass, metal and visible plastics.

h. Color / Odor: Color shall be dark brown to black. Odor shall be

soil-like, (musty or moldy) not sour, ammonia-like or putrid.

- B. Soil Conditioner: Shall be "Gro-Power Plus (5-3-1) with 4% Sulfur" available through Gro-Power Inc. Ph.: (800) 473-1307. No known equal.
- C. Iron Sulphate: Shall be "Gro-Power Premium Green" non-staining iron with micro-nutrients, soil penetrant, trace minerals, and humic acids as available through Gro-Power Inc. Ph.: (800) 473-1307. No known equal.

## **2.4 MULCH TOP DRESS**

- A. Mulch top dress shall be a medium-sized (3/4") decorative chipped wood product free of deleterious and inorganic materials. Material shall be homogenous in appearance, free from sticks or shredded/stringy/fibrous materials

## **2.5 PLANTS**

- A. General
  - 1. All plants shall conform to the species and minimum sizes shown on the Drawings.
  - 2. Quantities shown on the Drawings are for the contractors bidding convenience only. Contractor shall provide plant material to fulfill the intent of the Planting Plan per the discretion of the Owner's Representative.
- B. Condition: All plants shall conform to the following minimum requirements:
  - 1. Nursery grown unless otherwise specified
  - 2. Supplied in appropriate container, balled and burlapped, or bare root as specified on Drawings

## **2.6 TURF SOD**

- A. Sod shall be as follows:
  - 1. "No-Mow" Fescue blend
  - 2. Sod shall have a 3/4" cut or thickness Sod shall be standard roll cut.
  - 3. Sod shall have a loam base.
    - a. Sod is available at Pacific Sod

## **2.7 HERBICIDES**

- A. Pre-emergent: "Ronstar-G" pelletized, "Surflan" liquid, or acceptable equal.
- B. Other: All other herbicides shall be accepted by Owner's Representative prior to

use.

## **2.8 TREE STAKES AND TIES**

- A. Tree stakes and ties shall be as specified on Drawings.

## **2.9 OTHER MATERIALS**

- A. Provide all other materials necessary to complete landscaping work as shown on Drawings and specified herein.
- B. All products and materials, including those specified above, shall be new, first quality as acceptable to the Owner's Representative.

## **PART 3 - EXECUTION**

### **3.1 TOPSOIL INSTALLATION**

- A. Subgrade soil shall be cut or filled to the depth required such that after placement of required amount of topsoil and specified preparation procedures have been accomplished, specified finish grades will be attained.
- B. All subgrade soil shall be cross-ripped to a twelve (12) inch minimum depth prior to placement of accepted topsoil. Refer to Preparation (3.02) below.
- C. All planting areas shall contain a minimum of six (6) inches of acceptable topsoil. As applicable and where needed only previously accepted topsoil shall be installed.
- D. Refer to Document 31 00 00 - Earthwork for rough grading for information.

### **3.2 PREPARATION**

- A. Make provisions and take necessary precautions to protect all existing and new improvements from damage during execution of this work.
- B. Initial Preparations:
  - 1. Prior to any work in this section, thoroughly cross-rip (second rip shall be performed at 90 degrees to first rip) all planting area soil to be cross-ripped to a depth of twelve (12) inches.
  - 2. Remove all rocks, sticks, clods, debris, and other deleterious materials over one-half (1/2) inch in diameter from top 6 inches of soil.
  - 3. Float, rake, and roll all planting areas as necessary to establish smooth, clean, non-yielding planting beds.
  - 4. Prevent erosion of the soil between completion of soil preparation and planting.

### **3.3 SOIL PREPARATION / FINISH GRADES**

- A. Thoroughly roto-till the following additives into the top six (6) inches of all planting area soil at the following rates per 1,000 square feet.
  - 1. 6 Cubic Yards Soil Amendment
  - 2. 200 Pounds Soil Conditioner

3. 35 Pounds Pre-Plant Fertilizer

The above additive recipe shall be used for bid purposes only. A site specific fertility test shall be performed by the Owner prior to award of bid. The results of the test(s) will be reviewed by the Owner's Representative and direction for amendment additives ratio will be considered in the additive final recipe. Any variance from "the as-bid" additives or quantities shall be handled by specified procedures relating to changes in the work.

After additives are fully incorporated into the soil, the Owner shall perform another test (at Owner's cost) to check conformance of amended soil with the recommended materials and quantities. If deficiencies are found, the contractor shall be solely responsible for the cost of adding deficient material as necessary and all re-testing required to reach and prove conformance.

If it is determined that there is a need for imported topsoil, the contractor must have soils test performed and additive recipe submitted for review by the City.

The contractor shall notify the Owner's Representative a minimum of 2 working days prior to the completion of finish grading and soil preparation operations so that fertility testing can be arranged. Contractor shall also schedule seven (7) working days after soil samples have been taken to allow for receipt and evaluation of soil tests at no cost or delay to the project.

B. Planting Area Finish Grades

1. After tilling in additives and re-compaction to 85% relative compaction, rake all planting areas smooth and set finish grades as follows.
2. After soil preparation, finish grades of all planting areas shall be one (1) inch below all adjacent paving, headers, utility boxes, irrigation boxes etc. Finish grade slopes shall be consistent.
3. All drainage structures (i.e. catch basins, area drains, concrete swales, etc) shall be flush with finish grade to allow for proper drainage. Soil shall be sloped consistently from spot elevations provided to drain.
4. In planting areas to receive mulch, depth of mulch shall taper within three (3) feet of paving edge to a depth from 3" to 1" at edge of pavement.
5. Irrigation head elevation relative to finish grade shall be installed per details.

**3.4 SOD INSTALLATION**

- A. Soil preparation and fine grading shall be as previously specified. Prior to sod installation, roll turf bed until a smooth, firm surface with uniform grade has been produced. The turf bed shall be reviewed and accepted by the Owner's Representative prior to sod installation.
- B. Sod shall be unrolled into place with careful attention to tight joints with no overlapping or stretching. Stagger the joints in each new row like rows of bricks (18" minimum stagger). Use a sharp knife for shaping around trees, flower beds or borders. Immediately after placement, soak sod areas with water. Roll sod after watering to smooth out bumps and air pockets, and roll again if sod is not even. Water frequently for the first 10 - 14 days with enough water to saturate soil to a depth of 4". DO NOT LET SOD DRY OUT.

- C. Provide and install temporary fencing around all completed sod areas. Use 6' temporary fence for protection.
- D. Until project Final Acceptance, should it become evident that certain sod areas have not grown, re-sod the areas immediately with sod of the same type as originally used and maintain as specified.

### **3.5 TURF ESTABLISHMENT PERIOD**

- A. Prior to commencement of specified maintenance period, **all** turf shall be rooted and established.
  - 1. Contractor shall receive written notice of acceptance of turf establishment to commence with landscape maintenance period.
  - 2. Owner's Representative shall approve any phasing of turf areas to commence into the maintenance period. Areas may be approved in stages but will require contiguous areas of turf that are completely established.

### **3.6 TREE, SHRUB AND GROUNDCOVER PLANTING**

- A. These areas shall receive topsoil and soil amendments per section 3.1, 3.2, and 3.3 prior to commencing with tree, shrub and ground cover planting. Irrigation shall also be installed, reviewed, tested, coverage test approved and operational prior to planting.
- B. Layout: Coordinate lay-out of plants with Owner's Representative for review and acceptance.
- C. Plant Pit Excavation:
  - 1. Excavate pits to sizes indicated in Drawings.
  - 2. Thoroughly scarify all sides of plant pits to remove "auger slick" and encourage root penetration.
- D. Set trees and shrubs in pit on tamped backfill base as per Details. Set plumb and face for best appearance. Thoroughly scarify all plant root balls to eliminate any circling roots and to encourage root growth. Set plant so root crown will level with or be slightly above surrounding grade after settlement.
- E. Backfilling:
  - 1. Backfill mix for 1 gallon size and larger shall consist of 100% native site soil with plant tabs added per manufacturer's recommendations.
  - 2. Tamp backfill mix under and around root balls.
  - 3. Flood plant pit when half backfilled; allow to drain.
  - 4. Complete backfilling. Tamp as necessary, do not over compact.
- F. Watering:
  - 1. Thoroughly water plants immediately after planting.
  - 2. Construct water basins as specified in Drawings.

- G. Finish Grade Restoration: Restore finish grades by hand raking. Dispose of excess subgrade soil.

### **3.7 TREE STAKING**

- A. Stake trees as shown in Drawings.
- B. Set stakes plumb, without damage to rootball and sufficiently deep to provide necessary support.
- C. Tree ties shall be tied loosely enough to allow movement, yet taut enough to support tree.

### **3.8 HERBICIDE APPLICATION**

- A. Apply in accordance with manufacturers' recommendations.
- B. Apply pre-emergent herbicide to soil prior to placement of bark mulch top-dress in shrub planting areas.

### **3.9 MULCH TOP DRESS**

- A. Apply three (3) inches of specified mulch top dress to all non-turf planting areas and other areas as may be specified in the Drawings.
- B. Rake mulch top dress evenly to create a uniform surface and pull bark mulch top dress away from trunks or stalks of plants 1"-2".
- C. Mulch does not dictate finish grade in planting areas. Mulch is to be added to finish grade. Refer to 3.2.

### **3.10 FIELD QUALITY CONTROL**

- A. The Owner's Representative shall review and accept the following prior to the contractor proceeding with subsequent work:
  - 1. Preparation - At completion of finish grading and prior to planting, grading tolerances and soil preparation shall be checked for conformance to Construction Documents.
  - 2. Layout - Layout of plants, header board, and other major items shall be as directed and/or accepted by the Owner's Representative.
  - 3. Pre-maintenance review - At completion of this Section, work shall be reviewed to check conformance with Construction Documents. Acceptance shall mark beginning of the specified maintenance period. If acceptance is not given, a punch-list of items requiring attention will be issued to the contractor. One more review will be allowed after contractor certifies in writing that the punch-list has been completed. Punch-list shall be completed to the satisfaction of the Owner's Representative prior to commencement of the Specified Maintenance Period.
- B. All costs incurred from repeat reviews required due to contractor not being prepared or non-conformance with Construction Documents shall be back charged to the contractor.

**END OF SECTION 32 90 00**

**DOCUMENT 33 00 00**

**UTILITY TRENCHING AND BACKFILL**

**PART 1 GENERAL**

**1.1 WORK INCLUDED**

- A. Excavation, bedding, and backfill of underground storm drain, sanitary sewer and water piping, and associated structures.
- B. Trenching and backfill for other utilities such as underground telephone, gas, cable TV, etc.

**1.2 WORK NOT INCLUDED**

- A. Drainage fill material and placement around subdrains. For underground electric lines, refer to Silicon Valley Power documents "UG 0345, Electric Trench Backfill" and "UG 1000, Installation of Underground Substructures by Developers."

**1.3 RELATED DOCUMENTS**

- A. Geotechnical Report as provided in the Contract Documents.
- B. ASTM:
  - 1. C 33, Specification for Concrete Aggregates.
  - 2. C 150, Specification for Portland Cement.
  - 3. C 260, Specification for Air-Entraining Admixtures for Concrete.
  - 4. C 618, Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
  - 5. D 1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.
  - 6. D 2321, Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe.
  - 7. D 2487, Classification of Soils for Engineering Purposes.
  - 8. D 3740, Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
  - 9. E 329, Specification for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
  - 10. E 548, Guide for General Criteria Used for Evaluating Laboratory Competence.
- C. California Building Code, California Code of Regulations, Title 24, Part 2 - Chapter 18, Foundations, and Retaining Walls, and Chapter 33, Site Work, Demolition and Construction.
- D. CAL/OSHA, Title 8.

## 1.4 DEFINITIONS

- A. AC: Asphalt Concrete.
- B. ASTM: American Society for Testing and Materials.
- C. Bedding: Material from bottom of trench to bottom of pipe.
- D. CDF: Controlled Density Fill.
- E. DIP: Ductile Iron Pipe.
- F. Initial Backfill: Material from bottom of pipe to 12-inches above top of pipe.
- G. PCC: Portland Cement Concrete.
- H. RCP: Reinforced Concrete Pipe.
- I. Springline of Pipe: Imaginary line on surface of pipe at a vertical distance of  $\frac{1}{2}$  the outside diameter measured from the top or bottom of the pipe.
- J. Subsequent Backfill: Material from 12-inches above top of pipe to subgrade of surface material or subgrade of surface facility or to finish grade.

## 1.5 SUBMITTALS

- A. Submittals shall be in accordance with Division 1, Section 01330 "Submittal Procedures".
- B. Submit material certificates signed by the material producer and the Contractor, certifying that each material item complies with, or exceeds the specified requirements.
- C. The following material shall be submitted:
  - 1. Pipe, Bedding and Backfill certification.
  - 2. All pertinent items and materials as listed under Part 2 Products.

## 1.6 PROJECT CONDITIONS

- A. Protect open, trenches, and utility structure excavations with fences, covers and railings to maintain safe pedestrian and vehicular traffic passage.
- B. Stockpile on-site and imported backfill material temporarily in an orderly and safe manner.

## PART 2 PRODUCTS

### 2.1 PIPE BEDDING AND INITIAL BACKFILL

- A. Pipe bedding and initial backfill for storm drain force main and gravity lines and for perforated subdrains shall be permeable material complying with Class 1, Type A permeable material as shown in the table below. The percentage composition by weight of permeable material in place shall conform to the following gradings:

CLASS 1

Sieve Sizes	Percentage Passing
	Type A
2"	—
1 1/2"	—
3/4"	100
1/2"	95-100
3/8"	70-100
No.-4	0-55
No.-8	0-10
No. -200	0-3

Permeable material shall consist of hard, durable, clean sand, gravel or crushed stone, and shall be free from organic material, clay balls or other deleterious substances. Class 1 permeable material shall have a Durability Index of not less than 40.

- B. Pipe bedding and initial backfill for water lines and dry utility conduits shall be sand. Sand shall be free from clay or organic material, suitable for the purpose intended, and shall be of such size that 90 percent to 100 percent will pass a No. 4 sieve and not more than 5 percent will pass a No. 200 sieve.

**2.2 SUBSEQUENT BACKFILL**

- A. Subsequent backfill shall conform to on-site or imported structural backfill in Section 02300, paragraph 2.2, except that permeable material and ballast rock shall be used for subsequent backfill of perforated subdrain lines as shown on the plans.

**2.3 FILTER FABRIC**

- A. Filter Fabric:
  - 1. Filter Fabric: Filter fabric shall be manufactured from polyester, nylon or polypropylene material, or any combination thereof. The fabric shall be permeable, nonwoven, shall not act as a wicking agent, and shall conform to the following:

Specification	Requirements
Apparent Opening size, mm ASTM Designation: D4751	0.3
Grab tensile strength (25-mm grip), kilonewtons, min. in each direction ASTM Designation: D 4632	0.40
Elongation at break, percent min. ASTM Designation: D 4632	30
Permittivity, 1/sec., min. ASTM Designation: D 4491	1.0
CBR Puncture Strength, N ASTM Designation: ASTM D6241	1000

2. If filter fabric is to be exposed for more than 72 hours, all fabric of that type (underdrain or edge drain) shall be treated with ultraviolet ray (UV) protection. The treated fabric shall provide a minimum of 70 percent breaking strength retention after 500 hours exposure when tested in conformance with the requirements in ASTM Designation: D 4355. Unless otherwise specified, the Contractor shall submit samples of the treated filter fabric to the Engineer at least 45 days prior to use.
3. Filter fabric, not treated with UV protection, which is exposed for more than 72 hours shall be removed and replaced at the expense of the Contractor. The replacement fabric either shall be treated with UV protection or shall not be exposed for more than 72 hours.
4. Filter Fabric shall be Mirafi 140N or approved equivalent.

### **PART 3 EXECUTION**

#### **3.1 TRENCHING AND EXCAVATION**

- A. Existing PCC or AC Areas: Cut AC to full depth at a minimum distance of 12-inches beyond the edge of the trench. Cut PCC to full depth at the next joint beyond 12-inches from the edge of the trench.
- B. Excavate by hand or machine. For gravity systems begin excavation at the outlet end and proceed upstream. Excavate sides of the trench parallel and equal distant from the centerline of the pipe. Hand trim excavation. Remove loose matter.
- C. Excavation Depth for Bedding: Minimum of 4-inches below bottom of pipe or as otherwise allowed or required by the Geotechnical Consultant, except that bedding is not required for nominal pipe diameters of 2-inches or less.

- D. Excavation Width at Springline of Pipe:
  - 1. Up to a nominal pipe diameter of 24-inches: Minimum of twice the outside pipe diameter, or as otherwise allowed or required by the Geotechnical Consultant.
  - 2. Nominal pipe diameter of 30-inches through 36-inches: Minimum of the outside pipe diameter plus 2-feet, or as otherwise allowed or required by the Geotechnical Consultant.
  - 3. Nominal pipe diameter of 42-inches through 60-inches: Minimum of the outside pipe diameter plus 3-feet, or as otherwise allowed or required by the Geotechnical Consultant.
- E. Over-Excavations: Backfill trenches that have been excavated below bedding design subgrade, with approved bedding material.
  - 1. Any excess excavation or over-excavation performed by the Contractor for any purpose or reason, and any backfilling, compacting or backfill, and concrete work occasioned thereby shall be the responsibility of the Contractor and at the Contractor's expense. All exceptions to these specifications must be previously approved by the Owner.
- F. Comply with the Owner's Representative's limitations on the amount of trench that is opened or partially opened at any one time. Do not leave trenches open overnight without the approval of the Owner's Representative.
- G. Where forming is required, excavate only as much material as necessary to permit placing and removal of forms.
- H. Bottoms of trenches will be subject to testing by Geotechnical Consultant. Correct deficiencies as directed by the Geotechnical Consultant.
- I. Grade bottom of trench to provide uniform thickness of bedding material and to provide uniform bearing and support for pipe along entire length. Remove stones to avoid point bearing.

### **3.2 CONTROL OF WATER AND DEWATERING**

- A. Contractor shall be solely responsible for dewatering trenches and excavations and subsequent control of ground and surface water. Contractor shall provide and maintain such pumps or other equipment as may be necessary to control ground water and seepage to the satisfaction of the Geotechnical Consultant and the Owner's Representative until backfilling is completed.
- B. Dewater during backfilling operation so that groundwater is maintained a least one foot below level of compaction effort.
- C. Obtain the Geotechnical Consultant's approval for proposed control of water and dewatering methods.
- D. Reroute surface water runoff away from open trenches and excavations. Do not allow water to accumulate in trenches and excavations.
- E. Maintain dewatering system in place until dewatering is no longer required.

### **3.3 BRACING AND SHORING**

- A. Conform to California and Federal OSHA requirements.

### **3.4 PIPE BEDDING**

- A. Stabilization of Trench Bottom: When the trench bottom is unstable due to wet or spongy foundation, trench bottom shall be de-watered as necessary. The Geotechnical shall determine the suitability of the trench bottom and the amount of sand, gravel, or crush rock needed to stabilize the soft foundation.

### **3.5 BACKFILLING**

- A. Bedding and Initial Backfill:
  - 1. Permeable material or sand shall be used as bedding and initial backfill for all utilities as shown on the details. After the pipe has been properly laid and accepted by the Owners Representative, backfill material shall be placed on both sides of the pipe and compacted to the depth shown in the Drawings.
  - 2. Compaction: The backfill material shall be compacted to a minimum of 95% relative compaction by mechanically tamped in layers not exceeding eight inches (8") in uncompacted depth and shall be brought up uniformly on both sides of the pipe to avoid bending or distortional stress.
- B. Subsequent Backfill:
  - 1. Approved Native backfill material or permeable material shall be used for subsequent backfill, as shown in the details.
  - 2. Compaction: Subsequent backfill compaction shall be by mechanical means with backfill material placed in layers not exceeding eight inches (8") in loose depth. Each layer shall be thoroughly compacted before succeeding layers are placed. The use of machine tampers, except manually held types, shall not be permitted. Subsequent backfill shall be compacted to a relative compaction of 95%.

### **3.6 CLEANUP**

- A. Upon completion of utility earthwork, all lines, manholes catch basins, inlets, water meter boxes and other structures shall be thoroughly cleaned of dirt, rubbish, debris and obstructions of any kind to the satisfaction of the Owner's Representative.
- B. See Section 01740 Cleaning for further cleanup requirements.

**END OF SECTION 33 00 00**

## DOCUMENT 33 71 16

### UTILITY POLES

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Wood and steel poles
  - 2. Crossarms
  - 3. Pole top assembly hardware
- B. Related Sections:
  - 1. Document 33 79 00 Site Grounding
  - 2. Document 33 71 26 – Transmission and Distribution Equipment

##### 1.2 REFERENCES

- A. American National Standards Institute:
  - 1. ANSI C135.4 - Zinc-Coated Ferrous Eyebolts and Nuts for Overhead Line Construction.
  - 2. ANSI C135.5 - Zinc-Coated Ferrous Eye-nuts and Eyebolts for Overhead Line Construction.
  - 3. ANSI C135.6 - Zinc-Coated Ferrous Crossarm Braces for Overhead Line Construction.
  - 4. ANSI O5.1 - Wood Poles, Specifications and Dimensions.
- B. ASTM International:
  - 1. ASTM A475 - Standard Specification for Zinc-Coated Steel Wire Strand.
  - 2. ASTM A675/A675M - Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties.
- C. American Wood-Preservers' Association:
  - 1. AWPA C4 - Poles - Preservative Treatment by Pressure Processes.
  - 2. AWPA C25 - Sawn Crossarms - Preservative Treatment by Pressure Processes.
- D. Institute of Electrical and Electronics Engineers:
  - 1. IEEE C2 - National Electrical Safety Code.
  - 2. IEEE C135.1 - Standard for Zinc-Coated Steel Bolts and Nuts for Overhead Line Construction.

3. IEEE C135.2 - Standard for Threaded Zinc-Coated Ferrous Strand-Eye Anchor Rods and Nuts for Overhead Line Construction.
- E. American Society of Civil Engineers:
1. ASCE 48 – Design of Steel Pole Transmission Structures
- F. Silicon Valley Power:
1. Material Specification No. 6 – Wood Poles.
- G. Rural Utilities Service:
1. RUS Bulletin 1728F-700 – Specification for Wood Poles, Stubs and Anchor Logs
- H. Western Utility / Telecom, Inc.
1. Tapered Utility Pole Installation Guidelines (for steel poles)

### **1.3 SUBMITTALS**

- A. Document 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data showing materials and construction of hardware.

### **1.4 CLOSEOUT SUBMITTALS**

- A. Project Record Documents: Record actual locations of poles, guys, anchors, and required horizontal and vertical clearances.
- B. Operation and Maintenance Data: Submittals for Project Closeout.

### **1.5 QUALITY ASSURANCE**

- A. Perform Work in accordance with CPUC General Order 95, light loading conditions, and Grade A construction.

### **1.6 PRE-INSTALLATION MEETINGS**

- A. Review installation plan and protection plan of nearby utilities during construction with construction manager.

### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Document 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. If poles and components are to be temporarily stored by the Contractor, they shall be placed on blocking approximately every 15 feet of the pole length. Blocking shall be provided by the Contractor and be of adequate width to prevent damage to the poles. Poles shall be supported so as not to contact earth or standing water.
- C. Stack wood poles stored for more than two weeks on creosoted or decay-resistant skids arranged to support poles without noticeable pole distortion.
- D. Handle treated wood poles with tools to not produce indentations greater than **1 inch** deep. Do not drag treated poles along ground. Do not apply tools to section of treated poles between **1 foot** above and **2 feet** below ground line.

- E. Unloading shall be accomplished using slings or smooth pole tongs which encircle the circumference of the pole. Tongs which penetrate the pole surface will not be allowed. Poles shall be lifted freely from the pole hauler to storage areas or locations along the line route. Repositioning of poles from one location to another shall be handled in the same manner to prevent abrasion of the surfaces.
- F. The Contractor shall assure that any additional requirements specified by the manufacturer are implemented for the storage and handling of steel poles.
- G. Pole top assembly hardware, bolts and insulators shall be stored in their original shipping cartons or containers whenever possible to assist in the proper identification of materials. It shall be the Contractor's responsibility to store materials in safe locations, to prevent theft and/or damage from construction operations, weather, or the public.

## **PART 2 - PRODUCTS**

### **2.1 POLES**

- A. In the case that Contractor needs to provide replacement wooden poles, or the poles are otherwise not provided by Owner
  - 1. Wood Poles: ANSI O5.1, treated Pacific Coast Douglas fir poles of minimum length and class indicated in project drawings. Poles must meet or exceed the latest version of SVP Material Specification No. 6.
  - 2. Select poles for straightness and minimum sweeps and short crooks.
  - 3. Preservative: Copper Naphthenate meeting the requirements of AWPA P8.
  - 4. Apply preservative to AWPA C1 and C4 with minimum net retention of 1 pound per cubic foot. Obtain complete sapwood penetration.
  - 5. Poles shall be free of cross breaks, decay, holes (except holes for test purposes), and hollow butts or tops.
    - a. Limited defects will be allowed per RUS and national standards. Each wood pole is tagged to identify the specific properties associated with the pole.
- B. Steel Poles, as provided by the Owner, are ASTM A572, Grade 65, with a dulled galvanized finish.

### **2.2 CROSSARMS**

- A. Crossarms or Davit Arms: Fiberglass or Steel arms. Refer to Drawings and Bill of Material for specific part numbers, sizes, and manufacturer.

### **2.3 POLE TOP ASSEMBLY HARDWARE**

- A. All erection hardware shall be hot dip galvanized or stainless steel.
- B. Bolts shall be the proper length for the specific application with a minimum of one-half (1/2) inch and a maximum of four (4) inch projection beyond installed nuts or locknuts.

- C. Pole bands shall be properly sized for the pole circumference at the point of installation. The Contractor shall install bands with even spacing as shown on the Drawings for a secure fit. The Contractor shall be responsible for ensuring that pole bands of the proper size are provided for the installation.
- D. All suspension clamps, trunnion clamps, dead-end clamps, splices and compression dead-ends for use with the specified conductors shall be expressly designed for such use and approved by the Owner. All hardware shall be as specified or of equal or better design and quality.
- E. Pole Hardware Material Specifications:
  - 1. Crossarm Braces: ANSI C135.6, structural steel galvanized to ASTM A675/A675M.
  - 2. Miscellaneous Pole Hardware: Hot-dipped galvanized after fabrication.
  - 3. Angle Braces: 60 inch span x 18 inches, drop-formed in one piece from 1-3/4 x 1-3/4 inch angle.
  - 4. Flat Braces: 1/4 x 1-1/4 inch.
  - 5. Eye Bolts and Nuts: ANSI C135.4.
  - 6. Anchor Rods and Nuts: IEEE C135.2.
  - 7. Bolts and Nuts: IEEE C135.1.
  - 8. Eye nuts and Eyelets: ANSI C135.5.
  - 9. Ground Rods: ANSI C135.30.
  - 10. Guy Strand: Extra high strength 7-strand steel cable galvanized to ASTM A475, Class A or B.
  - 11. Guy Termination: Preformed type.
  - 12. Guy Guards: 8 foot long plastic, colored yellow.
  - 13. Ground Wire: Copperclad steel wire, dead soft annealed, #4/0 AWG min. size.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION FOR POLES**

- A. Wood Poles: Plug unused holes in poles using treated wood dowel pins. Treat field-cut gains and field-bored holes with preservative.
- B. Wood Poles: Cut gains on face of pole, with gained surfaces in parallel planes.
- C. Wood Poles: Shorten poles when required by cutting from top end. Apply hot preservative to shortened end of pole.
- D. Steel Poles: Inspect poles for damage done to the galvanization finish. Repair damaged galvanizing by using the galvanizing product provided by the steel pole manufacturer or the Owner and by following the steel pole manufacturer's repair instructions.

- E. Steel Poles: Contractor to ensure that all components of the structure (bolts, nuts, davit arms, etc.) that have been supplied by the steel pole manufacturer are located and properly installed when constructing each structure.

### **3.2 EXISTING WORK**

- A. Remove abandoned poles and hardware.
- B. Extend existing pole line installations using materials and methods [compatible with existing installations], or as specified.
- C. Repair existing poles and hardware to remain. Remove abandoned crossarms and hardware from existing poles to remain.

### **3.3 INSTALLATION (POLE EXCAVATION AND SETTING)**

- A. For steel poles refer to and follow the manufacturer's installation guidelines in addition to these project specifications. A copy of the manufacturer's installation guidelines have been provided with the Contract Documents. If there is a discrepancy between the manufacturer's installation guidelines and the other Contract Documents, contact the Engineer for clarification.
- B. The Owner will stake all structure locations, identifying structure number at each location. All structures, whether tangent, running angle or deadend, will be staked at the proper excavation location.
- C. All holes shall be augured in the correct locations as staked by the Owner and shall be large enough to provide space for tamping the backfill around the entire circumference of the pole or foundation unit. Pole setting depths are specified on the Drawings. Standing water resulting from runoff or high water table shall be removed from the excavation as practical prior to pole installation .
- D. Excavation and setting of structures shall be performed in a continuous operation, preventing the possibility of caving of holes or injury to animals or persons in the vicinity of the construction. The Owner shall be notified of any excavation left incomplete/open for longer than 24 hours. Excavations left open for longer than 24 hours will be evaluated by the Owner for possible foundation design changes. No excavations shall be left uncovered when the Contractor's personnel are not on site .
- E. If soil conditions prevent installation of structures at locations as staked by the Owner, the Contractor shall notify the Owner of conditions existing at the structure location. If possible, the problem will be remedied by relocation of the structure from the initial location. If such relocation is not possible, other remedies will be proposed by the Owner and any additional cost associated with such remedies will be paid by the Owner pursuant to a completed change order .
- F. Poles shall be placed in the excavated holes by a method or methods approved by the Owner. Poles not required to be raked shall be set plumb and in alignment. Forms shall be kept in place and structures held plumb for a minimum of 24 hours where Controlled Low Strength Material (CLSM) is specified. Structures at angles shall be set so as to bisect the angles, unless otherwise specified.
- G. Holes shall be backfilled with native backfill, engineered backfill or Controlled Low Strength Material (CLSM), as specified on the Drawings. Requirements for backfill materials are specified in Document 31 00 00, Earthwork. Backfill shall be compacted to a density not less than the natural in-place dry density of the

surrounding earth. Native and engineered backfill shall be banked and tamped six (6) inches above the natural ground surface. Surplus excavated material shall be evenly spread along the right-of-way or hauled to an offsite location for dumping, according to the permissions and requirements of each individual landowner. Backfill shall be free of large rocks, organic material or other low density, unsuitable soils. If satisfactory backfill material is not available from the excavation or within the immediate vicinity of the structure, the Contractor shall import any additional material required for setting of structures, as approved by the Owner.

- H. Tamping shall be accomplished by one or more pneumatic tampers in a continuous operation as the pole is backfilled. Lifts of backfill material shall not exceed six (6) inches in depth. Any extremely dry materials shall be dampened during the backfill operation to obtain the desired density.

### **3.4 INSTALLATION (POLE TOP ASSEMBLIES)**

- A. Wherever possible, framing shall be accomplished prior to the erection of structures. Two pole structures shall be placed on a level surface prior to framing to prevent distortion. If level terrain is not available for framing, the Contractor shall temporarily support poles as necessary to accomplish the work.
- B. All installations shall be as shown on the Drawings. Guying attachments shall be installed in the proper location as shown on Drawings and as staked in the field.
- C. Insulators shall be cleaned with cloth and water to remove any foreign materials prior to installation. Porcelain insulator strings over six bells long shall be installed with the use of a cradle or other device to prevent damage.
- D. Insulator installation shall be in accordance with the Drawings. Pin insulators shall be tightly installed in position with the groove in line with the conductor. Bolts used to attach post insulators shall be torqued to the recommended values.
- E. In general, installation of hardware shall be accomplished with attention to requirements for possible hot-line maintenance at a future date. The heads of bolts and pin connections shall be oriented upright wherever possible.
- F. Set crossarms at right angles to line for straight runs; and to bisect angle of turns in line direction.
- G. Install ground rods and ground wire. Refer to Document 33 79 00 "Site Grounding".

### **3.5 FIELD QUALITY CONTROL**

- A. Document 01 45 00 – Testing and Inspection
  - 1. Upon receipt, the Contractor shall visually inspect each wood pole to ensure that it conforms to RUS Specification 1728F-700. The Contractor shall also carefully inspect all steel poles when they arrive prior to unloading to verify that all such work is complete so the entire installation may commence as scheduled.
  - 2. The Contractor shall check all framing, hole locations, and ganging to ensure that poles/structures agree with the Drawings. Any improperly framed poles which are identified by the Contractor will be inspected by the Owner to determine if they can be modified for use on the project.

3. Twisted, bent, improperly drilled, improperly framed or otherwise damaged parts shall not be hauled to the laydown yard or erected, and immediately be reported to the Owner.
  4. The above inspection requirements are in addition to the standard quality control functions required of the manufacturer at their plant facility.
- B. Field-test at least one anchor of each capacity installed to rated holding power.

**END OF SECTION 33 71 16**

## SECTION 33 71 26

### TRANSMISSION AND DISTRIBUTION EQUIPMENT

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section includes line conductors, insulators, and overhead line accessories.
- B. Related Sections:
  - 1. Section 33 71 16 - Utility Poles.
  - 2. Section 03 79 00 - Site Grounding.

##### 1.2 REFERENCES

- A. American National Standards Institute:
  - 1. ANSI C29.2 - Insulators - Wet-Process Porcelain and Toughened Glass - Suspension Type.
  - 2. ANSI C29.6 - Wet Process Porcelain Insulators (High Voltage Pin Type).
  - 3. ANSI C29.7 - Wet-Process Porcelain Insulators, High-Voltage Line-Post Type.
  - 4. ANSI C119.4 – Standard for Electric Connectors for Use Between Aluminum-to Aluminum or Aluminum-to-Copper Conductors.
  - 5. ANSI C135.17 - Insulator Pins with Lead Threads for Overhead Line Construction, Galvanized Ferrous Bolt-Type.
  - 6. ANSI C135.22 - Zinc-Coated Ferrous Pole-Top Insulator Pins with Lead Threads for Overhead Line Construction.
  - 7. ANSI C135.31 - Zinc-Coated Ferrous Single and Double Upset Spool Insulator Bolts for Overhead Line Construction.
- B. ASTM International:
  - 1. ASTM B193 – Standard Test Method for Resistivity of Electrical Conductor Materials.
  - 2. ASTM B230 - Standard Specification for Aluminum 1350 – H19 Wire for Electrical Purposes.
  - 3. ASTM B231 - Standard Specification for Aluminum Conductors, Concentric-Lay-Stranded.
  - 4. ASTM B941 – Standard Specification for Heat Resistant Aluminum Zirconium Alloy Wire for Electrical Purposes
  - 5. ASTM B976 – Standard Specification for Fiber Reinforced Aluminum Matrix Composite (AMC) Core Wire for Aluminum Conductors Aluminum Matrix Composite Reinforced (formerly known as ACCR)

6. ASTM B978 – Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Composite Reinforced (ACCR)
- C. Institute of Electrical and Electronics Engineers:
  1. IEEE C2 - National Electrical Safety Code.
  2. IEEE 524 – Guide to the Installation of Overhead Transmission Line Conductors.
  3. IEEE 987 – Guide for the Application of Composite Insulators.
- D. Silicon Valley Power:
  1. OH 750 – 60kV Twin Vertical Pole Line.
  2. OH 751 – 60kV Twin Vertical Pole Line Reduced Tension Construction
- E. 3M, Manufacturer of ACCR conductor:
  1. Installation Guidelines and Maintenance for 3M ACCR Conductor

### **1.3 SUBMITTALS**

- A. Section 01 33 00 - Submittal procedures.
- B. Product Data: Submit catalog data for line materials, line hardware, insulators, cutouts, and arresters.

## **PART 2 - PRODUCTS**

### **2.1 LINE HARDWARE**

- A. Manufacturers:
  1. Alcoa.
  2. Hubbell Power Systems.
  3. MacLean Power Systems.
  4. Preformed Line Products (PLP).
  5. Hughes Brothers.
  6. Substitutions: Section 01 6 00 - Product Requirements.
- B. Pole-top Insulator Pins: ANSI C135.22.
- C. Spool Insulator Bolts: ANSI C135.31.

### **2.2 INSULATORS**

- A. Manufacturers:
  1. Hubbell Power Systems.
  2. Lapp.

3. MacLean Power Systems.
  4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Product Description: Refer to the project's Bill of Material for specific insulators selected for this project, including manufacturers and part numbers.
  - C. Line Post Insulators: ANSI C29.11.
  - D. Suspension Insulators: ANSI C29.12.
  - E. Pin Insulators: ANSI C29.5.
  - F. Guy Strain Insulators: ANSI C29.4.

## 2.3 LINE CONDUCTORS

- A. Manufacturers:
  1. Alcan.
  2. Southwire.
  3. 3M
  4. Substitutions: Section 01 60 00 - Product Requirements.
- B. For newly installed 60 kV high voltage overhead line conductors: Aluminum Conductor Composite Reinforced (ACCR) ASTM B193, B941, B976, and B978.
- C. For some existing High Voltage Overhead Line Conductors: Bare all-aluminum conductor (AAC) ASTM B230, ASTM B231.
- D. Ground Wire: 19 Strand, Dead Soft Annealed, #4/0 AWG, minimum size.

## PART 3 - EXECUTION

### 3.1 EXAMINATION, STORAGE, AND HANDLING

- A. Verify proper pole and crossarm installations.
- B. Insulators and hardware shall be properly protected from contact with the earth, standing water or other conditions which could cause corrosion or contamination. Containers for composite insulators shall be placed on pallets and kept sealed until ready for use to avoid any possibility of insulator contamination.
- C. Care should be exercised in the handling of insulators to prevent damage to porcelain and composite surfaces, galvanizing or attachment hardware. Composite materials are particularly sensitive to abrasion and shall be handled carefully. The *Contractor* shall be responsible for damage to insulators and attachment hardware; damaged units shall be replaced at no cost to the *Owner*.
- D. It shall be the *Contractor's* responsibility to protect the conductors and hardware against damage. Should the conductors and hardware be damaged due to any *Contractor's* mishandling, negligence or faulty equipment, the *Contractor* shall be responsible for replacing any damaged sections which shall include furnishing any necessary materials and labor in a manner that is satisfactory to the *Owner* and at no additional cost to the *Owner*. Any section of conductor or standard overhead

ground wire that is damaged by the application of grips or by any other means shall be replaced at the *Contractor's* expense.

- E. All conductor reels shall be stored blocked-up off the ground and shall be adequately supported so as to avoid damage to conductor, protective covering and reels. The Contractor shall take care to protect conductor and reels from excessive dust, mud and standing water. All conductor shall be covered and shall be stored no closer than fifty (50) feet from any energized portion of a substation or transmission line.
- F. The Contractor shall utilize a reel dolly to lift or transport all conductor reels. Conductor reels shall not be rolled except for very short distances. If conductor reels are rolled, they shall be rolled in the direction that would tend to tighten rather than loosen the conductor on the reel.
- G. The Contractor shall remove the protective covering from the reels at the job site. The Contractor, along with the Owner, shall then examine the outside layer of each reel to ensure that the conductor is in good condition. Any staples, nails or other sharp objects which could damage the conductor during unreeling shall be removed from the inside of the reel heads. The Contractor shall retain all markers and identification tags on the reels. The Contractor shall record the reel data, including the reel number, length of conductor, the net weight and the structure numbers where the conductor was installed, on forms supplied by the Owner.

### 3.2 EXISTING WORK

- A. Disconnect abandoned overhead lines and remove overhead line materials.
- B. Extend existing overhead line installations using materials and methods as specified.
- C. Clean and repair existing overhead line materials to remain or to be reinstalled.

### 3.3 INSTALLATION

- A. Install in accordance with IEEE C2, IEEE 524, CPUC GO 95, and manufacturer's installation instructions. A copy of the manufacturer's installation instructions for 3M's ACCR conductor has been provided with these specifications.
  - 1. **In the case of a discrepancy between the IEEE publication, these specifications, and 3M's installation instructions, the Contractor shall follow 3M's installation instructions.**
- B. 3M 715 ACCR conductor requires special handling and installation practices. All personnel involved with installation of ACCR conductor are required to attend 3M training before installing the conductor. An inspector from 3M will be present during installation of all ACCR conductor to ensure warranty of conductor. Contractor is responsible for coordinating the training and inspection with 3M.
- C. OVERHEAD CONDUCTOR
  - 1. Tools and Equipment:
    - a. The Contractor shall ensure that all tools and equipment for wire operations shall be of the proper size and type for the job and shall be maintained in good working condition.

- b. All sheaves, pullers, tensioners, compressors, wire grips and dies shall be properly sized for the specific conductors to be installed and shall be examined by the Owner.
  - c. Before stringing operations commence, all equipment shall again be inspected by the Contractor and the Owner. All stringing blocks shall be of the proper diameter and groove size for the conductor being pulled and shall be free running and neoprene lined.
  - d. The Contractor shall verify proper bull wheel and sheave diameters for all conductors with the manufacturer prior to commencement of stringing operations.
2. Guard Structures:
- a. During stringing operations, the Contractor shall furnish and install guard structures where required to prevent the conductor and standard overhead ground wires from coming into contact with existing overhead electric supply lines, communication lines, highways, roads and railroads crossed by the transmission line. All materials and labor required to provide adequate guard structures shall be furnished by the Contractor.
  - b. After completion of all conductor stringing operations, the Contractor shall remove the guard structures, fill and tamp all pole holes, and restore the right-of-way and access to its original condition.
3. Stringing:
- a. The method of installing the conductor and the standard overhead ground wires shall be as designated by the *Owner*. Controlled tension stringing will be utilized on this project. The *Contractor* shall perform all stringing operations in accordance with IEEE Publication 524, "Guide to the Installation of Overhead Transmission Line Conductors," and the manufacturer's installation instructions.
  - b. The precise stringing procedures (pulling plan) which includes equipment to be used, number of crews, composition, and responsibilities of each crew, proposed equipment set-up, locations of all splices, and locations and descriptions of temporary snubs and anchors shall be submitted to the *Owner* for review and approval prior to any stringing operations.
  - c. The *Contractor* shall take extreme care during the conductor stringing operation to avoid damage to the conductor or standard overhead ground wire strands. This damage can be defined as any deformity on the wire which can be detected by sight or touch. Kinked, twisted, abraded, "bird-caged", or flattened wire will not be allowed to remain on the line. If damage is found, the stringing operation shall be halted. Any conductor found to be damaged as described above shall be replaced or repaired by the *Contractor* at his own expense, and to the satisfaction of the *Owner*.
  - d. A stringing tension of not less than 50% nor more than 80% of the initial sagging tension shall be used. This tension shall be high

enough to ensure that the conductor does not drag across the ground, trees, underbrush, fences, guard structures, towers, or any other surface other than the stringing sheaves. The *Contractor* shall continuously inspect the conductor as it leaves the reels. If the conductor has an accumulation of grease, oil, dirt or any other foreign substance, such substance shall be removed as the wire leaves the reels by a method approved by the *Owner*.

- e. The center phase shall always be pulled first when stringing conductor on multiple pole structures. The outside phases shall then be pulled alternately in successive pulls. If all three phases are strung in one pull, the middle phase shall lead the other phases by not less than 100 feet.
  - f. Not more than two reels of conductor per phase may be pulled at one time. Full tension compression splices shall not be pulled through the stringing blocks.
  - g. During stringing operations, the *Contractor* shall ensure that the conductor will not be dragged on the ground, driven over with vehicles, or allowed to come into contact with any fences or other structures. Fences and small structures should be removed or well covered during the stringing operation. The *Contractor* shall not begin stringing operations unless weather reports indicate that wind and weather will allow adequate time to sag and clip in all structures.
  - h. The *Owner* will supply stringing charts to the *Contractor* prior to conductor stringing operations. Sag report sheets shall be prepared by the *Contractor* at each sag and submitted to the *Owner*.
4. Sagging:
- a. All conductors shall be sagged to the proper tensions in accordance with the initial stringing sag and tension data charts provided by the *Owner*.
  - b. At the time of sagging conductors, the sag of any given phase shall be within a tolerance of +1/2 and -0 inches for every 100 feet of span length, but not more than +6 inches of sag in any given span of the theoretical values specified in the stringing charts. The sag of all phases of a circuit shall have similar tolerances and direction from the theoretical sag. Subconductors within a phase shall have tolerances between each other of not over two conductor diameters with a maximum of 2 inches.
  - c. The *Contractor* shall select the length of each sag and the sag-checking spans subject to the review and approval of the *Owner*. Regardless of the *Contractor's* sagging method, the *Contractor* shall ensure that uniform tensions are realized throughout the sag and that the allowable sag and tolerances are not exceeded.
  - d. Offset clipping may be required in hilly or mountainous terrain in order to ensure equalized tensions and plumbing of insulators on suspension structures. When required, the calculations for clipping and sag corrections shall be provided by the *Owner*.

- e. The *Contractor* shall make any and all necessary adjustments in the conductor or hardware at any time during the construction period to ensure that the conductor is at the proper tension, sags are within tolerance, and suspension insulators and standard overhead ground wire assemblies hang plumb. These ongoing adjustments will be furnished by the *Contractor* at no additional cost to the *Owner*.
  - f. The *Contractor* shall ensure that each reel of wire is sagged within 24 hours after the start of the stringing operations. The *Owner* shall provide creep correction factors with the specified sag charts if necessary for any isolated areas. The *Contractor* shall certify the ambient air temperature at the time and place of stringing with a certified etched-glass thermometer. All information including temperature, conductor sag and location of sag checks shall be recorded and the information given to the *Owner*.
5. Clipping, Splicing, Deadending:
- a. The *Contractor* shall be responsible for, and take into consideration, the strength limitations of all structures insofar as the application of temporary conductor stringing loads. All pull-downs on structures and temporary back snubs other than strain structures shall be carefully planned and meet the approval of the *Owner*.
  - b. The *Contractor* shall carefully plan the conductor pulls to minimize the number of full tensions splices.
  - c. All splicing shall be done in the presence of a SVP field representative. Splices shall not be made within fifteen feet (15') of a structure, nor shall there be more than one (1) splice per conductor in any span. Splices shall not be installed in crossings over railroads, roads, highways, transmission lines, or rivers. Splice sleeves shall not be installed within one hundred feet (100') of a deadend. Whenever splices are made under tension, come-alongs shall not be placed nearer than twenty-five feet (25') to the point of the splice or deadend.
  - d. The *Contractor* shall install all compression splices and dead-ends in strict accordance with the manufacturer's recommendations. The *Contractor* shall clean conductor strands within the splice area with a steel brush, cotton rags, and solvents. The *Contractor* shall ensure that compression fittings are straight and uniform. This can be realized by the use of proper die size, accurate cutting of wire and complete insertion of the cable strands into the compression fitting.
  - e. The *Contractor* will furnish a press with properly sized motor and a portable head, the proper dies and all other equipment necessary to make up the required dead-end connections. The *Contractor* shall utilize a standard hydraulic compression head to make up all compression splices.
  - f. The *Contractor* shall clean the conductor and hardware of excess grease and compounds after completion of the pressing

operations. All die flash marks and burrs shall be removed with emery cloth.

- g. The *Contractor* shall evenly torque all U-bolts on suspension clamps and strain dead-end clamps to the manufacturer's recommended values. Special care shall be taken to ensure that keeper plates are in place and properly seated.
- h. The *Contractor* shall lift the conductor from the stringing sheaves using standard suspension clamps or plate hooks that are 8" larger to provide adequate support for the conductors without damaging individual strands or kinking the wire. All conductors shall be clipped into suspension clamps at three hours, but not more than 72 hours after the start of each conductor stringing operation. With pin type insulators, the *Contractor* shall tie the conductors to the top groove of the insulator on tangent poles and to the side of the insulator away from the strain at angle poles.

6. Jumpers:

- a. The *Contractor* shall install all conductor jumpers as shown on the Drawings and in accordance with the manufacturer's recommendations. All jumper loops shall be made up to present a uniformly curving appearance. The *Contractor* shall make up jumper loops from excess lengths of conductor from the wire stringing operation.

7. Temporary Grounds:

- a. The *Contractor* shall take all necessary steps to ensure proper temporary grounding of all structures, conductors and equipment during the conductor stringing operation. The Contractor shall ensure that all applicable federal, State, and local safety regulations are strictly adhered. The Contractor shall keep a record of all temporary conductor grounds to ensure that they are removed and that the line can be safely energized at the end of the construction period.

### 3.4 FIELD QUALITY CONTROL

- A. Section 01450 – Testing and Inspection

### 3.5 REPAIRS

- A. Damage to the conductor caused by the Contractor shall be repaired in a manner determined by the Engineer at the expense of the Contractor. Damage is defined as any deformity on the surface of the conductor that can be detected by eye or feel. Damage includes but is not limited to nicks, scratches, abrasions, kinks, basketing, popped-out strands, and broken strands.
- B. Depending upon the severity of the damage and the length of the damaged section, repair shall be made by carefully smoothing the conductor with fine sandpaper, covering it with preformed repair rods, or by cutting and splicing.
- C. Kinked, basketed, or severely damaged sections of conductor shall be cut out. When there is repeated damage in the same span or in consecutive spans, all conductor in these spans shall be replaced.

- D. When one (1) aluminum strand is broken or nicked deeper than one-third (1/3) its diameter, or when a number of strands are reduced in area not exceeding the area of one (1) strand, a preformed repair rod shall be installed. When more than one (1) strand is broken or the conductor is reduced in area by more than one (1) strand, the damage section shall be cut out.
- E. For 3M's ACCR conductor refer to their installation guidelines and maintenance manual for additional repair instructions.
- F. Not more than two (2) splice sleeves for repairing damage shall be applied in any two hundred feet (200') of conductor, except at the direction of the Engineer. Compression repair splice sleeves shall not be installed within fifteen feet (15') of a suspension structure. A minimum of twenty feet (20') of conductor (or ground wire) shall be cut off on each side of the damaged section.

**END OF SECTION 33 71 26**

## DOCUMENT 33 71 74

### TRANSMISSION AND DISTRIBUTION DEENERGIZATION COORDINATION

#### PART 1 – GENERAL

- A. The procedures in this document are to be used when electrical Clearances or Outages are required on the Owner's electrical system for the execution of the Work.
- B. Contractor shall coordinate with other utility companies for Clearances or Outages as required for the Work.
- C. Contractor shall submit requests required in this document to the Owner's Electric Control Center for all work on the in-service Owner electric network exceptfor:
  - 1. Rubber glove work.
  - 2. Secondary work, where a Clearance is not necessary.
  - 3. Single overhead transformer replacement, where a Clearance is not necessary as determined by a Owner Outage Sponsor.
  - 4. Overhead capacitor banks, where a Clearance is not necessary as determined by a Owner Outage Sponsor.
- D. Contractor shall not initiate work associated with an outage request until such request is approved by the Owner in writing (e-mail acceptable).
- E. When a Clearance or Outage is required, the clearance/outage area shall be minimized to the greatest extent possible.
- F. A "Non-Test" shall be requested and issued to the Owner Outage Sponsor by the Electric Control Center whenever live-line work is performed, when work is being performed within the minimum approach distance to energized high voltage facilities, or when the Owner's Outage Sponsor believes it is necessary.
- G. Contractor shall create traffic control plans, obtain any necessary permits from Owner or County, and implement traffic control as necessary to perform the Work.
  - 1. In the event of delay in receiving the required permits, Contractor shall follow Documents 3.C and 5.A.3, below.

#### PART 2 – DEFINITIONS

- A. **Bulk Electric System (BES).** As defined by the Regional Reliability Organization, the electrical generation resources, transmission lines, interconnections with neighboring systems, and associated equipment operating at voltages of 100kV or higher. Radial transmission facilities serving only load with one transmission source are generally not included in this definition.
- B. **California Independent System Operator (CAISO).** Balancing Authority for Silicon Valley Power.
- C. **Owner Outage Sponsor.** A Owner employee that oversees contractor work, submits work requests, holds clearances, and participates in Job Hazard Analysis relating to Planned Outage on the Owner's electric system.

- D. **Clearance.** Within the definition of a planned electric network circuit outage, it is the defined area within that electric network circuit inclusive of open points or “clearance” points and may have applied grounds.
- E. **Clearance Holder.** A Qualified Owner employee who is responsible for the equipment and work that is being performed within an established Clearance Work Area. The Clearance Holder is responsible to ensure that persons that are working within the Clearance Work Area understand the Clearance Limits, the nature of the work to be performed, and all hazards or potential hazards associated with the work being performed.
- F. **Clearance Limits.** Area between open points where electric lines are deenergized.
- G. **Clearance Work Area.** The work area within established clearance limits, in which the Clearance Holder is responsible and authorization to perform work from the Electric Control Center has been granted.
- H. **Electric Control Center.** A Owner facility that hosts Electric, Water, and Sewer System Operators and Real Time System Operators, that control, monitor and operate the SVP electric utility network.
- I. **Planned Outage.** Controlled de-energization of an electrified network between defined clearance visual open points.
- J. **Non-Test.** Equipment that shall not be tested or re-energized by automatic or manual reclosing after becoming de-energized.
- K. **Qualified Owner Employee:** a Qualified Electrical Worker employed by Owner.
- L. **Qualified Electrical Worker:** Defined by Cal/OSHA Regulation §2700, A qualified person who by reason of a minimum of two years of training and experience with high-voltage circuits and equipment and who has demonstrated by performance familiarity with the work to be performed and the hazards involved.

**PART 3 – COORDINATION**

- A. Prior to the start of Work, Owner Outage Sponsor will be assigned to the Work to facilitate clearance/outage coordination with other SVP Divisions for the duration of the Work. Owner Outage Sponsor will be the official Clearance Holder for any clearance/outage issued for the Work.
- B. Owner Outage Sponsor will be responsible for submitting and confirming work requests, providing job estimates (if necessary), and coordinating information between the Electric Control Center and Contractor.
- C. Contractor shall provide a minimum 24-hour notice to cancel a clearance/outage. If less than 24-hour notice is provided, Contractor will be charged for 3 hours for each Owner employee’s time assigned to the clearance based on the Owner of Santa Clara’s cost recovery rates at the time of the scheduled clearance/outage as shown in the Owner’s Master Fee Schedule.
- D. Owner Outage Sponsor assigned to the Work will review the outage schedule and clearance points clearly marked on Drawings with Contractor and the Electric Control Center prior to issuing a Notice to Proceed.
  - 1. Contractor shall schedule this review within 10 days of the execution of the Contract.

- E. Commercial customers may request to have work completed outside of normal business hours. Contractor and Owner Outage Sponsor shall work to the extent practical to accommodate these requests.
- F. Contractor shall allow 2 hours in their schedule for Owner crews to prepare and implement the clearance/outage and an hour to end the clearance/outage.

#### **PART 4 – LIMITATIONS**

##### **A. TRANSMISSION**

1. Days: Work shall be continuous for the duration of the clearance/outage. If the Work cannot be continuous, the emergency restoration times in Document 4.A.3, below, shall be met by Contractor at any given time. Days and times may be restricted based on the criticality of the facility during the timeline the clearance/outage is being scheduled. If Owner determines that the system conditions do not allow for the clearance/outage to run as submitted, then new clearance/outage criteria will be given to Contractor. There may be times when Owner requires the Work be performed after hours or on weekends based on the clearance/outage study results.
2. Weather: Clearances/outages are to be avoided or cancelled when the forecast indicates an outside temperature above 90 degrees Fahrenheit, strong winds above 25 mph, lightning, or heavy rain.
3. Emergency Restoration: Emergency restoration time shall not be more than 3 hours at any given time without prior Owner approval.
4. Notification: Clearances/outages that do not overlap other Owner bulk electric system outages and do not last more than 72 hours shall be submitted to Owner Outage Sponsor no less than 40 days in advance of the planned clearance/outage. When multiple overlapping bulk electric system outages and/or clearances/outages lasting more than 72 hours are required, the plan shall be submitted to Owner Outage Sponsor no less than 90 days in advance of the clearance/outage. All transmission outages are submitted by the Owner's Electric Control Center to the California Independent System Operator (CAISO) for approval. CAISO may deny transmission outages based on operating conditions. If the CAISO does not allow the outage to proceed as scheduled, Owner will notify Contractor.
5. When a Clearance/Outage cancellation is due to weather, CAISO denial, or otherwise required by Owner, a no cost Working Time extension can be requested following the procedures set in the Contract Documents. Contractor is not responsible for any Owner rescheduling fees.

##### **B. SUBTRANSMISSION**

1. Days: Work shall be continuous for the duration of the clearance/outage. If the Work cannot be continuous, the emergency restoration times in Document 4.B.3, below, shall be met by Contractor at any given time.

2. Weather: Clearances/outages are to be avoided or cancelled when the forecast indicates an outside temperature above 90 degrees Fahrenheit, strong winds above 25 mph, lightning, or heavy rain.
3. Emergency Restoration: Emergency restoration time shall not be more than 2 hours at any given time without prior Owner approval.
4. Notification: Clearances/outages that do not overlap other sub-transmission outages shall be submitted to Owner Outage Sponsor no less than 7 days prior to the planned clearance/outage. Clearances/outages that overlap other sub-transmission outages shall be submitted to Owner Outage Sponsor no less than 14 days prior to the planned clearance/outage. Clearances/outages are evaluated as submitted and Owner may require changes based on system conditions. If a clearance/outage needs to be rescheduled, Owner will notify Contractor.

C. DISTRUBUTION

1. Days: No residential clearances/outages shall be permitted on weekends (Saturday-Sunday) or holidays.
2. Weather: Clearances/outages are to be avoided or cancelled when the forecast indicates an outside temperature above 90 or below 35 degrees Fahrenheit, strong winds above 25 mph, lightning, or heavy rain.
3. Hours: Clearances/outages are to be within the working hours specified in these specifications unless otherwise agreed to by Owner. In no case shall planned residential outages be outside of daylight hours.

D. OTHER

1. Owner has the right to cancel outages without notice when operating constraints, switching personnel availability, inclement weather, or system conditions warrant the cancellation as determined by Owner.
2. When a Clearance/Outage cancellation is due to weather or otherwise required by Owner, a no cost Working Time extension can be requested following the procedures set in the Contract Documents. Contractor is not responsible for any Owner rescheduling fees.

**PART 5 – NOTIFICATION**

- A. Contractor shall notify Owner Outage Sponsor a minimum of 3 weeks, but not more than 4 weeks, prior to the planned clearance/outage to start the community outreach process.
1. Work Requests are processed between 6:00 am and 3:30 pm Monday-Friday. Work Requests submitted after the processing hours will be considered submitted the next working day when calculating minimum lead times for Work Request submittal.
  2. Owner will send out notifications to customers at least 2 weeks prior to the planned work. To facilitate the Owner's outreach, Contractor shall provide the following information:

- a. Date, start time, end time customers will be out of power.
  - b. Location or area of outage.
  - c. Equipment de-energized.
  - d. Reason for outage.
3. Contractor shall notify Owner Outage Sponsor of any modifications to a clearance/outage schedule a minimum of 10 Working Days in advance. If less than 10 Working Days notice is provided, Contractor will be charged for 3 hours of each person's time assigned to the clearance/outage and renotification based on the Owner of Santa Clara's cost recovery rates at the time of the scheduled clearance/outage.
4. Owner's notification process is as follows:
- a. Owner will send a written notice to affected customers via US mail 2 weeks prior to the outage.
  - b. Owner will send a second notification one business day prior to the outage.
  - c. If Owner approves a quick notification timeline, then door hangers will be utilized by Contractor.
    1. Contractor shall coordinate with Owner Outage Sponsor to ensure that any door hangers are placed at least 3 business days before the outage.
    2. Contractor will be responsible to printing and placing the door hangers.

#### **PART 6 – MATERIALS**

- A. Contractor shall set their own grounds.
- B. Materials provided by Owner will be released to Contractor at the start of the Work.
- C. Unused materials will be returned to Owner. Contractor shall be charged for unused materials that are not returned.
- D. All salvage materials shall be returned to Owner.

**END OF DOCUMENT 33 71 74**

## DOCUMENT 33 79 00

### SITE GROUNDING

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Rod electrodes.
  - 2. Mechanical connectors.
  - 3. Wire.
- B. Related Sections:
  - 1. Document 33 71 16 – Utility Poles
  - 2. Document 33 71 26 – Line Material

##### 1.2 REFERENCES

- A. California Public Utilities Commission
  - 1. General Order 95 – Rules for Overhead Electric Line Construction

##### 1.3 SYSTEM DESCRIPTION

- A. Single vertical rod electrode for local grounding at a utility transmission pole or other piece of equipment.

##### 1.4 SUBMITTALS

- A. Document 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data for grounding electrodes and connectors.

##### 1.5 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of electrodes and connections.

##### 1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with CPUC General Order 95.

##### 1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum 5 years documented experience.

#### PART 2 - PRODUCTS

##### 2.1 ROD ELECTRODES

- A. Manufacturers:

1. Blackburn - Model 6258.
  2. Joslyn - Model J8338.
  3. Dottie - Model GR5808.
  4. Eritech – Model 615880
  5. Hubbell – Model C635880
  6. Substitutions: Section 01600 - Product Requirements.
- B. Product Description: 10 mil Copper-clad steel ground rod.
- C. Diameter: 5/8 inch.
- D. Length: 8 feet.

## **2.2 MECHANICAL CONNECTORS**

- A. Manufacturers:
1. Blackburn - Model JAB 58H or Model DCG58-66.
  2. Dossert - Model GN-62.
  3. Joslyn - Model J 8492.
  4. Penn Union – Model CAB-2
  5. Burndy – Model GAR6429 and GAR1829
  6. Substitutions: Section 01600 - Product Requirements.
- B. Description: Cast high strength, corrosion resistant, copper alloy connector, suitable for direct burial attachment to ground rod specified in Part 2.1 of this section.

## **2.3 WIRE**

- A. Material: copperclad steel.
- B. Connections to Electrodes: #4/0 AWG, 19 Strand, Dead Soft Annealed, minimum size.
- C. Bonding Other Objects: #4/0 AWG, 19 Strand, Dead Soft Annealed, minimum size.
- D. Mechanical Connector: Bronze or Copper.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Geotechnical Report as provided in the Contract Documents.

### **3.2 EXISTING WORK**

- A. Remove exposed abandoned grounding components. Cut conductors flush with grade and paving, and patch surfaces.
- B. Extend existing site grounding installations using materials and methods as specified.
- C. Clean and repair existing grounding connections remaining.

### **3.3 INSTALLATION**

- A. Install rod electrodes in vertical position with top at least 1 foot 6 Inches below finished grade level.
- B. Install interconnecting wire a minimum of 1 foot 6 inches below finished grade level.
- C. At each pole being grounded, install rod electrodes at least 2 feet horizontally away from face of pole or concrete pier foundation.

### **3.4 FIELD QUALITY CONTROL**

- A. Document 01 45 00 – Testing and Inspection

**END OF SECTION 33 79 00**