SPECIFICATION and CONTRACT DOCUMENTS

FOR

DOWNTOWN PARKS PROJECT

CITY OF MORGAN HILL

MORGAN HILL, CALIFORNIA
PUBLIC WORKS DEPARTMENT

PREPARED BY
PUBLIC WORKS DEPARTMENT
DECEMBER, 2016
NOTICE INVITING BIDS

1. Bid Acceptance. The City of Morgan Hill (“City”), will accept sealed bids for its DOWNTOWN PARKS PROJECT (“Project”), by or before Wednesday, January 18, 2017, at 2:30 pm, at its DEVELOPMENT SERVICES CENTER, located at 17575 PEAK AVENUE, MORGAN HILL, CA, at which time the bids will be publicly opened and read aloud.

2. Project Information.

2.1 Location and Description. The Project is located at three separate locations in Morgan Hill Downtown, and the Scope of Work is described but not limited to:

**Depot Park:**
- Clear, grub and demolition of existing paving, fencing and softscape, earthwork, material export, grading, site drainage, parking lot, playground area, paving, sidewalk, fencing, signage, sound wall, site furnishings, irrigation, planting, electrical, signage, and striping. Contractor shall coordinate all work with the City and utility representative(s).
- Add Alternate No.1- pre-fabricated restroom building includes: prefabricated restroom building, restroom building pad, and utility connections.

**Creek Park:**
- Clear, grub and demolition of existing paving, fencing and softscape, earthwork, grading, site drainage, parking lot, play structure areas, curb and gutter, roadway reconstruction, sidewalk, fencing, bridges, signage, site furnishings, irrigation, planting and electrical. Contractor shall coordinate all work with the City and Utility representative(s).

**Hilltop Park:**
- Clear and grub and demolition of existing paving, fencing and softscape, earthwork, grading, site drainage, AC paving, sidewalk, signage, site furnishings, irrigation, planting and electrical work. Contractor shall coordinate all work with City and Utility representative(s).
- Add Alternate No. 2- slide area includes: (2) manufacture custom slides and associated stairs, handrails, and walls within the area.

2.2 Time for Completion. The planned timeframe for commencement and completion of construction of the Project is: 120 working days.

2.3 Estimated Cost. The estimated construction cost is $4,350,000.

3. License and Registration Requirements.
3.1 **License.** This Project requires a valid California contractor’s license for the following classification(s): Class A License.

3.2 **DIR Registration.** City will not accept a Bid Proposal from or enter into the Contract with a bidder, without proof that the bidder and its Subcontractors are registered with the California Department of Industrial Relations ("DIR") to perform public work under Labor Code Section 1725.5, subject to limited legal exceptions.

4. **Contract Documents.** The plans, specifications, bid and contract documents for the Project (“Contract Documents”) may be obtained from the City of Morgan Hill, at 17575 Peak Avenue, Morgan Hill, CA, (408) 778-6480. **Contractors may obtain a copy of the Contract Documents for Fifty dollars ($50) per set. A Fifteen dollar ($15) charge will be added for mailing by USPS.** Electronic copies of the Contract Documents are available on CD for ten dollars ($10.00). To download plans and specifications at no charge, register at [www.publicpurchase.com](http://www.publicpurchase.com).

5. **Bid Proposal and Security.**

5.1 **Bid Proposal Form.** Each Bid must be submitted using the Bid Proposal form provided with the Contract Documents.

5.2 **Bid Security.** The Bid Proposal must be accompanied by bid security of ten percent (10%) of the maximum bid amount, in the form of a cashier’s or certified check made payable to City of Morgan Hill, or a bid bond executed by a surety licensed to do business in the State of California on the Bid Bond form included with the Contract Documents. The bid security must guarantee that upon award of the bid, the bidder will execute the Contract and submit payment and performance bonds and insurance certificates as required by the Contract Documents within ten (10) days after issuance of the notice of award.

6. **Prevailing Wage Requirements.**

6.1 **General.** 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.

6.2 **Rates.** These prevailing rates are available online at [http://www.dir.ca.gov/DLSR](http://www.dir.ca.gov/DLSR). Each Contractor and Subcontractor must pay no less than the specified rates to all workers employed to work on the Project. The schedule of per diem wages is based upon a working day of
eight (8) hours. The rate for holiday and overtime work must be at least time and one-half (1/2).

6.3 **Compliance.** The Contract will be subject to compliance monitoring and enforcement by the California Department of Industrial Relations, under Labor Code Section 1771.4.

7. **Performance and Payment Bonds.** The successful bidder will be required to provide performance and payment bonds for one hundred percent (100%) of the Contract Price.

8. **Substitution of Securities.** Substitution of appropriate securities in lieu of retention amounts from progress payments is permitted under Public Contract Code Section 22300.

9. **Subcontractor List.** Each bidder must submit the name, location of the place of business, and California contractor license number and DIR registration number for each Subcontractor who will perform work or service or fabricate or install work for the prime contractor in excess of one-half (1/2) of one percent (1%) of the bid price, using the Subcontractor List form included with the Contract Documents.

10. **Instructions to Bidders.** Additional and more detailed information is provided in the Instructions for Bidders, which should be carefully reviewed by all bidders before submitting a Bid Proposal.

11. **Bidders’ Conference.** A bidders’ conference will be held on **Wednesday, January 4, 2017 at 10:00 am**, at the following location: Development Services Center located at 17575 Peak Avenue, Morgan Hill, CA 95037 for the purpose of acquainting all prospective bidders with the Contract Documents and the Worksite. The bidders’ conference is not mandatory.

By: Irma Torrez, City Clerk

Date: 12/9/16

Publication Dates: 1) 12/16/16 2)12/23/16

END OF NOTICE INVITING BIDS
INSTRUCTIONS TO BIDDERS

Each Bid Proposal submitted to the City of Morgan Hill ("City") for its DOWNTOWN PARKS PROJECT ("Project") must be submitted in accordance with the following instructions and requirements:

1. Bid Submission.

   1.1 General. Each bid ("Bid Proposal") must be signed, sealed and submitted to City, using the form provided in the Contract Documents, by or before the date and time set forth in the Notice Inviting Bids, or as amended by subsequent addendum. Faxed or emailed Bid Proposals will not be accepted, unless otherwise specified. Late submissions will be returned unopened. City reserves the right to postpone the date and time for receiving or opening bids. Each bidder is solely responsible for all of its costs to prepare and submit its bid and by submitting a bid waives any right to recover those costs from City. The bid price(s) must include all costs to perform the Work as specified, including all indirect costs such as applicable taxes, insurance and field offices.

   1.2 Bid Envelope. The envelope containing the sealed Bid Proposal and required attachments must be clearly labeled as follows:

   BID PROPOSAL
   Morgan Hill DSC
   Downtown Parks Project
   City of Morgan Hill
   17575 Peak Avenue
   Morgan Hill, CA 95037
   Attention: Bid Opening
   Bid Date: January 18, 2017
   Bid Time: 02:30 p.m.

   The envelope must also be clearly labeled, as follows, with the bidder’s name, address, and its registration number with the California Department of Industrial Relations ("DIR") for bidding on public works contracts (Labor Code sections 1725.5 and 1771.1):

   [Contractor company name]
   [Street address]
   [City, state, zip code]
   DIR Registration No.____________________

   Please note: If City is unable to confirm that the bidder’s DIR registration is current, City must disqualify the bidder and return its bid unopened (Labor Code section 1725.5).
2. **Examination of Contract Documents and Project Site.** Each bidder is solely responsible for diligent and thorough review of the Contract Documents (as defined in the General Conditions), examination of Project site, and reasonable and prudent inquiry concerning known and potential site conditions prior to submitting a Bid Proposal. However, bidders should not enter onto City’s property or the Project site without prior written authorization from City. Bidders are responsible for reporting any errors or omissions in the Contract Documents to City prior to submitting a Bid Proposal, subject to the limitations of Public Contract Code Section 1104. City expressly disclaims responsibility for assumptions the bidder might draw from the presence or absence of information provided by City.

3. **Requests for Information.** Questions regarding the Project, the bid procedures or any of the Contract Documents must be submitted in writing to Yat Cho at yat.cho@morganhill.ca.gov

4. **Addenda.** Any addenda issued prior to the bid opening are part of the Contract Documents. Subject to the limitations of Public Contract Code section 4104.5, City reserves the right to issue addenda prior to bid time.

5. **Brand Designations and “Or Equal” Substitutions.** Any specification designating a material, product, thing, or service by specific brand or trade name, followed by the words “or equal,” is intended only to indicate quality and type of item desired, and bidders may request use of any equal material, product, thing, or service. All data substantiating the proposed substitute as an “equal” item must be submitted with the written request for substitution. This provision does not apply to materials, products, things, or services that may lawfully be designated by a specific brand or trade name under Public Contract Code Section 3400(c).

5.1 **Pre-Bid Requests.** Any request for submission made before the Contract is awarded must be submitted to the City Engineer at least ten (10) days before the opening of bids so that all interested bidders may be notified of any approved alternative.

5.2 **Post-Award Requests.** After the Contract is awarded, Contractor may submit a substitution within fourteen (14) days after the date of award of the Contract, or as specified in the Special Conditions.

6. **Bidders Interested in More Than One Bid.** No person, firm, or corporation may submit or be a party to more than one (1) Bid Proposal unless alternate bids are specifically called for. However, a person, firm, or corporation that has submitted a subcontract proposal or quote to a bidder may submit subcontract proposals or quotes to other bidders, and may also submit a Bid Proposal as a prime contractor.
7. **Bid Proposal Form and Enclosures.** Each Bid Proposal must be completed in ink using the Bid Proposal form included in the Contract Documents. The Bid Proposal form should be fully completed without interlineations, alterations, or erasures. Any necessary corrections must be clear and legible, and must be initialed by the bidder’s authorized representative. A Bid Proposal submitted with terms such as “negotiable,” “will negotiate,” or similar, will be considered non-responsive. Each Bid Proposal must be accompanied by bid security, as set forth in Section 9 below, and by the completed Subcontractor List, and Non-Collusion Declaration using the forms included in the Contract Documents.

8. **Authorization and Execution.** Each Bid Proposal must be signed by the bidder’s authorized representative. A Bid Proposal submitted by a partnership must be signed in the partnership name by a general partner with authority to bind the partnership. A Bid Proposal submitted by a corporation must be signed with the legal name of the corporation, followed by the signature and title of two (2) officers of the corporation with full authority to bind the corporation to the terms of the Bid Proposal, under California Corporation Code section 313.

9. **Bid Security.** Each Bid Proposal must be accompanied by bid security of ten percent (10%) of the maximum bid amount, in the form of a cashier’s check, a certified check, or a bid bond, using the form included in the Contract Documents, executed by a surety licensed to do business in the State of California, made payable to City. The bid security must guarantee that upon award of the bid, the bidder will execute and submit the Contract on the form included in the Contract Documents, will submit payment and performance bonds one hundred percent (100%) of the maximum Contract Price, and will submit the insurance certificates and endorsements as required by the Contract Documents within ten (10) days after issuance of the notice of award.

10. **Withdrawal of Bid Proposals.** A Bid Proposal may not be withdrawn for a period of ninety (90) days after the bid opening without forfeiture of the bid security, except as authorized for material error under Public Contract Code Section 5100 et seq.

11. **Bid Protest.** Any bid protest must be in writing and received by City at the City Attorney’s Office at 17575 Peak Avenue, Morgan Hill, CA, (Fax: (408) 779-1592), before 5:00 p.m. no later than two (2) working days following bid opening (the “Bid Protest Deadline”) and must comply with the following requirements:

   11.1 **General.** Only a bidder who has actually submitted a Bid Proposal is eligible to submit a bid protest against another bidder. Subcontractors are not eligible to submit bid protests. A bidder may not rely on the bid protest
submitted by another bidder, but must timely pursue its own protest. If required by City, the protesting bidder must submit a non-refundable fee in the amount specified by City, based upon City’s reasonable costs to administer the bid protest. Any such fee must be submitted to City no later than the Bid Protest Deadline, unless otherwise specified. For purposes of this Section 11, a “working day” means a day that City is open for normal business, and excludes weekends and holidays observed by City.

11.2 Protest Contents. The bid protest must contain a complete statement of the basis for the protest and all supporting documentation. Material submitted after the Bid Protest Deadline will not be considered. The protest must refer to the specific portion or portions of the Contract Documents upon which the protest is based. The protest must include the name, address, email address, and telephone number of the person representing the protesting bidder if different from the protesting bidder.

11.3 Copy to Protested Bidder. A copy of the protest and all supporting documents must be concurrently transmitted by fax or by email, by or before the Bid Protest Deadline, to the protested bidder and any other bidder who has a reasonable prospect of receiving an award depending upon the outcome of the protest.

11.4 Response to Protest. The protested bidder may submit a written response to the protest, provided the response is received by City before 5:00 p.m., within two (2) working days after the Bid Protest Deadline or after actual receipt of the bid protest, whichever is sooner (the “Response Deadline”). The response must include all supporting documentation. Material submitted after the Response Deadline will not be considered. The response must include the name, address, email address, and telephone number of the person representing the protested bidder if different from the protested bidder.

11.5 Copy to Protesting Bidder. A copy of the response and all supporting documents must be concurrently transmitted by fax or by email, by or before the Response Deadline, to the protesting bidder and any other bidder who has a reasonable prospect of receiving an award depending upon the outcome of the protest.

11.6 Exclusive Remedy. The procedure and time limits set forth in this section are mandatory and are the bidder’s sole and exclusive remedy in the event of bid protest. A bidder’s failure to comply with these procedures will constitute a waiver of any right to further pursue a bid protest, including filing a Government Code Claim or initiation of legal proceedings.

11.7 Right to Award. City reserves the right to award the Contract to the bidder it has determined to be the responsible bidder submitting the lowest
responsive bid, and to issue a notice to proceed with the Work notwithstanding any pending or continuing challenge to its determination.

12. **Rejection of Bids; Award of Contract.** City reserves the right, acting in its sole discretion, to waive immaterial bid irregularities, the right to accept or reject any and all bids, or to abandon the Project entirely. The Contract will be awarded, if at all, within ninety (90) days after opening of bids or as otherwise specified in the Special Conditions, to the responsible bidder that submitted the lowest responsive bid.

13. **Bonds.** The successful bidder is required to submit payment and performance bonds as specified in the Contract Documents using the bond forms included in the Contract Documents. All required bonds must be calculated on the maximum total Contract price as awarded, including additive alternates, if applicable.

14. **Evidence of Responsibility.** Within twenty four (24) hours following a request by City, a bidder must submit to City satisfactory evidence showing the bidder's financial resources, the bidder's experience in the type of work being required by City, the bidder's organization available for the performance of the Contract and any other required evidence of the bidder's qualifications to perform the proposed Contract. City may consider such evidence before making its decision awarding the proposed Contract.

15. **License(s).** The successful bidder and its Subcontractor(s) must possess the California contractor's license(s) in the classification(s) required by law to perform the Work.

16. **Taxes.** The bid price must include all applicable federal, state, and local taxes.

17. **Ineligible Subcontractor.** Any Subcontractor who is ineligible to perform work on a public works project under Labor Code Sections 1777.1 or 1777.7 is prohibited from performing work on this Project.

18. **Subcontract Limitation.** The successful bidder may not subcontract out more than fifty percent (50%) of the original total contract price, except that any items of work in the Engineer’s Estimate designated “Specialty Items” may be performed by subcontract and the value of the work may be deducted from the original total contract price before computing the amount of work required to be performed by Contractor’s own forces. When items of work in the Engineer’s Estimate are preceded by the letters (S) or (S-F), those items are designated as “Specialty Items.” Where an entire item is subcontracted, the value of work subcontracted will be based on the contract item bid price. When a portion of an item is subcontracted, the
value of work subcontracted will be determined by the Engineer based on the estimated percentage of the contract item bid price.

19. **DIR Registration.** City will not accept a Bid Proposal from or enter into the Contract with a bidder, without proof that the bidder and its Subcontractors are registered with the DIR to perform public work under Labor Code Section 1725.5, subject to limited legal exceptions.

20. **Bid Schedule.** Bidders are required to fully complete the Bid Schedule form accompanying the Bid Proposal form with unit prices as indicated, and to submit the completed Bid Schedule with their Bid Proposal.

20.1 **Incorrect Totals.** In the event of a computational error for any bid item (base bid or alternate) resulting in an incorrect extended total for that item, the submitted base bid or bid alternate total will be adjusted to reflect the corrected amount (estimated quantity X unit cost), unless the cumulative amount of correction changes the total amount of the base bid or bid alternate by more than five percent (5%). In the event of a discrepancy between the actual total of the itemized or unit prices shown on the Bid Schedule for the base bid, and the amount entered as the base bid on the Bid Proposal form, the actual total of the itemized or unit prices shown on the Bid Schedule for the base bid will be deemed the base bid price. Likewise, in the event of a discrepancy between the actual total of the itemized or unit prices shown on the Bid Schedule for any bid alternate, and the amount entered for the alternate on the Bid Proposal form, the actual total of the itemized prices shown on the Bid Schedule for that alternate will be deemed the alternate price. Nothing in this provision is intended to prevent a bidder from requesting to withdraw its bid for material error under Public Contract Code Section 5100 et seq.

20.2 **Estimated Quantities.** The quantities shown on the Bid Schedule are estimated and the actual quantities required to perform the Work may be greater or less than the estimated amount. 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, with no allowance for anticipated profit for quantities that are deleted or decreased.

21. **Additive and Deductive Alternates.** As required by Public Contract Code Section 20103.8, if this bid solicitation includes additive or deductive items, the method checked below will be used to determine the lowest bid. If no method is checked, subparagraph (a) will be used to determine the lowest bid. City retains the right to add to or deduct from the Contract any of the additive or deductive alternates included in the Bid Proposal.

21.1 (a) The lowest bid will be the lowest bid price on the base contract without consideration of the prices on the additive or deductive items.
(b) The lowest bid will be the lowest total of the bid prices on the base contract and those additive or deductive items that were specifically identified in the bid solicitation or Bid Proposal as being used for the purpose of determining the lowest bid price.

(c) The lowest bid will be the lowest total of the bid prices on the base contract and those additive or deductive items taken in order from a specifically identified list of those items that, when in the solicitation, and added to, or subtracted from, the base contract, are less than, or equal to, a funding amount publicly disclosed by City before the first bid is opened.

(d) The lowest bid will be determined in a manner that prevents any information that would identify any of the bidders or the proposed subcontractors or suppliers from being revealed to City before the ranking of all bidders from lowest to highest has been determined.

22. **Bidder’s Questionnaire.** A completed, signed Bidder’s Questionnaire using the form provided with the Contract Documents and including all required attachments must be submitted within 48 hours following a request by City. A bid that does not fully comply with this requirement may be rejected as nonresponsive. A bidder who submits a Bidder’s Questionnaire which is subsequently determined to contain false or misleading information, or material omissions, may be disqualified as non-responsible.

23. **Safety Orders.** Each Bid must include a bid item for adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life or limb, which comply with safety orders as required by Labor Code Section 6707.

END OF INSTRUCTIONS TO BIDDERS
BID PROPOSAL
DOWNTOWN PARKS PROJECT

______________________________ ("Bidder") hereby submits this Bid Proposal to the City of Morgan Hill ("City") for the above-referenced project ("Project") in response to the Notice Inviting Bids and in accordance with the Contract Documents referenced therein.

1. **Base Bid.** Bidder proposes to perform and fully complete the Work for the Project as specified in the Contract Documents, within the time required for full completion of the Work, for the following price ("Base Bid"): $__________________.

2. **Addenda.** Bidder acknowledges receipt of the following addenda:

<table>
<thead>
<tr>
<th>Addendum</th>
<th>Date Received</th>
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</thead>
<tbody>
<tr>
<td>#01</td>
<td></td>
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<tr>
<td>#02</td>
<td></td>
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<td>#07</td>
<td></td>
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<td>#08</td>
<td></td>
</tr>
</tbody>
</table>

3. **Bidder’s Warranties.** By signing and submitting this Bid Proposal, Bidder warrants the following:

   3.1 **Examination of Contract Documents.** Bidder has thoroughly examined the Contract Documents, and represents that, to the best of Bidder’s knowledge there are no errors, omissions, or discrepancies in the Contract Documents subject to the limitations of Public Contract Code Section 1104.

   3.2 **Examination of Worksite.** Bidder has had the opportunity to examine the Worksite and local conditions at the Project location.

   3.3 **Bidder is Qualified.** Bidder is fully qualified to perform the Work.

   3.4 **Responsibility for Bid.** Bidder has carefully reviewed this Bid Proposal and is solely responsible for any errors or omissions contained in its completed Bid.

4. **Award of Contract.** By signing and submitting this Bid Proposal, Bidder agrees that if Bidder is awarded the Contract for the Project, that within ten (10) days following issuance of the notice of award to Bidder, Bidder will do all of the following:
4.1 **Execute Contract.** Enter into the Contract with City in accordance with the terms of this Bid Proposal, by signing and submitting to City the Contract prepared by City using the form included with the Contract Documents;

4.2 **Submit Required Bonds.** Submit to City a payment bond and a performance bond, each for one hundred percent (100%) of the Contract Price, using the bond forms provided and in accordance with the requirements of the Contract Documents; and

4.3 **Insurance Requirements.** Submit to City the insurance certificate(s) and endorsement(s) as required by the Contract Documents.

5. **Bid Security.** As a guarantee that if awarded the Contract, it will perform its obligations under Section 4, above, Bidder is enclosing bid security in the amount of ten percent (10%) of its maximum bid amount in the following form:

   ___ A cashier’s check or certified check payable to City of Morgan Hill and issued by _______________________________ Bank in the amount of $________________________.

   ___ A bid bond, using the Bid Bond form included with the Contract Documents, payable to City of Morgan Hill and executed by a surety licensed to do business in the State of California.

6. **Bid Alternates.** Bidder submits the following prices for the specified bid alternates:

   Alternate #1: _______________________________________________
   Add/Deduct: $____________

   Alternate #2: _______________________________________________
   Add/Deduct: $____________

7. **Iran Contracting Act.** Bidder certifies 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.
This Bid Proposal is hereby submitted on _________________________, 20__:
s/ _______________________________ __________________________
                        Name and Title [print]

_________________________________ __________________________
Company Name License # and Classification

__________________________
DIR Registration #

_________________________________ __________________________
Address Phone

_________________________________ __________________________
City, State, Zip Fax

END OF BID PROPOSAL
BID SCHEDULE I
DEPOT STREET PARK

This Bid Schedule must be completed in ink and must be included with the sealed Bid Proposal. The unit cost for each item must be inclusive of all costs, whether direct or indirect, including profit and overhead. The sum of all amounts entered in the “Extended Total” column must be identical to the Base Bid price entered in Section 1 of the Bid Proposal Form. Quantities shown are required for bid purposes and may or may not be final pay quantities. Actual quantities, if different, must be substantiated during the Project by the Contractor (either by field measurement, trucking tags, or other means acceptable to the Engineer).

<table>
<thead>
<tr>
<th>Bid Item</th>
<th>Description of Bid Item</th>
<th>Approximate Quantity/Unit of Measure</th>
<th>Unit Price</th>
<th>Extended Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Depot Park</td>
<td>1 LS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Daily Clean Up (Revokable)</td>
<td>120 Working Days</td>
<td>$100/Day</td>
<td>$12,000</td>
</tr>
<tr>
<td>3</td>
<td>Supplemental Work</td>
<td>1 LS</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
</tbody>
</table>

**Bid Schedule I Total**

END OF BID SCHEDULE
This Bid Schedule must be completed in ink and must be included with the sealed Bid Proposal. The unit cost for each item must be inclusive of all costs, whether direct or indirect, including profit and overhead. The sum of all amounts entered in the “Extended Total” column must be identical to the Base Bid price entered in Section 1 of the Bid Proposal Form. Quantities shown are required for bid purposes and may or may not be final pay quantities. Actual quantities, if different, must be substantiated during the Project by the Contractor (either by field measurement, trucking tags, or other means acceptable to the Engineer).

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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Little Llagas Creek Park</td>
<td>1 LS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Daily Clean Up (Revokable)</td>
<td>120 Working Days</td>
<td>$100/day</td>
<td>$12,000</td>
</tr>
<tr>
<td>3</td>
<td>Supplemental Work</td>
<td>1 LS</td>
<td>$45,000</td>
<td>$45,000</td>
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</table>

END OF BID SCHEDULE
BID SCHEDULE III
HILLTOP PARK

This Bid Schedule must be completed in ink and must be included with the sealed Bid Proposal. The unit cost for each item must be inclusive of all costs, whether direct or indirect, including profit and overhead. The sum of all amounts entered in the “Extended Total” column must be identical to the Base Bid price entered in Section 1 of the Bid Proposal Form. Quantities shown are required for bid purposes and may or may not be final pay quantities. Actual quantities, if different, must be substantiated during the Project by the Contractor (either by field measurement, trucking tags, or other means acceptable to the Engineer).

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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hilltop Park</td>
<td>1 LS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Daily Clean Up (Revokable)</td>
<td>120 Working Days</td>
<td>$100/day</td>
<td>$12,000</td>
</tr>
<tr>
<td>3</td>
<td>Supplemental Work</td>
<td>1 LS</td>
<td>$30,000</td>
<td>$30,000</td>
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</table>

Bid Schedule III Total

END OF BID SCHEDULE
BID SCHEDULE IV
ADD ALTERNATE #1 – DEPOT PARK RESTROOM

This Bid Schedule must be completed in ink and must be included with the sealed Bid Proposal. The unit cost for each item must be inclusive of all costs, whether direct or indirect, including profit and overhead. The sum of all amounts entered in the “Extended Total” column must be identical to the Base Bid price entered in Section 1 of the Bid Proposal Form. Quantities shown are required for bid purposes and may or may not be final pay quantities. Actual quantities, if different, must be substantiated during the Project by the Contractor (either by field measurement, trucking tags, or other means acceptable to the Engineer).

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<th>Unit Price</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Depot Park Restroom</td>
<td>1 LS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add Alternate #1
Total

END OF BID SCHEDULE
BID SCHEDULE V
ADD ALTERNATE #2 – HILLTOP PARK SLIDE

This Bid Schedule must be completed in ink and must be included with the sealed Bid Proposal. The unit cost for each item must be inclusive of all costs, whether direct or indirect, including profit and overhead. The sum of all amounts entered in the “Extended Total” column must be identical to the Base Bid price entered in Section 1 of the Bid Proposal Form. Quantities shown are required for bid purposes and may or may not be final pay quantities. Actual quantities, if different, must be substantiated during the Project by the Contractor (either by field measurement, trucking tags, or other means acceptable to the Engineer).

<table>
<thead>
<tr>
<th>Bid Item</th>
<th>Description of Bid Item</th>
<th>Approximate Quantity/Unit of Measure</th>
<th>Unit Price</th>
<th>Extended Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hilltop Park Slide</td>
<td>1 LS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add Alternate #2
Total

END OF BID SCHEDULE
TOTAL BID SCHEDULE

This Bid Schedule must be completed in ink and must be included with the sealed Bid Proposal. The unit cost for each item must be inclusive of all costs, whether direct or indirect, including profit and overhead. The sum of all amounts entered in the “Extended Total” column must be identical to the Base Bid price entered in Section 1 of the Bid Proposal Form. Quantities shown are required for bid purposes and may or may not be final pay quantities. Actual quantities, if different, must be substantiated during the Project by the Contractor (either by field measurement, trucking tags, or other means acceptable to the Engineer).

<table>
<thead>
<tr>
<th>Bid Item</th>
<th>Description of Bid Item</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Schedule I</td>
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<tr>
<td>2</td>
<td>Bid Schedule II</td>
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<td>3</td>
<td>Bid Schedule III</td>
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<td>4</td>
<td>Bid Schedule IV</td>
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<tr>
<td>5</td>
<td>Bid Schedule V</td>
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</tbody>
</table>

Base Bid Total

END OF BID SCHEDULE
SUBCONTRACTOR LIST

For each Subcontractor who will perform a portion of the Work in an amount in excess of one-half of 1% of the Bidder’s total Contract Price,¹ the bidder must list a description of the work, the name of the Subcontractor, its California contractor license number, the location of its place of business, and DIR registration number. **Bidders: Please print legibly. Illegible forms may be rejected.**

<table>
<thead>
<tr>
<th>DESCRIPTION OF WORK</th>
<th>SUBCONTRACTOR NAME</th>
<th>CALIFORNIA CONTRACTOR LICENSE NUMBER</th>
<th>DIR REG. NO.</th>
<th>LOCATION OF BUSINESS</th>
<th>LOCAL VENDOR² YES/NO</th>
</tr>
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<tbody>
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</tbody>
</table>

**END OF SUBCONTRACTOR LIST**

¹ For street or highway construction this requirement applies to any subcontract of $10,000 or more.
² A Subcontractor is considered local if its principle place of business is within the city limits of Morgan Hill.
NONCOLLUSION DECLARATION

(To be executed by bidder and submitted with bid)

State of California
County of ________________

The undersigned declares:

I am the __________________________ [title] of _________________________________ [business name], the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder, or of any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has no paid and will not pay, any person or entity for such purpose.

This declaration is intended to comply with California Public Contract Code Section 7106 and Title 23 U.S.C Section 112.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on __________ [date], at ________________________________ [city], ______ [state].

s/________________________________________

________________________________________
Name [print]
CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT  CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of CALIFORNIA  
County of SANTA CLARA  

On _______________________, before me, ________________________________
a Notary Public in and for said County and State, personally appeared

proved to me on the basis of satisfactory evidence to be the person/s whose name/s is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity/ies, and that by his/her/their signature/s on the instrument the person/s, or the entity upon behalf of which the person/s acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

______________________________
SIGNATURE OF NOTARY PUBLIC

Place Notary Seal Above
BID BOND

_________ has submitted a bid, dated ___________________________, 20___ (“Bid”), to the City of Morgan Hill (“City”) for work on the DOWNTOWN PARKS Project (“Project”). Under this duly executed bid bond (“Bid Bond”), Bidder as Principal and _____________________________________________________________, its surety (“Surety”), are bound to City as obligee in the penal sum of ten percent (10%) of the maximum amount of the Bid (the “Bond Sum”). Bidder and Surety bind themselves and their respective heirs, executors, administrators, successors and assigns, jointly and severally, as follows:

1. **General.** If Bidder is awarded the Contract for the Project, Bidder will enter into the Contract with City in accordance with the terms of the Bid.

2. **Submittals.** Within ten (10) days following issuance of the notice of award to Bidder, Bidder must submit to City the following:

   2.1 **Contract.** The executed Contract, using the form provided by City in the Project contract documents (“Contract Documents”);

   2.2 **Payment Bond.** A payment bond for one hundred percent (100%) of the maximum Contract Price, executed by a surety licensed to do business in the State of California using the Payment Bond form included with the Contract Documents;

   2.3 **Performance Bond.** A performance bond for one hundred percent (100%) of the maximum Contract Price, executed by a surety licensed to do business in the State of California using the Performance Bond form included with the Contract Documents; and

   2.4 **Insurance.** The insurance certificate(s) and endorsement(s) required by the Contract Documents, and any other documents required under the Instructions for Bidders.

3. **Enforcement.** If Bidder fails to execute the Contract and to submit the bonds and insurance certificates as required by the Contract Documents, Surety guarantees that Bidder forfeits the Bond Sum to City. Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

   Attn: ______________________________
   Address: ____________________________
   City/State/Zip: ________________________
   Phone: ______________________________
   Fax: ________________________________
   Email: ______________________________
4. **Duration; Waiver.** If Bidder fulfills its obligations under Section 2, above, then this obligation will be null and void; otherwise it will remain in full force and effect for ninety (90) days following award of the Contract or until this Bid Bond is returned to Bidder, whichever occurs first. Surety waives the provisions of Civil Code Sections 2819 and 2845.

This Bid Bond is entered into and is effective on ___________________, 20____.

SURETY:

___________________________________

s/ _________________________________

Name: _____________________________

Title: _______________________________

(Attach Acknowledgement, Notary Seal, and Attorney-In-Fact Certificate)

CONTRACTOR:

____________________________________

s/ __________________________________

Name: ______________________________

Title: _______________________________
BIDDER’S QUESTIONNAIRE

DOWNTOWN PARKS PROJECT

Within forty eight (48) hours following a request by City, a bidder must submit to City a completed, signed Bidder’s Questionnaire using this form and including all required attachments. City may request the Questionnaire from one (1) or more of the apparent low bidders following the bid opening, and may use the completed Questionnaire to evaluate a bidder’s qualifications for this Project. The Questionnaire must be filled out completely, accurately, and legibly. Any errors, omissions, or misrepresentations in completion of the Questionnaire may be grounds for rejection of the bid or termination of a Contract awarded pursuant to the bid.

Part 1: General Information

Bidder Business Name: ________________________________ (“Bidder”)

Check One: ___ Corporation
            ___ Partnership
            ___ Sole Proprietorship
            ___ Joint Venture of: ______________________
            ___ Other: ________________________________

Address: ______________________________________________________________________

________________________________________________________________________________

Phone: __________________________________________________________________________

Fax: ____________________________________________________________________________

Owner of Company: __________________________________________________________________

Contact Person: __________________________________________________________________

Email: __________________________________________________________________________

Bidder’s California Contractor’s License Number(s):
______________________________________________________________________________

Part 2: Bidder Experience

1. How many years has Bidder been in business under its present business name?___________________________
2. Has Bidder completed projects similar in type and size to this Project as a general contractor? ________________________________________________________________

3. Has Bidder ever been disqualified on grounds that it is not responsible? If yes, provide additional information on a separate sheet of paper regarding the disqualification, including the name and address of the agency or owner of the subject project, the type and size of the project, the reasons that Bidder was disqualified as not responsible, and the month and year in which the disqualification occurred.

4. Has Bidder ever been terminated from a construction project, either as a general contractor or as a subcontractor? If yes, provide additional information on a separate sheet of paper regarding the termination, including the name and address of the agency or owner of the subject project, the type and size of the project, whether Bidder was under contract as a general contractor or a subcontractor, the reasons that Bidder was terminated, and the month and year in which the termination occurred.

5. Provide information about Bidder’s past projects performed as general contractor as follows:
   5.1 Six (6) most recently completed public works projects within the last three (3) years;
   5.2 Three (3) largest completed projects within the last three (3) years; and
   5.3 Any project which is similar to this Project.

6. Use separate sheets of paper provide all of the following information for each project identified in response to the above three (3) categories:
   6.1 Project name
   6.2 Location
   6.3 Owner
   6.4 Owner contact (name and current phone number)
   6.5 Architect or engineer name
   6.6 Architect or engineer contact (name and current phone number)
   6.7 Project manager (name and current phone number)
   6.8 Description of project, scope of work performed
   6.9 Initial contract value (at time of bid award)
   6.10 Final cost of construction (including change orders)
   6.11 Original scheduled completion date
   6.12 Time extensions granted (number of days)
   6.13 Actual date of completion
   6.14 Number and amount of stop notices or mechanic’s liens filed
6.15 Amount of liquidated damages assessed against Bidder
6.16 Nature and resolution of any claim, lawsuit, and/or arbitration between Bidder and the owner.

Part 3: Verification

In signing this document, I, the undersigned, declare that I am duly authorized to sign and submit this Bidder’s Questionnaire on behalf of the named bidder, and that all responses and information set forth in this Bidder’s Questionnaire and accompanying attachments are, to the best of my knowledge, true, accurate and complete as of the date of submission. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Signature: _______________________________ Date: ________________

By [name, title]: _______________________________________________
CONTRACT

This public works contract ("Contract") is entered into by and between the City of Morgan Hill ("City") and ____________________ ("Contractor") for work on the DOWNTOWN PARKS 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 work on the Project, and on _________________, 20___, (contract date) City authorized award of this Contract to Contractor for the amount of Contractor's bid.

2. **Contract Documents.** The Contract Documents incorporated into this Contract include and are comprised of all of the following:

   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 Special Conditions;
   2.9 Project Drawings and Specifications;
   2.10 Change Orders, if any;
   2.11 Notice of Award;
   2.12 Notice to Proceed;
   2.13 And the following: City Standard Details

3. **Contractor's Obligations.** Contractor agrees to 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, equipment, transportation, and utilities, unless otherwise specified in the Contract Documents. Contractor must use its best efforts to 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 ____________________________ Dollars ($___________________) (the “Contract Price”), in accordance with the payment provisions in the General Conditions. The Contract Price includes all applicable federal, state, and local taxes.

5. **Time for Completion.** Contractor will fully complete the Work for the Project within 120 working days from the commencement date given in the Notice to Proceed (“Contract Time”). By signing below, Contractor expressly waives any claim for delayed early completion.

6. **Liquidated Damages.** If Contractor fails to complete the Work within the Contract Time, City will assess liquidated damages in the amount of One-Thousand Dollars ($1000.00) for each day of unexcused delay in completion, and the Contract Price will be reduced accordingly.

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.

   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 will not enter into the Contract with a bidder, without proof that the bidder and its Subcontractors are registered with the California Department of Industrial Relations (“DIR”) to perform public work under Labor Code Section 1725.5, subject to limited legal exceptions.

8. **Workers’ Compensation Certification.** Under Labor Code Section 1861, by signing this Contract, Contractor certifies as follows: “I am aware of the provisions of Labor Code Section 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. **Notice.** Any notice, billing, or payment required by the Contract Documents must be made in writing, and sent to the other party by personal delivery, U.S. Mail, a reliable overnight delivery service, facsimile, or by email as a PDF (or comparable) file. Notice is deemed effective upon delivery unless otherwise specified. Notice for each party must be given as follows:

City:

City of Morgan Hill  
17575 Peak Avenue  
Morgan Hill, CA 95037  
Phone: (409) 779-7259  
Attn: Yat Cho  
Email: yat.cho@morganhill.ca.gov

Contractor:

Name: ______________________________________  
Address: ____________________________________  
City/State/Zip: ________________________________  
Phone: ____________________________________  
Attn: _____________________________________  
Email: _____________________________________  
Copy to: ____________________________________

10. **General Provisions.**

10.1 **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 successors and permitted assigns.

10.2 **Third Party Beneficiaries.** There are no intended third party beneficiaries to this Contract except as expressly provided in the General Conditions or Special Conditions.

10.3 **Governing Law and Venue.** This Contract will be governed by California law and venue will be in the Superior Court of Santa Clara County, and no other place.

10.4 **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.
10.5 **Integration; Severability.** 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. If any provision of the Contract Documents, or portion of a provision, is determined to be illegal, invalid, or unenforceable, the remaining provisions of the Contract Documents will remain in full force and effect.

10.6 **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 (2) officers of the corporation are required pursuant to California Corporation Code Section 313.

[Signatures are on the following page.]
AS SET FORTH IN CA. CORP. CODE § 313, TWO SIGNATURES ARE REQUIRED FOR CALIFORNIA CORPORATIONS:
(1) CHAIRPERSON OF THE BOARD, PRESIDENT, OR VICE PRESIDENT; AND
2) SECRETARY, ASSISTANT SECRETARY, CHIEF FINANCIAL OFFICER OR ASSISTANT TREASURER.

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

CITY OF MORGAN HILL:

_______________________________
Steve Rymer
City Manager

_______________________________
Irma Torrez
City Clerk

______________
Date: _________________________

Attest:

______________
Date: _________________________

Approved as to Form:

______________
Date: _________________________

Contractor:

_______________________________

Name/Title [print]

______________
Date: _________________________

Corporate entities must provide a second signature:

_______________________________

Name/Title [print]

______________
Date: _________________________

Contractor’s License Number(s)

Expiration Date(s)

Seal:

_______________________________

DIR Registration Number

END OF CONTRACT
PAYMENT BOND

The City of Morgan Hill (“City”) and ______________________________ (“Contractor”) have entered into a contract, dated ______________________, 20___ (“Contract”) for work on the DOWNTOWN PARKS 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 ($_________) (“Bond Sum”), under California Civil Code Sections 9550, et seq.

2. **Surety’s Obligation.** If Contractor or any of its Subcontractors fails to pay any of the persons named in California Civil Code Section 9100 amounts due under the Unemployment Insurance Code with respect to work or labor performed under the Contract, or for 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 Section 13020, with respect to the work and labor, then Surety will pay for the same.

3. **Beneficiaries.** This Bond inures to the benefit of any of the persons named in California Civil Code Section 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 Sections 2819 and 2845. City waives requirement of a new bond for any supplemental contract under Civil Code Section 9550. Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

   Attn: ______________________________
   Address: ______________________________
   City/State/Zip: __________________________
6. **Law and Venue.** This Bond will be governed by California law, and any dispute pursuant to this Bond will be venued in the Superior Court of Santa Clara County, 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.

7. **Effective Date; Execution.** This Bond is entered into and is effective on ________________, 20__. Three (3) identical counterparts of this Bond, each of which is deemed an original for all purposes, are hereby executed and submitted.

SURETY:  
s/ ____________________________  
Name: ____________________________  
Title: ____________________________  
(Attach Acknowledgment with Notary Seal and Power of Attorney)

CONTRACTOR:  
s/ ____________________________  
Name: ____________________________  
Title: ____________________________

**APPROVED AS TO FORM:**

By: ____________________________  
Donald A. Larkin, City Attorney  
Date: ____________________________

END OF PAYMENT BOND
PERFORMANCE BOND

The City of Morgan Hill ("City") and ________________________________________________ ("Contractor") have entered into a contract, dated ______________________, 20____ ("Contract") for work on the DOWNTOWN PARKS PROJECT ("Project"). The Contract is incorporated by reference into this Performance Bond ("Bond").

1. General. Under this Bond, Contractor as Principal and ________________________________________________, its surety ("Surety"), are bound to City as obligee for an amount not less than Dollars ($__________) (the "Bond Sum"). By executing this Bond, Contractor and Surety bind themselves and their respective heirs, executors, administrators, successors and assigns, jointly and severally, to the provisions of this Bond.

2. Surety’s Obligations; Waiver. If Contractor fully performs its obligations under the Contract, including its warranty obligations under the Contract, Surety’s obligations under this Bond will become null and void upon recordation of the notice of completion, provided Contractor has timely provided a warranty bond as required under the Contract. Otherwise Surety’s obligations will remain in full force and effect until expiration of the one (1) year warranty period under the Contract. Surety waives any requirement to be notified of and further consents to any alterations to the Contract made under the applicable provisions of the Contract Documents, including changes to the scope of Work or extensions of time for performance of Work under the Contract. Surety waives the provisions of Civil Code Sections 2819 and 2845.

3. Application of Contract Balance. Upon making a demand on this Bond, City will make the Contract Balance available to Surety for completion of the Work under the Contract. For purposes of this provision, the Contract Balance is defined as the total amount payable by City to Contractor as the Contract Price minus amounts already paid to Contractor, and minus any liquidated damages, credits, or backcharges to which City is entitled under the terms of the Contract.

4. Contractor Default. Upon written notification from City that Contractor is in default under Article 13 of the Contract General Conditions, time being of the essence, Surety must act within the time specified in Article 13 to remedy the default through one (1) of the following courses of action:

   4.1 Arrange for completion of the Work under the Contract by Contractor, with City’s consent, but only if Contractor is in default solely due to its financial inability to complete the Work;
4.2 Arrange for completion of the Work under the Contract by a qualified contractor acceptable to City, and secured by performance and payment bonds issued by an admitted surety as required by the Contract Documents, at Surety’s expense, or

4.3 Waive its right to complete the Work under the Contract and reimburse City the amount of City’s costs to have the remaining Work completed.

5. **Surety Default.** If Surety defaults on its obligations under the Bond, City will be entitled to recover all costs it incurs due to Surety’s default, including legal, design professional, or delay costs.

6. **Notice.** Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

   Attn: _______________________________
   Address: ____________________________
   City/State/Zip: ______________________
   Phone: ______________________________
   Fax: ________________________________
   Email: ______________________________

7. **Law and Venue.** This Bond will be governed by California law, and any dispute pursuant to this Bond will be venued in the Superior Court of Santa Clara County, 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.

8. **Effective Date; Execution.** This Bond is entered into and effective on __________________, 20__,. Three (3) identical counterparts of this Bond, each of which is deemed an original for all purposes, are hereby executed and submitted.

   [Signatures are on the following page.]
SURETY:  

s/ _________________________  
Name: _________________________  
Title: _________________________  

CONTRACTOR:  

s/ _________________________  
Name: _________________________  
Title: _________________________  

(Attach Acknowledgment with Notary Seal and Power of Attorney)  

APPROVED AS TO FORM:  

By: _________________________  
  Donald A. Larkin, City Attorney  
Date: _________________________  

END OF PERFORMANCE BOND
WARRANTY BOND

The City of Morgan Hill ("City") and ________________________ ("Contractor") have entered into a contract, dated ___________________, 20__ ("Contract") for work on the DOWNTOWN PARKS Project ("Project"). The Contract is incorporated by reference into this Warranty Bond ("Bond").

1. **General.** Under this Bond, Contractor as principal and ________________________, its surety ("Surety"), are bound to City as obligee in the maximum amount of $______________ or 50% of the final Contract Price, whichever is greater ("Bond Sum").

2. **Warranty Period.** The Contract requires Contractor to guarantee its work and that of its Subcontractors on the Project, against defects in materials or workmanship which are discovered during the one (1) year period commencing with recordation of the Notice of Completion (the "Warranty Period").

3. **Surety’s Obligations.** If Contractor faithfully carries out and performs its guarantee under the Contract, and, on due notice from City, repairs and make good at its sole expense any and all defects in materials and workmanship in the Project which are discovered during the Warranty Period, or if Contractor promptly reimburses City for all loss and damage that City sustains because of Contractor’s failure to makes such repairs in accordance with the Contract requirements, then Surety’s obligations under this Bond will be null and void. Otherwise, Surety’s obligations will remain in full force and effect.

4. **Waiver.** Surety waives the provisions of Civil Code Sections 2819 and 2845.

5. **Notice.** Any notice to Surety may be given in the manner specified in the Contract and delivered or transmitted to Surety as follows:

   Attn: ______________________________
   Address: ____________________________
   City/State/Zip: _______________________
   Phone: ______________________________
   Fax: _______________________________
   Email: ______________________________

6. **Law and Venue.** This Bond will be governed by California law, and any dispute pursuant to this Bond will be venued in the Superior Court of Santa Clara County, 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.

7. **Effective Date; Execution.** This Bond is entered into and is effective on ______________________, 20__. Five (5) identical counterparts of this Bond, each of which is deemed an original for all purposes, are hereby executed and submitted.

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(Attach Acknowledgment with Notary Seal and Power of Attorney)

**APPROVED AS TO FORM:**

By:______________________________
    Donald A. Larkin, City Attorney

Date:___________________________
GENERAL CONDITIONS

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Article 1
Definitions

1.1 Definitions. The following definitions apply to all of the Contract Documents unless otherwise indicated. Defined terms and titles of documents are capitalized in the Contract Documents, with the exception of the words “day,” “furnish,” “including,” “install,” “work day” or “working day.”

Allowance means an amount included in the Bid Proposal for Work that may or may not be included in the Project, depending on conditions that will not become known until after bids are opened. If the Contract Price includes an Allowance and the cost of performing the Work covered by that Allowance is greater or less than the Allowance, the Contract Price will be increased or decreased accordingly.

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.

City means the City of Morgan Hill, acting through its City Council, officers, employees, and authorized representatives.

City Engineer means the City Engineer for City and his or her authorized delegatee(s) designated to oversee and manage the Project on City’s behalf.
Claim means a separate demand by Contractor for 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; or a written demand by Contractor objecting to the amount of Final Payment.

Contract means the signed agreement between City and Contractor.

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 Special Conditions; the Project Drawings and Specifications; any Change Orders; and any other documents expressly made part of the Contract Documents.

Contract Price means the total compensation to be paid to Contractor for performance of the Work, as set forth in the Contract and as 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, or equipment following submission of the Bid Proposal. The Contract Price is deemed to include all applicable federal, state, and local taxes.

Contract Time means the number of working days for performance of the Work, as set forth in the Contract and as amended by Change Order.

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

Day means a working day unless otherwise specified.

Design Professional means the licensed individual(s) or firm(s) retained by City to provide architectural or engineering 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.

Drawings means City-provided plans and graphical depictions of the Project requirements, and does not include Shop Drawings.

Engineer means the City Engineer for the City of Morgan Hill and his or her authorized delegate(s).

Final Completion means Contractor has fully completed all of the Work required by the Contract Documents, including all punch list items, any required commissioning, and has provided all required submittals, including the warranty bond, instructions and manuals, and as-built drawings to City’s satisfaction.
Final Payment means payment to Contractor of the unpaid Contract Price, including release of undisputed retention, less amounts withheld pursuant to the Contract Documents, including liquidated damages, up to one hundred twenty-five percent (125%) of the amount of any unreleased stop notice, amounts subject to setoff, up to one hundred fifty percent (150%) of any unresolved third-party claim for which Contractor is required to indemnify City, and up to one hundred fifty percent (150%) of any amount in dispute as authorized by Public Contract Code Section 7107.

Furnish means to purchase and deliver to the Worksite designated for installation.

Hazardous Materials means any substance or material identified now or in the future as hazardous under any federal, state, or local law or regulation, or any other substance or material that may be considered hazardous or otherwise subject to statutory or regulatory requirements governing handling, disposal, or cleanup.

Including, whether or not capitalized, means “including, but not limited to,” unless the context requires otherwise.

Inspector means the individual(s) or firm(s) retained by City to inspect the workmanship, materials, and manner of construction of the Project and its components to ensure compliance with the Contract Documents and all applicable codes, regulations, and permits.

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

Project means the public works project referenced in the Contract.

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 delegate(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.

RFI means a written request from Contractor for information from City or its Design Professional.

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

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

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

**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, suppliers, fabricators, and equipment lessors of all tiers, unless otherwise indicated by the context.

**Technical Specifications** means Specifications.

**Work** means all of the construction and services necessary 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 which is not a holiday observed by City.

**Worksite** means the place or places where the Work is performed.
Article 2  
Roles and Responsibilities  

2.1 Design Professional.  

(A) **General.** Design Professional, as City’s representative, 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 Contract Documents.  

(B) **Interpretation.** Design Professional will decide all questions pertaining to interpretation of the Drawings or Specifications. The Design Professional’s decision regarding interpretation of the Drawings or Specifications is final and conclusive.  

2.2 Contractor.  

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

(B) **Responsibility for the Work.** 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, construction means, methods, techniques, sequences, procedures, 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.  

(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 phone numbers and email address, 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. Failure to comply may result in temporary suspension of the Work, at Contractor’s sole expense and with no extension of
Contract Time, until the superintendent is physically present to supervise the Work. Contractor must provide written notice to City, as soon as practicable, before replacing the superintendent.

(E) **Standards; Compliance.** Contractor must, at all times, ensure that the Work is performed in a good workmanlike manner following best practices and in full compliance with the Contract Documents and all applicable laws, regulations, codes, standards, and permits.

(F) **Responsible Party.** Contractor is solely responsible to City for the acts or omissions of any party or parties performing portions of the Work or providing equipment, materials or services for or on behalf of Contractor or its Subcontractors. If any person employed by Contractor fails or refuses to comply with the Engineer’s directions regarding the performance of the Work, or is determined by the Engineer to be incompetent to perform the Work, or acts in a disorderly or improper manner at the Worksite, that person may be permanently dismissed from the Project at the request of the Engineer.

(G) **Correction of Defects.** Contractor must promptly correct, at Contractor’s sole expense, any Work that is determined by City, Project Manager, or the Inspector to be deficient or defective in workmanship, materials, and equipment.

(H) **Contractor’s Records.** Contractor must maintain all of its records relating to the Project in any form, including paper documents, photos, videos and electronic records. Project records subject to this provision include, but are not limited to, Project cost records and records relating to preparation of Contractor’s bid.

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 records in an organized manner for a period of four (4) years after City’s
acceptance of the Project or following termination, whichever occurs first. Subject to prior notice to Contractor, City is entitled to inspect or audit any of Contractor’s Project records relating to the Project or to investigate Contractor’s plant or equipment during Contractor’s normal business hours.

2.3 Subcontractors.

(A) **General.** All Work which is not performed by Contractor with its own forces must be performed by Subcontractors, subject to the fifty percent (50%) limitation set forth in the Instructions to Bidders. City reserves the right to approve or reject any and all Subcontractors proposed to perform the Work.

(B) **Contractual Obligations.** Contractor must require every Subcontractor to be bound to the provisions of the Contract Documents as they apply to the Subcontractor’s portion(s) of the Work, and to likewise bind their subcontractors or suppliers. 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.

Copies of subcontracts must be available to the Engineer upon request. Before a Subcontractor commences Work on the Project, Contractor must provide the Engineer a written statement with the name of the Subcontractor, a description of each portion of the Work performed by the Subcontractor, and the percentage of the overall Work to be performed by the 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, provided that City accepts 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 Section 4107, Contractor is solely responsible for all costs City incurs in responding to the request, including legal fees and costs to conduct a hearing.

2.4 Coordination of Work.

(A) **Concurrent Work.** City reserves the right to perform or to have performed other work on or adjacent to the Project site while the Work is being performed. Contractor is responsible for coordinating its Work with other work being performed on or adjacent to the Project site, and must
avoid hindering, delaying, or interfering with the work of other contractors and subcontractors. To the full extent permitted by law, Contractor must hold harmless and indemnify City, Design Professional, and Project Manager 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 another contractor or subcontractor.

(B) **Defects.** Before proceeding with any portion of the Work affected by the construction or operations of others, Contractor must give 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 such known 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.

2.5 **Submittals.** Unless otherwise specified, Contractor must submit to Project Manager for review and approval, all schedules, Shop Drawings, samples, product data and similar submittals required by the Contract Documents, or upon request by Project Manager. Unless otherwise specified, all submittals, including requests for information (RFIs) are subject to the provisions of this Section.

(A) **General.** Contractor is responsible for ensuring that its 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 approved schedule for the Work and within the applicable time specified elsewhere 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 contact 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 in full conformance with the requirements of this Section.

(E) **Effect of Review and Approval.** Review and approval 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 approval of a submittal by City is not an assumption of risk or liability by City.

(F) **Enforcement.** Any Work performed or material used without prior approval of a required submittal will be performed 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, and the cost of additional time or services required of the Design Professional, Project Manager, or Inspector.

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

**Article 3**

**Contract Documents**

3.1 **Interpretation of Contract Documents.**

(A) **Drawings and Specifications.** The Drawings and Specifications included in the Contract Documents are complementary. If Work is shown on one (1) 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 Drawings 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 Drawings and Specifications, the Specifications will control.

(B) **Duty to Notify.** If Contractor becomes aware of any ambiguity, discrepancy, omission, or error in the Drawings or Specifications, Contractor must immediately notify the Design Professional and request clarification of such, by submitting a written request for information (RFI) in the manner specified by City. The Design Professional’s clarifications or interpretations will be final and binding.

(C) **Figures and 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 at the Worksite before ordering any material or performing any Work, and will be responsible for the correctness of those measurements.

3.2 **Order of Precedence.** Information included in one (1) 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:

(A) Change Orders;
(B) Addenda;
(C) Contract;
(D) Notice to Proceed;
(E) Notice of Award;
(F) Special Conditions;
(G) General Conditions;
(H) Payment and Performance Bonds;
(I) Specifications;
(J) Drawings;
(K) Contractor’s Bid Proposal and attachments;
(L) Notice Inviting Bids;
(M) Instructions to Bidders; and
(N) Any documents prepared by and on behalf of a third party, that were not prepared specifically for this Project, e.g., Caltrans Standard Specifications or Caltrans Special Provisions.

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 (“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 Standard Specifications:

(A) **Limitations.** None of the “General Provisions” of the Standard Specifications, i.e., Sections 1 through 9, applies 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 Standard Specifications 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 Standard Specifications 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.
3. Any reference to the “Department” or “State” is deemed to mean City.

### Article 4

**Bonds, Indemnity, and Insurance**

#### 4.1 Payment and Performance Bonds.** Within ten (10) 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 one hundred percent (100%) of the Contract Price, using the bond forms included with the Contract Documents. Each bond must be issued by a surety admitted in California. If an issuing surety cancels the bond or becomes insolvent, within seven (7) 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.

#### 4.2 Indemnity.** To the fullest extent permitted by law, Contractor must indemnify, defend, and hold harmless City, its agents and consultants, and Design Professional (individually, an “Indemnitee,” and collectively the
“Indemnitees”) from and against any and all liability, loss, damage, claims, expenses (including, without limitation, attorney fees, expert witness fees, paralegal fees, and fees and costs of litigation or arbitration) (collectively, “Liability”) of every nature arising out of or in connection with the acts or omissions of Contractor, its employees, Subcontractors, representatives, or agents, in bidding or performing the Work or its failure to comply with any of its obligations under the Contract, except such Liability caused by the active negligence, sole negligence, or willful misconduct of an Indemnitee. 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 provision will be deemed a material breach of this Contract. City will timely notify Contractor upon receipt of any third-party claim relating to the Contract, as required by Public Contract Code Section 9201.

4.3 Insurance. No later than ten (10) days following issuance of the notice of award, Contractor is required to procure and provide proof of the insurance coverage required by this section in the form of certificates and endorsements. 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 until the date of recordation of the notice of completion. The coverages may be arranged under a single policy for the full limits required or by a combination of underly ing policies with the balance provided by excess or “umbrella” policies, provided each such policy complies with the requirements set forth herein. 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 “VIII” 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. Contractor further understands that City reserves the right to modify the insurance requirements set forth herein, with thirty (30) days’ notice provided to Contractor, at any time as deemed necessary to protect the interests of City.

(A) Policies and Limits. The following insurance policies and limits are required for this Contract unless otherwise specified in the Special Conditions:

1. Commercial General Liability Insurance (“CGL”). Contractor shall maintain CGL and must include coverage for
liability arising from Contractor’s or its Subcontractor’s acts or
omissions in the performance of the Work against claims and
liabilities for personal injury, death, or property damage
providing protection in the minimum amount of: (i) Five Million
Dollars ($5,000,000.00) for bodily injury or death to any one
person for any one accident or occurrence and at least Five
Million Dollars ($5,000,000.00) for property damage, or (ii) the
maximum amount of such insurance available to Contractor
under Contractor’s combined insurance policies (including any
excess or “umbrella” policies), whichever is greater.

a. CGL policy may not exclude explosion, collapse,
underground excavation hazard, or removal of lateral
support.

(2) **Workers’ Compensation Insurance and Employer’s
Liability:** Contractor shall maintain Workers Compensation
coverage, as required by law. The policy must comply with the
requirements of the California Workers’ Compensation
Insurance and Safety Act and provide protection in the minimum
amount of: (i) One Million Dollars ($1,000,000.00) for any one
accident or occurrence, or (ii) the maximum amount of such
insurance available to Contractor under Contractor’s combined
insurance policies (including any excess or “umbrella” policies),
whichever is greater. If Contractor is self-insured, Contractor
must provide its Certificate of Permission to Self-Insure, duly
authorized by the Department of Industrial Relations.

(3) **Automobile Liability:** Contractor shall maintain Automobile
Liability covering all owned, non-owned and hired automobiles
(if Contractor does not own automobiles, then Contractor shall
maintain Hired/Non-owned Automobile Liability) against claims
and liabilities for personal injury, death, or property damage
providing protection in the minimum amount of: (i) One Million
Dollars ($1,000,000.00) for bodily injury or death to any one
person for any one accident or occurrence and at least One
Million Dollars ($1,000,000.00) for property damage, or (ii) the
maximum amount of such insurance available to Contractor
under Contractor’s combined insurance policies (including any
excess or “umbrella” policies), whichever is greater.

(4) **Pollution (Environmental) Liability:** Because the
performance of Contractor’s work or service under this Contract
involves hazardous materials, contaminated soil disposal,
and/or a risk of accidental release of fuel oil, chemicals or other
toxic gases or hazardous materials, Contractor shall procure and maintain Pollution Liability covering Contractor’s liability for bodily injury, property damage and environmental damage resulting from pollution and related cleanup costs arising out of the work or services to be performed under this Contract. Coverage shall be provided for both work performed on site, as well as during the transport of hazardous materials. Such coverage shall be in the minimum amount of: (i) One Million Dollars ($1,000,000.00) for any one accident or occurrence, or (ii) the maximum amount of such insurance available to Contractor under Contractor’s combined insurance policies (including any excess or “umbrella” policies), whichever is greater.

5) **Professional Liability:**

   a. Because the performance of Contractor’s work or service under this Contract involves professional and/or technical services (examples include, but are not limited to, architects, engineers, land surveyors, legal services, and appraisers), Contractor shall procure and maintain either a claims made or occurrence Errors and Omission liability insurance in the minimum amount of: (i) One Million Dollars ($1,000,000.00) each claim, or (ii) the maximum amount of such insurance available to Contractor under Contractor’s combined insurance policies (including any excess or “umbrella” policies), whichever is greater. Further, if Contractor maintains a claims-made policy, Contractor shall provide written evidence of such insurance to City for at least five (5) years after the completion of work performed under this Contract.

(B) **Required Endorsements.** Contractor must provide proof of the following endorsements, listed for each policy for which endorsements are required, as outlined below:

   1) For all Policies except Professional Liability:

      a. “Waiver of Subrogation” endorsements providing that the carrier agrees to waive any right of subrogation it may have against the City of Morgan Hill and the City’s elected or appointed officials, boards, agencies, officers, agents, employees, and volunteers.

   2) General Liability Policy:
a. “Additionally Insured including Completed Operations” endorsement naming the City of Morgan Hill, its elected or appointed officials, boards, agencies, officers, agents, employees, and volunteers as additional insureds;

b. “Primary and Non-Contributing” endorsement stating that the policy is primary non-contributing;

c. “Separation of Insureds” endorsement stating that the inclusion of more than one insured will not operate to impair the rights of one insured against another, and the coverages afforded will apply as though separate policies have been issued to each insured.

(C) **Subcontractors.** Contractor must ensure that each Subcontractor is required to maintain the same insurance coverage required under this Section 4.3, with respect to its performance of Work on the Project, including those requirements related to the additional insureds and waiver of subrogation.

(D) **Certificates.** Contractor must furnish City with copies of all policies or certificates as outlined herein, whether new or modified, promptly upon receipt. No policy subject to Contractor’s Contract with City shall be reduced, canceled, allowed to expire, or materially changed except after thirty (30) days’ notice by the insurer to City, unless due to non-payment of premiums, in which case ten (10) days written notice must be made to City. Certificates, including renewal certificates, may be mailed electronically to rskmgmt@morganhill.ca.gov or delivered to the Certificate Holder address as follows:

City of Morgan Hill  
Attn: Risk Management  
17575 Peak Avenue  
Morgan Hill, CA 95037

4.4 **Warranty Bond.** As a condition precedent to Final Completion, Contractor must submit a warranty bond, using the form provided by City, to guarantee its Work as specified in Article 11, Completion and Warranty Procedures. The warranty bond must be issued by a surety admitted in California for fifty percent (50%) of the final Contract Price or as otherwise specified in the Contract Documents. If an issuing surety cancels the bond or becomes insolvent, within seven (7) days following written notice from City, Contractor must substitute a surety acceptable to City.
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.

(B) 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. Alternatively, City may terminate the Contract based on Contractor’s default.

5.2 Schedule Requirements. All schedules must be prepared using standard scheduling software acceptable to City, and must provide schedules in electronic and paper form as requested.

(A) As-Planned (Baseline) Schedule. Within fifteen (15) calendar days following issuance of the notice of award (or as otherwise specified in the Special Conditions), Contractor must submit to City for review and approval an as-planned (baseline) schedule showing in detail how Contractor plans to perform and fully complete the Work within the Contract Time using critical path methodology. The as-planned schedule must include the work of all trades required for the Work, and must be sufficiently comprehensive and detailed to enable progress to be monitored on a day-by-day basis. For each activity, the as-planned 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, and the duration.

(B) Progress Schedules. Contractor must submit an updated progress schedule and three (3) week look-ahead schedule, in the format specified by City, for review and approval with each application for a progress payment. The progress schedule must show how the actual
progress of the Work to date compared to the as-planned schedule, and must identify any actual or potential impacts to the critical path.

(C) **Recovery Schedule.** If City determines that the Work is more than one (1) week behind schedule, within seven (7) 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.

(D) **Effect of Approval.** Contractor and its Subcontractors must perform the Work in accordance with the most current approved schedule unless otherwise directed by City. City approval 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.

(E) **Posting.** Contractor must at all times maintain a copy of the most current approved progress or recovery schedule posted prominently in its on-site office.

(F) **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.

(G) **Authorized Working Days and Times.** Contractor is limited to working Monday through Friday, excluding City of Morgan Hill-observed holidays, during City’s normal business hours, except as expressly provided in the Special Conditions, or as authorized in writing by City. 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 these Contract Documents, including reimbursement of costs incurred for inspection, testing, and construction management services.

5.3 Delay and Extensions of Contract Time.

(A) **Excusable Delay.** The Contract Time may be extended if Contractor encounters 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 planning, foresight, and diligence (“Excusable Delay”). Grounds for Excusable Delay may include fire, earthquake, acts of terror or vandalism,
epidemic, unforeseeable adverse government actions, unforeseeable actions of third parties, encountering unforeseeable hazardous materials, unforeseeable site conditions, suspension for convenience under Article 13, or unusually severe weather.

(B) **Non-Excusable Delay.** Excusable Delay does not include delay that is concurrent with non-Excusable Delay, and does not include delay caused by:

1. weather conditions which are normal for the location of the Project, as determined by reliable records, including monthly rainfall averages, for the preceding ten (10) years;

2. Contractor’s failure to order equipment and materials sufficiently in advance of the time needed for timely completion of the Work;

3. Contractor’s failure to provide adequate notification to utility companies for connections or services necessary for the timely performance and completion of the Work;

4. foreseeable conditions Contractor could have ascertained from reasonably diligent inspection of the Worksite or review of the Contract Documents; or

5. Contractor’s financial inability to perform the Work, including insufficient funds to pay its Subcontractors or suppliers.

(C) **Request for Extension of Contract Time.** A request for an extension of time and associated delay costs must be submitted in writing to City within ten (10) calendar days of the date the delay is first encountered, even if the duration of the delay is not yet known at that time, or 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 delay costs 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 time or delay costs that does not strictly comply with the 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,
e.g., by workforce management, change in sequencing, etc. 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. The request must specify the amount of any delay-related 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.

(3) Supporting Documentation. The request must also include any and all supporting documentation necessary to evidence the delay and its actual impacts, including schedule and cost impacts, including a time impact analysis using critical path methodology, and demonstrating unavoidable delay to Final Completion. The time impact analysis must be submitted in a form or format acceptable to City.

(4) Burden of Proof. Contractor has the burden of proving 1) that the delay was an Excusable Delay, as defined above, 2) that Contractor has made reasonable efforts to mitigate the delay and its schedule and cost impacts, 3) that the delay will unavoidably result in delaying Final Completion, and 4) that any delay costs claimed by Contractor were actually incurred and were reasonable under the circumstances.

(5) Recoverable Costs. If Contractor is granted an extension of time for Excusable Delay, recompense for delay costs will be limited to actual, direct, reasonable, and substantiated costs, and will not include home office overhead, or markup for overhead and profit.

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

(7) No Waiver. Any grant of an extension of time or delay costs due to an Excusable Delay will not operate as a waiver of City’s right to assess liquidated damages for unexcused delay.

(8) Dispute Resolution. In the event of a dispute over entitlement to an extension of time or delay costs, Contractor may not stop
working 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 time or delay 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 which are difficult to determine and accurately specify. Pursuant to Public Contract Code section 7203, if Contractor fails to achieve Final Completion within the Contract Time, City will charge Contractor in the amount specified in the Contract for each day that Final Completion is delayed beyond the Contract Time, as liquidated damages and not as a penalty.

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

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

(C) Setoff. City is entitled to set off the amount of liquidated damages assessed against any payments otherwise due to Contractor, including setoff against release of 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 unexcused delay in achieving Final Completion.

Article 6
Contract Modification

6.1 Changes in Work. City reserves the right to make changes in the Work without invalidating the Contract. City may direct or Contractor may request changes in the Work, and any such changes will be formalized in a Change Order, which may include commensurate changes in the Contract Price or Contract Time as applicable. Contractor must promptly comply with City-directed changes in the Work in accordance with the intent of the original Contract Documents, even if Contractor and City have
not yet reached agreement as to adjustments to the Contract Price or Contract Time.

(A) **City-Directed Change.** 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 an City-directed change, 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.

(B) **Contractor’s Obligations.** In the event that City and Contractor dispute whether a portion or portions of the Work are already required by the Contract Documents as opposed to change or extra 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.

(C) **Remedy for Non-Compliance.** Contractor’s failure to promptly comply with an 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.

(D) **Dispute Resolution.** Contractor’s sole recourse for an unresolved dispute related to changes in the Work is to comply with the dispute resolution provisions set forth in Article 12, below.

### 6.2 Contractor Change Order Requests.
Contractor must submit a request or proposal for a change in the 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 must be submitted in writing to Project Manager within ten (10) 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.

(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, insurance, and subcontract amounts. 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.

(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, and agrees that any costs, expenses, or time extension request not included herein is deemed waived. Contractor understands that submission of claims which have no basis in fact or which Contractor knows to be false may violate the False Claims Act, as set forth in Government Code Sections 12650 et seq.”

6.3 **Adjustments to Contract Price.** The amount of any increase or decrease to the Contract Price will be determined based on one (1) of the following methods in the order provided:

(A) **Unit Pricing.** Amounts previously provided by Contractor in the form of unit prices, either in a bid schedule or schedule of values, will apply if unit pricing has previously been provided in Contractor’s accepted bid schedule or schedule of values for the affected Work;

(B) **Lump Sum.** A mutually agreed upon lump sum;

(C) **Time and Materials.** On a time and materials basis, which may include a not-to-exceed limit, calculated as the total of the following sums:

1. All direct labor costs plus fifteen percent (15%) for overhead and profit;

2. All direct material costs, including sales tax, plus fifteen percent (15%) for overhead and profit;

3. All direct plant and equipment rental costs, plus fifteen percent (15%) for overhead and profit;
(4) All direct subcontract costs plus ten percent (10%) for overhead and profit; and

(5) Increased bond or insurance premium costs computed at one and one half percent (1½%) of total of the previous four (4) sums.

6.4 **Unilateral Change Order.** If City disagrees with the amount of compensation or extension of time that Contractor has requested, 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 in the amount 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.

6.5 **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 and Taxes.**

(A) **General.** Contractor must obtain and pay for any and all permits, fees, or licenses required to perform the Work, unless otherwise indicated in the Contract Documents. Contractor must cooperate with and provide notifications to government agencies with jurisdiction over the Project, as may be required. Contractor must provide City with copies of all notices, permits, licenses, and renewals required for the Work.

(B) **Federal Excise Tax.** 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, including onsite office, sanitary facilities, storage, scaffolds, barricades, walkways, and any other temporary structure required to safely perform the Work along with any utility services incidental thereto.

(A) **Standards.** Such structures must be safe and adequate for the intended use, and installed and maintained in accordance with all applicable federal, state, and local laws, codes, and regulations.
(B) **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 caused by the installation, use, or removal of the temporary facilities, and must promptly restore the property to its original or intended condition.

(C) **Additional Requirements.** Additional provisions pertaining to temporary facilities may be included in the Specifications or Special Conditions.

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

7.4 **Protection of Work and Property.**

(A) **General.** Contractor is responsible at all times for protecting the Work and materials and equipment to be incorporated into the Work from damage until the Notice of Completion has been recorded. Except as specifically authorized by City, Contractor must confine its operations to the area of the Project site indicated in the Drawings. Contractor is liable for any damage caused to City’s real or personal property, the real or personal property of adjacent property owners, or the work or personal property of other contractors working for City.

(B) **Unforeseen Conditions.** If Contractor encounters facilities, utilities, or other unknown conditions not shown on or reasonably inferable from the Drawings or apparent from inspection of the Project site, Contractor must promptly notify Project Manager, and must avoid taking any action which could cause damage to the facilities or utilities pending further direction from Project Manager. If Project Manager’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.

(C) **Support; Adjacent Properties.** Contractor must provide, install, and maintain all shoring, bracing, underpinning, etc., necessary to provide support to City’s property and adjacent properties and improvements thereon. Contractor must provide notifications to adjacent property owners as may be required by law.

7.5 **Noninterference.** Contractor must take reasonable measures to 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.
7.6 Materials and Equipment.

(A) **General.** Unless otherwise specified, all materials and equipment required for the Work must be new and of the best grade for the intended purpose, and furnished in sufficient quantities to ensure the proper and expeditious performance of the Work. 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 recommendation. Contractor is responsible for all shipping, handling, and storage costs associated with the materials and equipment required for the Work, and is responsible for protecting the Work and all of the required materials, supplies, tools and equipment at Contractor’s sole cost until City accepts the Project.

(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 of such items in accordance with the Contract Documents. Contractor must promptly notify City of any defects discovered in City-provided materials or equipment. 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 required for use of patented or copyright protected materials, equipment, devices or processes that are incorporated into the Work. Contractor’s indemnity obligation in Article 4, applies to any claimed violation of intellectual property rights in violation of this provision.

7.7 Substitutions.

(A) **“Or Equal.”** Any specification designating a material, product, thing, or service by specific brand or trade name, followed by the words “or equal,” is intended only to indicate quality and type of item desired, and Contractor may request use of any equal material, product, thing, or service.

(B) **Request for Substitution.** A request for substitution must be submitted to Project Manager for approval 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 thirty five (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.

(C) **Substantiation.** All data substantiating the proposed substitute as
an “equal” item must be submitted with the written request for substitution.
Contractor’s failure to timely provide necessary substantiation is ground
for rejection of the proposed substitution, without further review.

(D) **Burden of Proving Equality.** Contractor has the burden of
proving the equality of the proposed substitution. 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 associated with
the substituted item(s). If the proposed substitution is rejected, Contractor
must, without delay, install the item specified.

(F) **Contractor’s Obligations.** City’s review of a proposed substitution
will not relieve Contractor from any of its obligations under the Contract
Documents. In the event Contractor makes an unauthorized substitution,
Contractor will 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 by Inspector at all times and locations
during construction and/or fabrication. All manufacturers’ application or
installation instructions must be provided to the Inspector at least ten (10)
days prior to the first such application or installation. Contractor must, at
all times, make the Work available for inspection.

(B) **Scheduling and Notification.** Contractor must schedule all tests
required by the Contract Documents in time to avoid any delay to the
progress of the Work. Contractor must provide timely notice to all
necessary parties as specified in the Contract Documents.

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

(1) Contractor will be responsible for the costs of any subsequent
tests which are required to substantiate compliance with the
Contract Documents, and any associated remediation costs.
(2) Contractor will be responsible for inspection costs, at City’s established rates, for inspection time lost because the Work is not ready or Contractor fails to appear for a scheduled inspection.

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

(D) **Contractor’s Obligations.** Any Work that fails to comply with the requirements of the Contract Documents must be promptly repaired, replaced, or corrected by Contractor, at Contractor’s sole expense, even if that Work was previously inspected or included in a progress payment. Contractor is solely responsible for any delay occasioned by remediation of noncompliant Work. Inspection of the Work does not in any way relieve Contractor of its obligations to perform the Work as specified.

(E) **Distant Locations.** If required off-site testing or inspection must be conducted at a location more than 100 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 apply to final inspection under Article 11, Completion and Warranty Provisions.

7.9 **Clean up.** Contractor must regularly remove debris and waste materials and maintain the Worksite in clean and neat condition.

(A) **General.** Prior to discontinuing work in an area, Contractor must clean the area and remove all rubbish along with its construction equipment, tools, machinery, waste and surplus materials. Contractor must, at all times, minimize and confine dust and debris resulting from construction activities.

(B) **Completion.** At the completion of the Work, Contractor must remove from the Worksite all of its equipment, tools, surplus materials, waste materials and debris. Before demobilizing from the Worksite, 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.

(C) **Non-Compliance.** If Contractor fails to commence compliance with its cleanup obligations within two (2) business days following written
notification from City or its representative, City may undertake appropriate cleanup measures without further notice and the cost will be deducted from any amounts due or to become due Contractor.

7.10 **Instructions and Manuals.** Contractor must provide three (3) copies each of all instructions and manuals 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.** All manufacturers’ application or installation instructions must be provided to the Inspector at least ten (10) days prior to the first such application. The instructions and manuals, along with any required guarantees, must be delivered to City for review.

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

7.11 **As-built Drawings.** Contractor and its Subcontractors must maintain on the Worksite a separate complete set of the Drawings which will be used solely for the purpose of recording changes made in any portion of the Work 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. Progress payments may be delayed, in whole or in part, 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, etc., installed underground, in walls, floors, or otherwise concealed. Deviations from the original Drawings must be shown in detail. The location of all main runs, whether piping, conduit, ductwork, drain lines, etc., must be shown by dimension and elevation.

(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 City for review and approval as a condition precedent to Final Completion.

7.12 **Existing Utilities.** As required by Government Code Section 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 will 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 Drawings 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 such delay was caused by City’s failure to provide for removal or relocation of the utility facilities.

7.13 *Notice of Excavation.* Government Code Section 4216.2, requires that except in an emergency, Contractor must contact the appropriate regional notification center, or Underground Services Alert at 800-642-2444 (for Northern California), at least two (2) working days, but not more than fourteen (14) calendar days before starting any excavation if the excavation will be conducted in an area that is known, or reasonably should be known, to contain subsurface installations, and if practical, Contractor must delineate with white paint or other suitable markings the area to be excavated.

7.14 *Trenching and Excavations.*

(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 Section 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 law;

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

(3) Unknown physical conditions at the Worksite 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 do materially differ or do 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 (A) above, Contractor will not be excused from any scheduled completion date provided for in the Contract Documents, but must proceed with all Work to be performed under the Contract. Contractor will retain any and all rights provided either by the Contract or by law which pertain to the resolution of disputes between Contractor and City.

7.15 **Trenching of Five Feet or More.** As required by Labor Code Section 6705, if the Contract Price exceeds Twenty Five Thousand Dollars ($25,000.00) and the Work includes the excavation of any trench or trenches of five (5) feet or more in depth, a detailed plan must be submitted to City or its civil or structural engineer, for acceptance 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 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.** 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 connections and services are initiated 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.

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 Project Manager, upon discovery of any potential historic or archeological items, including historic or prehistoric ruins, burial grounds, 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 eighty five (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, any such assistance to be compensated as extra work on a time and materials basis under Article 6, Contract Modification. Any suspension of Work required due to discovery of Historic or Archeological Items will be treated 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 and its Subcontractors must at all times in the performance of the Work comply with all applicable federal, state, and local laws and regulations 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 the same 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 must comply with all other applicable state, municipal or regional laws, ordinances, rules or regulations governing discharge of stormwater, including applicable municipal stormwater management programs.

**Article 8**

**Payment**

8.1 **Schedule of Values.** Prior to submitting its first application for payment, Contractor must prepare and submit to Project Manager a schedule of values apportioned to the various divisions and phases of the Work. 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.
8.2 **Progress Payments.** Following the last day of each month, or as otherwise required by the Special Conditions or Specifications, Contractor will submit to 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, and materials and equipment delivered to the Worksite, as well as authorized and approved Change Orders. Each pay application must be supported by Contractor’s schedule of values and any other substantiating data required by the Contract Documents.

Each application for payment shall be accompanied by completed “Contract Balance Form,” a copy of which is provided at the end of Article 8.

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

8.3 **Adjustment of Payment Application.** City may adjust or reject a payment application, including application for Final Payment, in whole or in part, based upon any of the circumstances listed below. Contractor will be notified in writing of the basis for the adjustment, and will be promptly paid once the basis for that adjustment has been remedied and no longer exists.

(A) Contractor’s unexcused failure to perform the Work as required by the Contract Documents, including correction or completion of punch list items;

(B) Loss or damage caused by Contractor or its Subcontractor(s) arising out of or relating to performance of the Work;

(C) Contractor’s failure to pay its Subcontractors and suppliers when payment is due;

(D) Failure to timely correct rejected, nonconforming, or defective Work;

(E) Unexcused delay in performance of the Work;
(F) Any unreleased stop notice, retained as one hundred twenty five percent (125%) of the amount claimed;

(G) Failure to submit any required schedule or schedule update in the manner and within the time specified in the Contract Documents;

(H) Failure to maintain or submit as-built documents in the manner and within the time specified in the Contract Documents;

(I) Work performed without approved Shop Drawings, when approved Shop Drawings are required before proceeding with the Work;

(J) Contractor’s payroll records are delinquent or inadequate; and

(K) Any other costs or charges that may be offset against payments due, as provided in the Contract Documents, including liquidated damages.

8.4 Acceptance of Work. 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 (5%) of the amount due on each progress payment, or the percentage stated in the Notice Inviting Bids, whichever is greater, as retention to ensure full and satisfactory performance of the Work.

(A) Substitution of Securities. As provided by Public Contract Code Section 22300, Contractor may request in writing that it be allowed, at its sole expense, to substitute securities for the retention withheld by City. Any escrow agreement entered into pursuant to this provision must fully comply with Public Contract Code Section 22300, and will be subject to approval as to form by City’s legal counsel.

(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 under Section 8.3 or 8.6 will be released as Final Payment to Contractor no sooner than thirty five (35) days following recordation of the notice of completion, and no later than sixty (60) days following acceptance of the Project by City’s governing body or authorized designee, or, if the Project has not been accepted, no later than sixty (60) days after the Project is otherwise considered complete under Public Contract Code Section 7107(c).
8.6 **Setoff.** City is entitled to set off any amounts due from Contractor against any payments due to Contractor. City’s entitlement to setoff includes progress payments as well as Final Payment and release of retention.

8.7 **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 Worksite by the Subcontractor or supplier during the preceding month. Such payments must be made in accordance with the requirements of the law, and those of the Contract Documents and applicable subcontract or supplier contract.

(A) **Withholding for Stop Notice.** City will withhold one hundred twenty five percent (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 to issue joint checks made payable to Contractor and its Subcontractors or suppliers. 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 City. 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.

8.8 **Final Payment.** Final Completion, acceptance of the Work by City, and recordation of the Notice of Completion, and any release required by the Contract Documents are conditions precedent to Final Payment and release of undisputed retention, as set forth above. 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. The date of Final Payment is deemed to be effective on the date that City acts to release retention as final payment to Contractor, or otherwise provides written notice to Contractor of Final Payment. 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.

8.9 **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 release of all claims against City arising from or related to the portion of Work covered
by those undisputed amounts. Any disputed amounts may be specifically excluded from the release.

8.10 **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.
# CONTRACT BALANCE FORM

Project Name: Downtown Parks Project

Note: A detailed invoice **MUST** be attached to this Contract Balance Form.

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTRACTOR NAME:</td>
<td></td>
</tr>
<tr>
<td>DATE:</td>
<td></td>
</tr>
<tr>
<td>MAILING ADDRESS:</td>
<td></td>
</tr>
<tr>
<td>TELEPHONE NO.:</td>
<td></td>
</tr>
<tr>
<td>FAX NO.:</td>
<td></td>
</tr>
<tr>
<td>PROJECT NO.:</td>
<td></td>
</tr>
<tr>
<td>INVOICE NO.:</td>
<td></td>
</tr>
<tr>
<td>1. ORIGINAL CONTRACT AMOUNT:</td>
<td>$_______</td>
</tr>
<tr>
<td>2. APPROVED CHANGE ORDERS TOTAL:</td>
<td>$_______</td>
</tr>
<tr>
<td>3. REVISED CONTRACT AMOUNT: (1+2)</td>
<td>$_______</td>
</tr>
<tr>
<td>4. PREVIOUS BALANCE PAID:</td>
<td>$_______</td>
</tr>
<tr>
<td>5. REMAINING BALANCE:</td>
<td>$_______</td>
</tr>
<tr>
<td>6. CURRENT PROGRESS PAYMENT DUE: (before retention)</td>
<td>$_______</td>
</tr>
<tr>
<td>7. 5% RETENTION FROM WORK DONE: (−)$_______</td>
<td></td>
</tr>
<tr>
<td>8. CURRENT BALANCE DUE:</td>
<td>(6−7) $_______</td>
</tr>
<tr>
<td>9. REMAINING BALANCE OF REVISED CONTRACT AMOUNT: (including retention)</td>
<td>(5−8) $_______</td>
</tr>
</tbody>
</table>
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 Federal and California laws including the California Fair Employment and Housing Act (Government Code Sections 12900 et seq.), Government Code Section 11135, and Labor Code Sections 1735, 1777.5, 1777.6, and 3077.5.

9.2 **Labor Code Requirements.**

(A) **Eight Hour Day.** Under Labor Code Section 1810, eight (8) hours of labor constitute a legal day’s work under this Contract.

(B) **Penalty.** Under Labor Code Section 1813, Contractor will 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 (8) hours in any one (1) calendar day or more than forty (40) hours per calendar week, except if such workers are paid overtime under Labor Code Section 1815.

(C) **Apprentices.** Contractor is responsible for compliance with the requirements governing employment and payment of apprentices, as set forth in Labor Code Section 1777.5, which is fully incorporated by reference.

(D) **Notices.** Under Labor Code Section 1771.4, Contractor is required to post all job site notices prescribed by law or regulation.

9.3 **Prevailing Wages.** Each worker performing Work under this Contract that is covered under Labor Code Section 1720, including cleanup at the Project site, must be paid at a rate not less than the prevailing wage as defined in Sections 1771 and 1774 of the Labor Code. The prevailing wage rates are available online at [http://www.dir.ca.gov/dlsr](http://www.dir.ca.gov/dlsr). Contractor must post a copy of the applicable prevailing rates at the Worksite.

(A) **Penalties.** Under Labor Code Section 1775, Contractor and any Subcontractor will forfeit to City as a penalty up to Two Hundred Dollars ($200.00) for each calendar day, or portion a day, 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 current applicable prevailing wage rates under federal law, available online at [http://www.access.gpo.gov/davisbacon/ca.html](http://www.access.gpo.gov/davisbacon/ca.html).

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

(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.

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

(B) **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, or to the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations, and as further provided by the Labor Code.

(C) **Enforcement.** Upon notice of noncompliance with Labor Code Section 1776, Contractor or Subcontractor has ten (10) days in which to comply with requirements of this section. If Contractor or Subcontractor fails to do so within the ten (10) day period, Contractor or Subcontractor will forfeit a penalty of One Hundred Dollars ($100.00) per day, or portion a day, 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 progress payments then due.
9.5 **Labor Compliance.** Under Labor Code section 1771.4, the Contract for this Project is subject to compliance monitoring and enforcement by the California Department of Industrial Relations.

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**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 comply with all applicable safety laws, rules and regulations and seek to avoid injury, loss, or damage to persons or property by taking reasonable steps to protect its employees and other persons at the Worksite, materials and equipment stored on or off site, and property at or adjacent to the Worksite.

(A) **Reporting Requirements.** Contractor must immediately provide a written report to City of all recordable accidents and injuries occurring at the Worksite. If Contractor is required to file an accident report with a government agency, Contractor will provide a copy of the report to City.

(B) **Legal Compliance.** Contractor’s safety program must comply with the applicable legal and regulatory requirements. Contractor must provide City with copies of all notices required by law or regulation.

(C) **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.

(D) **Remedies.** If City determines, in its sole discretion, that any part of the Work or Worksite 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.

10.2 **Hazardous Materials.** Unless otherwise specified, this Contract does not include the removal, handling, or disturbance of any asbestos or other Hazardous Materials. If Contractor encounters materials on the Worksite 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. No asbestos, asbestos-containing products or other Hazardous Materials may be used in performance of the Work.

**10.3 Material Safety.** Contractor must maintain Material Safety Data Sheets ("MSDS") at the Worksite, as required by law, for materials or substances used or consumed in the performance of the Work. The MSDS 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 Worksite and/or used in the performance of the Work.

(B) **Labeling.** Contractor must ensure proper labeling on any material brought onto the Worksite 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.

**Article 11 Completion and Warranty Provisions**

**11.1 Final Completion.**

(A) **Final Inspection.** When the Work required by this Contract is fully performed, Contractor must provide written notification to Project Manager requesting final inspection. Based on this inspection, the Design Professional will prepare a punch list of items that are incomplete, incorrectly installed, or not operating as required by the Contract Documents. The omission of any such item from this punch list will not relieve Contractor from fulfilling all requirements of the Contract Documents.

(B) **Punch List.** City will promptly deliver the punch list to Contractor and 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.

(C) **Requirements for Final Completion.** Final Completion will be achieved upon completion or correction of all punch list items, as verified by inspection, and upon satisfaction of all other Contract requirements,
including any commissioning required under the Contract Documents, and submission of all final submittals, including a warranty bond as required under Section 4.4, instructions and manuals as required under Section 7.10, and as-built drawings as required under Section 7.11, all to City’s satisfaction. Once Final Completion is achieved, and the Project has been formally accepted by City, City will file a notice of completion with the County Recorder.

(D) **Final Payment.** Final Payment and release of retention, less any sums withheld pursuant to the provisions of the Contract Documents, will not be made sooner than thirty five (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 elect to accept the Project and record the notice of completion, and withhold up to one hundred fifty percent (150%) of City’s estimated cost to complete the remaining items from Final Payment.

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. 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 (1) year from the date of recordation of the notice of completion (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 acceptance, 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.

(D) **Subcontractors.** The warranty obligations in the Contract Documents apply to Work performed by Contractor and its Subcontractors, and Contractor expressly agrees to act as 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.

(F) **City’s Remedies.** If Contractor and/or its responsible Subcontractor fails to correct defective Work within ten (10) days following notice by City, or sooner, if required by the circumstances, Contractor expressly agrees that City may correct the defects to conform with Contract Documents at Contractor’s sole expense, and Contractor agrees to reimburse City for its costs within thirty (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 is 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 incurred by City 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. City will notify Contractor in writing of its intent to occupy or make use of the Project or any portions of the Project, pursuant to this provision.

(A) **Non-Waiver.** Occupation or use 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 perform the Work.
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 recordation of the Notice of Completion, 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) **Definition.** “Claim” means a separate demand by Contractor, submitted in writing, for 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.

(B) **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.

(C) **Scope of Article.** This Article is intended to provide the exclusive procedures for submission and resolution of Claims of any amount, and applies in addition to the provisions of Public Contract Code Section 9204 and Sections 20104 et seq.

(D) **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 the 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.

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, clearly identified as a “Claim” submitted pursuant to this Article 12, and
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 copy of the 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 labor, materials, taxes, insurance, and subcontract, or other costs. Substantiating documentation such as payroll records, receipts, invoices, or the like, must be submitted in support of each claimed cost. Any Claim for an extension of time or delay costs must be substantiated with schedule analysis and narrative depicting and explaining claimed time impacts.

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

(1) General introduction, specifically identifying the submission as a “Claim” submitted under this Article 12.

(2) Relevant background information, including identification of the specific demand at issue, and the date of City’s rejection of that demand.

(3) Detailed explanation of the issue(s) in dispute. For multiple issues, separately number and identify each issue and include the following for each separate issue:

   (a) The background of the issue, including references to relevant provisions of the Contract Documents;

   (b) A succinct statement of the matter in dispute, including Contractor’s position and the basis for that position;

   (c) A chronology of relevant events;

   (d) The identification and attachment of all supporting documents (see subsection (A), above, on Substantiation); and

   (e) Use of a separate page for each issue.

(4) Summary of issues and damages.

(5) 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 are true and correct. Contractor warrants that this Claim is comprehensive and complete as to the matters in dispute, and agrees that any costs, expenses, or delay claim not included herein are deemed waived. Contractor understands that submission of a Claim which has no basis in fact or which Contractor knows to be false may violate the False Claims Act (Government Code Section 12650 et seq.).”

(C) **Submission Deadlines.**

(1) A Claim must be submitted within fifteen (15) 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.

(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 fifteen (15) days of the effective date of Final Payment, under Section 8.8, above.

(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 forty five (45) days of receipt of the Claim with a written statement identifying which portion(s) of the Claim are disputed, unless the forty five (45)-day period is extended by mutual agreement of City and Contractor. However, the City may first request, in writing, within thirty (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 Contractor. If Contractor fails to submit the additional documentation to City within fifteen (15) days of receipt of City’s request, the Claim will be deemed waived.

(A) **Additional Information.** If additional information is thereafter required, it may be requested and provided upon mutual agreement of City and Contractor.
(B) **City’s Response.** City’s written response to the Claim, as further documented, will be submitted to Contractor within fifteen (15) days after receipt of the further documentation or within a period of time no greater than that taken by Contractor in producing the additional information, whichever is greater.

(C) **Non-Waiver.** Any failure by City to respond within the times specified above may 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, Contractor must notify City in writing, either within fifteen (15) days of receipt of City’s response, or within fifteen (15) days of City’s failure to respond within the specified time, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. If Contractor fails to dispute City’s response, in writing, within the specified times, 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 thirty (30) days, or later if needed to ensure the mutual availability of all 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 (10) 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 (10) working days after the City issues the written statement identifying any portion(s) of the Claim remaining in dispute, the disputed portion(s) will be submitted for mediation as set forth below.

12.5 **Mediation and Government Code Claims.**

(A) **Mediation.** Mediation under this Article will be scheduled within sixty (60) days following conclusion of the meet and confer process, with a mediator that the parties mutually agreed upon. The mediation itself may take place more than sixty (60) days following conclusion of the meet and confer process to ensure the mutual availability of the selected mediator.
and all of the individuals that each party requires to represent its interests. The parties must share the costs of mediation equally, except costs incurred by each party for representation by legal counsel or any other consultant.

(B) **Government Code Claims.**

(1) Timely presentment of a Government Code Claim is a condition precedent to filing any legal action based on or arising from the Contract.

(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 as a result of the meet and confer process, including any period of time used by the meet and confer process. If the parties agree to mediation, the time for filing a Government Code Claim will be tolled until conclusion of the mediation 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 California Code of Civil Procedure Section 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 **Damages.** 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 recovery of any alleged home office overhead. The Eichleay Formula or similar formula may not be used for any recovery under the Contract. Contractor is not entitled to consequential damages, including home office overhead or any form of overhead not directly incurred at the 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.

12.9 **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, 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, City may immediately order the Work, or any portion of it, suspended until the cause for the suspension has been eliminated to City’s satisfaction.

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

(B) 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, and not due to any act or omission by Contractor or its Subcontractors. Upon notice by City pursuant to this provision, Contractor must immediately suspend, delay, or interrupt the Work as directed by City. The Contract Price and the Contract Time will be equitably adjusted by Change Order to reflect the cost and delay impact occasioned by such suspension for convenience.

13.3 Termination for Default. Contractor may be deemed in default for a material breach of or inability to perform the Contract, including Contractor’s refusal or failure to supply sufficient skilled workers, proper materials, or equipment to perform the Work within the Contract Time; refusal or failure to make prompt payment to its employees, Subcontractors, or suppliers or to correct rejected work; disregard of laws, regulations, ordinances, rules, or orders of any public agency with jurisdiction over the Project; or if Contractor lacks financial capacity to complete the Work within the Contract Time; or is otherwise responsible for a material breach of the Contract requirements.

(A) Notice. Upon City’s determination that Contractor is in default, City may provide Contractor and its surety written notice of default and intent to terminate the Contract.

(B) Termination. Within seven (7) calendar days after notice of intent to terminate for default has been given, unless the default is cured or arrangements to cure the default have been made and memorialized in
writing, to City’s satisfaction, City may terminate the Contract by written notice to Contractor with a copy to Contractor’s surety.

(C) **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 (7) calendar days from the date of the notice of termination, Contractor’s surety will be deemed to have waived its right to complete the Work under the Contract, and 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. In addition, City will have the right to use any materials, supplies, and equipment belonging to Contractor and located at the Worksite for the purposes of completing the remaining Work.

(D) **Wrongful Termination.** 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, in Section 13.4, below. Contractor waives any claim for any other damages for wrongful termination including consequential damages, lost opportunity costs or lost profits.

13.4 **Termination for Convenience.** City reserves the right to terminate all or part of the Contract for convenience upon written notice to Contractor. Upon receipt of such notice, Contractor must immediately stop the Work, comply with City’s instructions to protect the completed Work and materials, and use its best efforts to minimize further costs. In the event of termination for convenience, the parties agree that the following will constitute full and fair compensation to Contractor, and that Contractor will not be entitled to any additional compensation:

(A) **Completed Work.** The value of its Work satisfactorily performed to date, including Project overhead and profit based on Contractor’s schedule of values;

(B) **Demobilization.** Actual and substantiated demobilization costs; and

(C) **Markup.** Five percent (5%) of the total value of the Work performed as of the date of notice of termination or five percent (5%) of the value of the Work yet to be completed, whichever is less.
13.5 **Provisions Remaining in Effect.** Upon termination pursuant to this Article, the provisions of the Contract Documents remain in effect as to any claim, indemnity obligation, warranties, guarantees, submittals of as-built drawings, instructions, or manuals, or other such rights and obligations arising prior to the termination date.

**Article 14**

**Miscellaneous Provisions**

14.1 **Assignment of Unfair Business Practice Claims.** Under Public Contract Code Section 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. Section 15) or under the Cartwright Act (Chapter 2 (commencing with Section 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 subcontract. This assignment will be effective at the time City tenders Final Payment to Contractor, without further acknowledgement by the parties.

14.2 **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 amended accordingly.

14.3 **Waiver.** No 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 be effective unless it is in writing and signed by the party waiving the breach, failure, right, or remedy. No waiver of any breach, failure, right, or remedy will 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 the waiving party.

14.4 **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.

14.5 **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 that bids were due.

**END OF GENERAL CONDITIONS**
SPECIAL CONDITIONS

1. **Time is of the essence for this project.**

   It is the intent to award the project at the February 1, 2017 Morgan Hill City Council Meeting.

   The City and the contractor shall meet on a weekly basis once the project begins to go over the project schedule, 3 week look-ahead, any possible issues and concerns, etc.

   As the three projects are in the Downtown, the contractor shall make an effort to notify and coordinate with affected businesses and residents in regard to project scheduling and construction work which may affect them.

   The contractor will be responsible to submit a traffic control plan stamped by a professional traffic engineer.

   The Depot Park is near the UPRR tracks. It will be necessary for the contractor to be at a minimum of 25' away from the tracks.

2. **Waste Water.** City will provide water required for performance of the Work. Contractor is responsible for the appropriate disposal of waste water in coordination with City personnel. Contractor must provide a backflow preventer on all point of connections to City's Water System. All backflow preventers must be checked and approved by City's Public Works Water Division. Contractor must provide a deposit (refundable) and make necessary arrangements to pick up a hydrant meter at City's Public Works Office. At the completion of the Project, if the hydrant meter is not returned promptly or if it is damaged, Contractor shall forfeit its deposit.

3. **Equipment.** Contractor must provide and use equipment and plants suitable to produce the quality of Work and materials required by the Contract Documents. Contractor may be required to remove equipment which the Engineer deems unsuitable for the Work. Contractor must ensure that equipment is operated by trained, experienced operators, and at a speed or rate of production not to exceed that recommended by the manufacturer. Any vehicles used to haul materials over existing streets and highways must be equipped with pneumatic tires.

4. **Lines and Grades.** The Engineer will set the stakes or marks necessary to establish the lines and grades required for the completion of the Work in accordance with the Contract Documents. Contractor must give at least
two (2) working days’ notice to the Engineer of the need for setting any lines and grades.

(A) **Measurements.** Distances and measurements are given and will be made in a horizontal plane. Grades are given from the top of stakes or nail unless otherwise noted. Three (3) consecutive points shown on the same rate of slope must be used in common in order to detect any variation from a straight grade. Any variation from a straight grade, straight slope or line, must be reported to the Engineer. If such discrepancy is not reported to the Engineer, Contractor is responsible for any error in the finished work.

(B) **Stakes.** Contractor must preserve all stakes and points set for lines, grades or measurements of the Work in their proper places until authorized by the Engineer to remove them. All expense incurred by replacing stakes that have been removed without proper authority may be deducted from any payment due to Contractor.

5. **Disposal of Materials Outside of Street Right-of-Way.** Unless otherwise specified in the Specifications or Special Conditions, Contractor is solely responsible for disposing of materials outside the street right-of-way and for all associated costs. Before disposing materials outside the street right-of-way, Contractor must 1) obtain a written release from the property owner releasing City from any and all responsibility in connection with the disposal of material on that property; and 2) obtain permission from the Engineer to dispose of the material at the permitted location.

6. **Emergency Contact.** Prior to the commencement of Work on the Project, Contractor must provide contact information to the Engineer for the person designated by Contractor to respond to any emergency that arises on the Worksite during the course of the Project. That person will be responsible for responding to the Worksite within thirty (30) minutes following notification of an emergency by City’s Police or Fire Department, regardless of the time of day.

7. **Right-of-Way.** City will provide the right-of-way for performance of the Work. Contractor is solely responsible for any additional area required outside of the designated the right-of-way, unless otherwise provided in the Contract Documents.

(A) **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 and its subcontractors shall at all times in the performance of the Work comply with all applicable federal, state, and local laws and regulations concerning pollution of waterways.
8. **Authorized Work Days and Hours.**

(A) **Authorized Work Days.** Except as expressly authorized in writing by City, Contractor is limited to performing Work on the Project on the following days of the week, excluding holidays observed by City:

Monday to Friday

The Contractor will be allowed to work on Saturdays and Sundays, only upon approval from the City Engineer, no additional compensation will be considered.

There will be a variety of special events that will take place during the course of construction. The City will require that the contractor provide **extra care and attention** to the following events to ensure the project sites are secure, safe, and clean prior to the event. There will be no work performed on the following days:

- **Taste of Morgan Hill** – 9/29 to 10/1
- **Fourth of July Parade** – 7/1 to 7/4
- **Mushroom Mardi Gras** – 5/26 to 5/28

(B) **Authorized Work Hours.** Except as expressly authorized in writing by City, Contractor is limited to performing Work on the Project during the following hours:

7am to 5pm

Fencing. Areas of construction shall be properly secured and fenced off to minimize encroachment into the existing paths of travel of the construction site.

END OF SPECIAL CONDITIONS
TECHNICAL PROVISIONS

GENERAL REQUIREMENTS

1.01 ORDER OF WORK

a. Description: Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

The Contractor shall be responsible for submitting the following information to the City:

1. The Contractor shall provide to the City a Construction Schedule 10 calendar days prior to the Contractor performing any work on the project site. The Schedule shall include the following information:
   • Detail all stages of construction
   • Time frame/duration of stages

2. The Contractor shall provide to the City a Notice to Businesses and Residents 7 calendar days prior to setting any stage construction components. One copy (hard copy and electronic form) of the Notice shall be provided and contain the following information:
   1. Introduction of Contractor
   2. Project description
   3. Project begin and end construction dates/duration
   4. Project staging descriptions/limits

If sanitary sewer facilities are to be impacted, upon scheduled date of the preconstruction meeting, Contractor shall develop, prepare and submit a Sanitary Sewer Replacement Logistics Plan (SSRLP) to the Engineer for review and approval. The SSRLP shall show contractor’s construction methodology to be implemented in order to maintain Sanitary Sewer service throughout construction.

Upon a scheduled date of the preconstruction meeting, Contractor shall provide a construction schedule as specified in Section 1.09, Progress Schedule of these Technical Provisions, for the Engineer’s approval.

Contractor shall notify and distribute notices to all affected residents and businesses a minimum of 48 hours but no earlier than 72 hours prior to affecting the resident’s or business’ in anticipation of the project.
Contractor shall meet with the Project Engineer weekly to go over the project schedule, and discuss project progress, duration, issues, etc.

Utility boxes, vaults, and valve covers are intended to be constructed to future grades of this Del Monte Avenue and West 3rd Street and Del Monte Avenue Reconstruction Projects. The contractor shall cooperate with utility companies (P G & E, Verizon, Charter Cable and others) as well as other projects in the area. The contractor shall coordinate all their activities with the utility companies and contractors to provide them with sufficient time and opportunity to locate or relocate their facilities, if needed.

The contractor shall perform all work for the project between 7AM to 5PM, Monday through Friday, unless otherwise directed and approved by the Engineer. Unless authorized by the Engineer, there shall be no work performed at night or on Saturday, Sunday or Public Holidays. If authorized by the Engineer, night work shall be conducted between 10PM to 6AM, Monday through Friday only. The contractor shall not work on City observed holidays.

b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Order of Work" including development, preparation and coordination with utility companies and contractors, and notification to all affected residents and businesses shall be considered as included in the lump sum price paid for the three park projects and no additional compensation will be allowed therefore.

1.02 MAINTAINING TRAFFIC

a. Description: Attention is directed to Sections 7-1.08, "Public Convenience," 7-1.09, "Public Safety," and 12, "Construction Area Traffic Control Devices," of the Standard Specifications, to the provisions in "Public Safety" of the General Requirements and to Section 2.03 of the Technical Provisions. Nothing in these requirements shall be construed as relieving the Contractor from the responsibilities specified in Section 7-1.09 of the Standard Specifications.

Flaggers shall be provided at non-signalized intersections when traffic conditions warrant as determined by the Engineer. At least one lane of traffic shall be provided through the construction area during construction, unless otherwise specifically authorized by the Engineer. Two lanes of traffic shall be provided through the project area during non-construction time. Upon scheduled date of the preconstruction meeting, Contractor shall develop, prepare and submit a traffic control plan prepared and stamped by a registered traffic engineer will be required for review.
*** The contractor shall make all necessary accommodations for residents and emergency vehicular access at all times. ***

Vehicular, pedestrian, and customer access to all properties, driveways, sidewalks, patios, doorways, entrances and parking lots shall be maintained at all times. Contractor shall provide trench plates where necessary to accommodate access or provide other means of access.

*** The Contractor must submit a Stage Construction Plan, including the project’s traffic control plan, at least two weeks prior to beginning of work, to the City of Morgan Hill. ***

b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Maintaining Traffic," including preparation and modification of a Stage Construction Plan (including the project’s traffic control plan) shall be considered as included in the lump sum price paid for the three park projects, and no additional compensation will be allowed therefor.

1.03 PUBLIC SAFETY

(A) Description: The Contractor shall provide for the safety of traffic and the public in conformance with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications and these Special Provisions.

The Contractor shall install temporary railing (Type K) between a lane open to public traffic and an excavation, obstacle or storage area when the following conditions exist:

1. Excavations—The near edge of the excavation is 12 feet or less from the edge of the lane, except:

   a. Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
   b. Excavations less than one foot deep.
   c. Trenches less than one foot wide for irrigation pipe or electrical conduit, or excavations less than one foot in diameter.
   d. Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
   e. Excavations in side slopes, where the slope is steeper than 1:4 (vertical:horizontal).
f. Excavations protected by existing barrier or railing.

2. Temporarily Unprotected Permanent Obstacles.—The work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or the Contractor, for the Contractor's convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.

3. Storage Areas.—Material or equipment is stored within 12 feet of the lane and the storage is not otherwise prohibited by the provisions of the Standard Specifications and these Special Provisions.

The approach end of temporary railing (Type K), installed in conformance with the provisions in this section "Public Safety" and in Section 7-1.09, "Public Safety," of the Standard Specifications, shall be offset a minimum of 15 feet from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than one foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15 feet minimum offset cannot be achieved, the temporary railing shall be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Temporary railing (Type K) shall conform to the provisions in Section 12-3.08, "Temporary Railing (Type K)," of the Standard Specifications. Temporary railing (Type K), conforming to the details shown on 1999 Standard Plan T3, may be used. Temporary railing (Type K) fabricated prior to January 1, 1993, and conforming to 1988 Standard Plan B11-30 may be used, provided the fabrication date is printed on the required Certificate of Compliance.

Temporary crash cushion modules shall conform to the provisions in "Temporary Crash Cushion Module" of the Standard Specifications.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas, the Contractor shall close the adjacent traffic lane unless
otherwise provided in the Standard Specifications and these Special Provisions:

<table>
<thead>
<tr>
<th>Approach Speed of Public Traffic (Posted Limit)</th>
<th>Work Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Miles Per Hour</td>
<td>Within 6 feet of a traffic lane but not on a traffic lane</td>
</tr>
<tr>
<td>5 to 15 Miles Per Hour</td>
<td>Within 3 feet of a traffic lane but not on a traffic lane</td>
</tr>
</tbody>
</table>

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of a traffic lane, the line of cones or delineators shall be considered to be the edge of the traffic lane; however, the Contractor shall not reduce the width of an existing lane to less than 10 feet without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure. Suspended loads or equipment shall not be moved nor positioned over public traffic or pedestrians.

a. **Measurement and Payment:** Full compensation for conforming to the provisions in this section “Public Safety,” including furnishing and installing traffic control devices including channelizers, cones and temporary crash cushion modules, shall be considered as included in the lump sum price paid for the three park projects and no additional compensation will be allowed therefor.

1.04 **EXCAVATION SAFETY PLANS**

a. **Description:** Section 5-1.02A, "Trench Excavation Safety Plans," of the CSS is amended to read:

5-1.02A EXCAVATION SAFETY PLANS

- The Contractor is solely responsible for excavation safety, including support to all adjacent improvements. This
requirement is continuous and not limited to normal working hours.

- The Construction Safety Orders of the Division of Occupational Safety and Health shall apply to all excavations. For all excavations 5-feet or more in depth, the Contractor shall submit to the Engineer a detailed plan showing the design and details of the protective systems to be provided for worker protection from the hazard of caving ground during excavation. The detailed plan shall include any tabulated data and any design calculations used in the preparation of the plan. Excavation shall not begin until the detailed plan has been reviewed and approved by the Engineer.

- Detailed plans of protective systems for which the Construction Safety Orders require design by a registered professional engineer shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California, and shall include the soil classification, soil properties, soil design calculations that demonstrate adequate stability of the protective system, and any other design calculations used in the preparation of the plan.

- No plan shall allow the use of a protective system less effective than that required by the Construction Safety Orders.

- If the detailed plan includes designs of protective systems developed only from the allowable configurations and slopes, or Appendices, contained in the Construction Safety Orders, the plan shall be submitted at least 5 days before the Contractor intends to begin excavation. If the detailed plan includes designs of protective systems developed from tabulated data, or designs for which design by a registered professional engineer is required, the plan shall be submitted at least 3 weeks before the Contractor intends to begin excavation.

- Attention is directed to Section 7-1.01E, "Trench Safety" of the Standard Specifications.

b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Excavation Safety Plans" shall be considered as included in the contract prices paid as included in the lump sum price paid for the three park projects and no additional compensation will be allowed therefor.

1.05 DUST CONTROL
a. **Description:** Dust control shall conform to the provisions in Section 10, “Dust Control,” of the Standard Specifications and these Technical Provisions.

b. **Measurement and Payment:** Full compensation for conforming to the provisions in this section "Dust Control" shall be considered as included in the contract prices paid considered as included in the lump sum price paid for the **three park projects** and no additional compensation will be allowed therefor.

### 1.06 WATER POLLUTION CONTROL

a. **General:** Water pollution control work shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications and these specifications.

   For the entire duration of construction activities for this project, the California Stormwater Quality Association (CASQA) Best Management Practice (BMP) Handbook for construction shall be used. Furthermore, contractor is fully responsible to provide erosion and sediment control for the entire construction site at all times. Contractor shall be responsible for initiating the required control measures. CASQA BMP information can be viewed and downloaded at

   **[http://cabmphandbooks.com](http://cabmphandbooks.com)**

   The Contractor shall know and fully comply with the applicable provisions of the Manuals and Federal, State, and local regulations that govern the Contractor’s operations and storm water discharges from both the project site and areas of disturbance outside the project limits during construction.

   Under no circumstances, shall concrete wash water, water from sawcutting operations or any other contaminated water be allowed to enter the storm drain system or other drainage courses.

   The City assumes no responsibility whatsoever to the Contractor or a property owner with respect to any arrangements made between the Contractor and the property owner to allow disturbance of areas outside the project limits.

   The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the requirements set forth in this section "Water Pollution Control" including, but not limited to, compliance with the applicable provisions of the
Manuals and Federal, State, and local regulations. For the purposes of this paragraph, costs and liabilities include, but are not limited to, fines, penalties, and damages whether assessed against the City or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act.

In addition to the remedies authorized by law, an amount of the money due the Contractor under the contract, as determined by the City, may be retained by the City disposition has been made of the costs and liabilities.

The retention of money due the Contractor shall be subject to the following:

1) The City will give the Contractor 30 days notice of the City's intention to retain funds from partial payments, which may become due to the Contractor prior to acceptance of the contract. Retention of funds from payments made after acceptance of the contract may be made without prior notice to the Contractor.

2) No retention of additional amounts out of partial payments will be made if the amount to be retained does not exceed the amount being withheld from partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications.

3) If the City has retained funds and it is subsequently determined that the City is not subject to the costs and liabilities in connection with the matter for which the retention was made, the City shall be liable for interest on the amount retained at the legal rate of interest for the period of the retention.

Conformance with the provisions in this section "Water Pollution Control" shall not relieve the Contractor from the Contractor's responsibilities as provided in Section 7, "Legal Relations and Responsibilities," of the Standard Specifications.

** Llagas Creek is subject to flooding during heaving rains. It will be the contractor’s responsibility to protect the project site. **

b. Measurement and Payment: Full compensation for water pollution control, including furnishing all labor, materials tools, equipment, and incidentals, and for doing all the work involved in planning, implementing, and maintaining of the water pollution control shall be considered as included in the lump sum price paid for the three park projects and no separate payment will be made therefor.

1.07 DAMAGE REPAIR
a. **Description:** Attention is directed to Section 7-1.16, “Contractor’s Responsibility for the Work and Materials,” and Section 7-1.11, “Preservation of Property,” of the Standard Specifications and these Technical Provisions. Attention is also directed to Section 1.01, “Order of Work” in these Technical Provisions.

Any damage to existing facilities or properties or any need to alter, remove, or destroy existing facilities during the period of the work shall be returned to the original condition.

b. **Measurement and Payment:** All damage to existing facilities shall be repaired and or replaced at the Contractor’s expense.

### 1.08 RESPONSIBILITY FOR DAMAGE

a. **General:** Responsibility for damage shall conform to the provisions in Section 7-1.12, “Responsibility for Damage,” of the Standard Specifications.

### 1.09 PROGRESS SCHEDULE

a. **General:** The progress schedule shall be in accordance with Section 8-1.04 of the CSS. Furthermore, on a weekly basis, the schedule shall be updated and submitted to the Engineer. This update shall show the progress on salient features, mark the dates of completion and incorporate changes in construction sequencing or in items of construction.

b. **Format:** The construction schedule shall be a CPM format. The schedule shall be submitted in the following formats: Time-scaled Logic Diagram showing the name of the activity, the logical relationships, the duration, and the actual or scheduled start dates in a bar chart format; and an Activity Report showing the name of the activity, the actual and scheduled finish and start dates, the scheduled and actual durations, the logical relationships and other pertinent data. The schedule shall be subject to review, correction and acceptance by the Engineer.

c. **Periodic Scheduling Meetings:** Weekly scheduling meetings will be required in which the project teams of the Contractor and his agents and the City can meet to discuss the schedule and progress of project.

d. **Measurement and Payment:** Full compensation for conforming to the provisions in this section “Progress Schedule” shall be considered as
included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

1.10 COORDINATION OF WORK

a. Description: The Contractor shall give specified notifications, and withdraw his forces from work areas for the specified time windows for utility companies to perform specified relocation activities. The Contractor shall otherwise coordinate their operations with those of utility companies.

The Contractor shall also be responsible for coordinating the work with businesses and property owners including the shut-downs by written notification. All properties affected by shutdowns shall be notified in writing, 48 hours prior to the interruption. The contractor shall attempt to notify the affected occupants or residents, in person, on the same day of the shut down.

Contractor and Engineer shall meet with all affected businesses to coordinate construction schedule, hours of work, maintaining of ingress/egress and reconstruction and replacement intentions to businesses’ facilities that will be impacted during construction.

Failure to notify property owners with written notification shall result in stopping the project progress.

b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Coordination of Work" shall be considered as included in the lump sum price paid for the three park projects and no additional compensation will be allowed therefor.

1.11 FINAL CLEAN UP

a. Description: The Contractor shall clean up all rubbish and excess materials from the work site, the material storage site, and all ground occupied by Contractor in connection with this work. The Contractor shall leave all parts of the work in a neat and presentable condition, prior to the final inspection of the work by the Engineer.

b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Final Clean Up" shall be considered as included in the lump sum price paid for the three park projects and no additional compensation will be allowed therefor.

1.12 PROJECT RECORDS AND SUBMITTALS
a. **Description:** This section delineates the procedure the Contractor is to adhere to in the submission of documentation for material approval, and covers the records required of the Contractor following completion of the work.

a. **Submittals**

b. **Progress Schedule:**
Within 7 days after receiving the Notice to Proceed and before any work is begun, the Contractor shall submit four copies of a Progress Schedule complying with Section 1.09 of these Technical Provisions. The first progress payment will not be issued until the progress schedule is submitted.

c. **Supervisory Personnel:**
The Contractor shall submit a list of supervisory personnel who will be responsible for the performance of the Contract. The Contractor shall designate one (1) person who will have full decision-making authority to represent the Contractor on a daily basis at the project site. The list will include phone numbers where the personnel may be reached by the Engineer.

d. **Shop Drawings:**
The term "shop drawings" includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the Contract. City shall have up to 20 days to review the shop drawings.

At least 15 working days prior to ordering of any materials, the Contractor shall forward to Engineer, for approval, all submittals required by the individual sections of the specifications. Unless a different number is called for by an individual section, six (6) copies of each shop drawing, material description, and specification literature and three specimens of each sample are required, all of which will be retained or distributed by the Engineer. The Contractor shall submit whatever additional number of shop drawings and literature, in addition to the above requirements, that the Contractor wants returned. The Engineer may require the Contractor to submit a legible reproducible print in addition to the above copies. Contractor shall number each type of material separately and identify the use of each material.
All submittals shall be transmitted to the Engineer by mail or in person with the letter of transmittal included in these documents. The Engineer will return all reviewed submittals to the Contractor within 10 working days.

Contractor shall coordinate all such drawings, and review them for legibility, accuracy, completeness, and compliance with contract requirements, and shall indicate approval thereon as evidence of such coordination and review. Shop drawings submitted to the Engineer without evidence of the Contractor's approval will be returned for resubmission.

Approval by the Engineer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with requirements of this Contract, except with respect to variations described and approved in accordance with the Paragraph below.

If shop drawings show variations from contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at time of submission. All such variation must be approved by the Engineer.

e. Engineer’s Approval:
The Engineer will indicate approval or disapproval of each submittal, and the reasons for disapproval.

   a) If no corrections are required, the copies will be returned marked "NO EXCEPTIONS TAKEN" and work may begin immediately on incorporating the material and equipment covered by the submittal into the project.

   b) If limited corrections are required, the copies will be returned marked "MAKE CORRECTIONS NOTED." Work may begin immediately on incorporating the material and equipment covered by the corrected submittal into the project.

   c) If insufficient or incorrect data has been submitted, the copies will be returned marked "AMEND & RESUBMIT." No work incorporating the material and equipment covered by this submittal into the project may begin until the submittal has been revised, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."
d) If the submittal is unacceptable, the copies will be returned marked "REJECTED - SEE REMARKS." No work incorporating the material and equipment covered by this submittal into the project may begin until a new submittal has been made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

e) The Contractor shall not change any drawing after it has been marked "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED", or change any approved equipment or material without written permission of Engineer.

f) If more than three submittals for a single item are required because of incorrect or insufficient data, or the submittal is unacceptable, or because the Contractor wishes to change previously approved material, then all costs incurred by the Engineer for the additional review shall be deducted from monies due the Contractor.

f. Certificates:
For those items called for in individual sections, the Contractor must furnish certificates from manufacturers, suppliers, or others certifying that materials or equipment being furnished under the Contract comply with the requirements of these specifications.

Certificates of compliance shall conform to the provisions in Section 6-1.07 "Certificates of Compliance" of the Caltrans Standard Specifications and these specifications.

Certificates of compliance from the Contractor, suppliers, and/or manufacturers, shall clearly indicate that the material to be delivered to the jobsite will meet all requirements of the specifications. A certificate of compliance shall include, but not be limited to the project title, delivery location, date (or approximate date) of delivery, name of the material with appropriate classification or model numbers, quantity, name of the manufacturer, statement of compliance with all requirements of the specifications, and certifier's name, title and signature. In addition, a factory or mill certification (laboratory test report), if required by the specifications, shall be submitted with certificate of compliance. The factory or mill shall not substitute the certificate of compliance, unless it contains all information required for a certificate of compliance as described above.
Insufficient, incomplete, or unclear certificates shall be rejected and shall be resubmitted. The Contractor shall be responsible for all delays caused by the resubmittals.

g. Samples:
For those items called for in individual sections, the Contractor must furnish samples. Samples shall be of sufficient size to clearly illustrate functional characteristics and full range of color, texture, and pattern.

The Contractor shall notify the Engineer at least one (1) week prior to commencement of the construction and shall furnish the Engineer at least one (1) day notice when inspections are required.

h. Records:
The Contractor shall provide, prior to acceptance of all work, all records as herein specified and as specified in the individual sections of the contract documents. Six (6) sets of all records shall be furnished to the Engineer for review, approval and distribution to the interested parties.

All submitted records shall be contained in a manual or manuals consisting of 8-1/2 x 11 inch hardback 3 ring binders. Included in each manual shall be catalog data on each item, together with parts lists, description of operation, maintenance information, shop drawings, wiring and riser diagrams, along with all test data. Catalogs and data in the manual shall be neat, clean copies. Drawings shall be accordion folded to letter size and installed in an envelope within the manual. An index shall be provided, which shall list all contents in an orderly manner, with the respective equipment suppliers' name, address and telephone number. The manufacturer's recommended servicing instructions shall also be included. Diagrams shall be complete for each system installed. Provide divider sheets with identifying tabs between each category.

i. As-Built Drawings:
The Contractor shall maintain a separate, neat, and legible set of construction drawings showing as built conditions of all constructed facilities. Changes shall be shown to scale in red on the appropriate Drawings. The locations of installed underground and hidden utilities will be shown and dimensioned to appropriate reference points. No work shall be permanently concealed until the required information has been recorded.

Where the Drawings are not of sufficient size, scale, or detail, the
Contractor shall furnish his/her own drawings for incorporation of details and dimension. In such cases, the Contractor shall provide a reproducible set of his/her drawings, suitability cross referenced to the Contract Drawings.

The as-built drawings shall be maintained up to date at all times. Prior to any progress payments, the Engineer shall review the status of the as-built construction drawings. The Engineer shall withhold approval of progress payments until the as-built drawings are up to date.

Upon completion of the Contract, the Contractor shall furnish two satisfactory sets of as-built construction drawings. Drawings shall be certified that conditions shown are as-built. Final payment shall be withheld until the as-built construction drawings are received and accepted by the Engineer.

** All building permit fees shall be paid by the City of Morgan Hill that is within the scope of work for this project. **

c. Measurement and Payment: Full compensation for conforming to the provisions in this section "Project Records and Submittals" shall be considered as included in the lump sum price paid for the three park projects and no additional compensation will be allowed therefor.
2.01 MOBILIZATION

   a. **Description:** Mobilization shall conform to the provisions in Section 11, "Mobilization," of the Standard Specifications.

   b. **Measurement and Payment:** Full compensation for conforming to the provisions in this section "Mobilization" shall be considered as **included in the lump sum price** paid for the **three park projects** and no additional compensation will be allowed therefor.

2.02 CONSTRUCTION AREA SIGNS

   a. **Description:** Construction area signs shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these Technical Provisions.

   Type II retroreflective sheeting shall not be used on construction area sign panels.

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

<table>
<thead>
<tr>
<th>Notification Center</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground Service Alert-Northern California</td>
<td>1-800-642-2444</td>
</tr>
<tr>
<td></td>
<td>1-800-227-2600</td>
</tr>
<tr>
<td>Underground Service Alert-Southern California</td>
<td>1-800-422-4133</td>
</tr>
<tr>
<td></td>
<td>1-800-227-2600</td>
</tr>
</tbody>
</table>

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

   Sign substrates for stationary mounted construction area signs may be fabricated from fiberglass reinforced plastic as specified under "Prequalified and Tested Signing and Delineation Materials" of these technical provisions.
The Contractor may be required to cover certain signs during the progress of the work. Signs that are no longer required or that convey inaccurate information to the public shall be immediately covered or removed or the information shall be corrected. Covers for construction area signs shall be of sufficient size and density to completely block out the complete face of the signs. The retro-reflective face of the covered signs shall not be visible either during the day or at night. Covers shall be fastened securely so that the signs remain covered during inclement weather. Covers shall be replaced when they no longer cover the signs properly.

b. Measurement and Payment: Full compensation for construction area signs, including furnishing all labor, materials (including signs), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the construction area signs shown on the plans, shall be considered as included in the lump sum price paid for the three park projects, and no separate payment will be made therefor.

2.03 TRAFFIC CONTROL SYSTEM

a. Description: A traffic control system shall consist of closing traffic lanes in accordance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs", and these technical provisions. The contractor will be allowed to close the roadway 300’ at a time during work hours only but provide access to both residents and emergency vehicles at all times.

The provisions in this section will not relieve the Contractor from the responsibility to provide additional devices or take measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining or removing components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining or removing components when operated within a stationary lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on vehicles which are being used to place, maintain and remove components of a
traffic control system and shall be in place before a lane closure requiring its use is completed.

If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

When lane closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations designated by the Engineer within the limits of the highway right of way.

b. **Submittals:** Contractor shall submit a Professional Traffic Engineer prepared and stamped Stage Construction Plan, (including the project’s traffic control plan) to the City for review and approval prior to beginning any work, which shall be subject to review, correction and acceptance by the Engineer prior to authorizing a “Notice to Proceed.” Stage construction plan (including the project’s traffic control plan) shall address and assure vehicular, pedestrian and customer access to all properties, driveways, sidewalks, patios, doorways, entrances and parking lots shall be maintained at all times.

c. **Measurement and Payment:** **Full compensation for Traffic Control Systems shall include the** furnishing all labor, materials (including signs), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the traffic control system, including preparation and modification of a Stage Construction Plan (including the project’s traffic control plan), as specified in the Standard Specifications and these technical provisions, **and as directed by the Engineer and shall be considered as included in the lump sum price** paid for the **three park projects.**
3.01 POTHOLING

   a. **Description:** The Contractor shall pothole to locate crossing utilities at the locations directed by the Engineer prior to excavating to install the water or sewer mains. The contractor shall submit a report to the Engineer documenting the location, depth, size and material of the utilities found. A minimum size of 2’ x 2’ is required for each pothole and up to a maximum depth of 10 feet. **Include 20 potholes for the three parks project as part of the bid proposal**

   b. **Measurement and Payment:** Potholing shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Potholing, including all traffic control, flagging and temporary backfilling or steel plating, complete in place, as shown in the plans, as specified in the technical provisions and as directed by the Engineer and shall be considered as included in the lump sum price paid for the three park projects and no additional compensation will be allowed therefore.

3.02 DAILY CLEAN UP (REVOCABLE)

   a. **Description:** The Contractor shall not allow the site of the work to become littered with trash and waste material, but shall maintain the site in its normal neat and orderly condition throughout the construction period. On or before the completion of the work, the Contractor shall tear down and remove all temporary structures built by him and shall remove rubbish of all kinds from any of the grounds which he has occupied, and leave them in first-class condition to the satisfaction of the Engineer.

   b. **Measurement and Payment:** Final payment for Daily Clean Up will be based on the total number of working days actually performed for daily clean up and will be subject to provisions of Section 2.03, “Changes,” of the General Provisions.

3.03 SUPPLEMENTAL WORK

   a. **Description:** The work shall include any new or unforeseen work not specified for on the plans and specification. The lump sum dollar amount listed in the bid schedule for Supplemental Work shall be included as per the bid schedule. Supplemental work shall be performed only upon direct written authorization from the Project Engineer. Agreed price may be used as an alternate method of payment, if directed by the Project Engineer.
SECTION 02050

TREE PROTECTION

PART 1      GENERAL

1.01    SUMMARY

A.    Scope of work:
1.    Protect, prune, irrigate and maintain all existing trees and other vegetation not designated for removal.

B.    Related sections can include, but may not be limited to:
1.    Section 02100 - Site Clearing and Demolition
2.    Section 02200 - Earthwork
3.    Section 02221 - Excavation, Backfill and Compaction
4.    Section 02700 - Storm Drainage
5.    Section 02713 – Domestic Water Systems
6.    Section 02722 – Sanitary Sewerage
7.    Section 02810 - Irrigation
8.    Section 02900 - Landscaping
9.    Section 02970 - Landscape & Site Maintenance

1.02    REFERENCES AND REGULATORY REQUIREMENTS

A.    American Joint Committee on Horticultural Nomenclature (AJCHN), Standardized Plant Names
B.    American Association of Nurserymen, Inc. (AAN), American Standard for Nursery Stock.
C.    Sunset Western Garden Book, Lane Publishing CO.
D.    Agricultural Code of California.

1.03    SUBMITTALS

A.    Conform to requirements of Section 01300 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B.    Submit four (4) copies of product data or “cut-sheets” for all products proposed for use.

PART 2      PRODUCTS

2.01    MATERIALS

A.    Protective Fencing:
1.    Protective fencing shall consist of four foot (4') to six foot (6') high “blaze orange” plastic fencing material installed with metal posts and wire ties. Fence fabric shall be accepted by Owner’s representative.

2.    Metal posts shall be accepted by Owner’s representative.

PART 3      EXECUTION
3.01 GENERAL

A. Protect, prune, irrigate and maintain all existing trees and other vegetation not designated for removal.

B. At a minimum, protect existing all existing trees and other vegetation not designated for removal from the following:
   1. Breaking, cutting and/or skinning of branches, bark and/or roots
   2. Stockpiling of building materials, soil or trash within dripline
   3. Vehicular traffic and parking

C. Trees (and other vegetation not designated for removal) that become damaged during the life of the project shall be repaired or replaced by the contractor at no cost to the Owner subject to the discretion of the Owner’s representative.

3.02 PROTECTIVE FENCING

A. Prior to site clearing, demolition or grading, install acceptable protective fencing around all existing trees and other vegetation not designated for removal one (1) foot beyond dripline or as directed by Owner’s representative.

B. Locate structural roots by hand probing and set posts with care to preclude root damage.

C. Space protective fencing posts at 6'-0" centers maximum and securely attach fabric.

D. Maintain protection until Final Acceptance of project.

E. Install signage indicating that the protective fencing and area within shall not be disturbed.

F. When work is required within the fenced protection area, submit a written request to the Owner’s representative stating work to be performed and approximate time of completion. No work shall be allowed within the protected fenced area without the prior acceptance by the Owner’s representative. Fencing shall be replaced promptly following completion of said work.

3.03 GRADING AND TRENCHING

A. The earth surface within protective fencing shall not be altered except as acceptable to the Owner’s representative. Any grading or trenching necessary within the dripline shall be done by hand per the discretion of the Owner’s representative.

3.04 IRRIGATION

A. Provide and/or maintain irrigation for all existing trees and other vegetation not designated for removal as necessary to promote healthy, vigorous growth. Weekly watering shall occur with a 20 minute soak equivalent to 100 gallons per tree.

3.05 ROOT PRUNING

A. Root pruning shall consist of a smooth, final cut and shall be performed wherever a root 2" or more in diameter has been broken or severed.

3.06 CANOPY PRUNING
A. All pruning shall be completed by a tree care contractor or under supervision of a licensed arborist.

B. Prune all existing trees to remain and be protected per the following:
   1. Removal of all branches located between grade level and ten (10) feet above grade over pedestrian walkways.

C. Selectively prune branches as deemed necessary by the Owner’s representative.

3.07 PRUNING REPAIRS

A. Prune and treat any damaged area as directed by the Owner’s representative.

3.08 CLEAN-UP

A. Branches, trimmings and debris remaining upon completion of each operation shall become property of the Contractor and shall be promptly removed from the site.

END OF SECTION
SECTION 02100

SITE CLEARING AND DEMOLITION

PART 1  GENERAL

1.01  SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all site clearing and demolition work plus all related activities as shown on the Drawings and/or specified herein.

B. Scope of work: The general extent of the site clearing and demolition work is shown on the Drawings and can include, but is not necessarily limited to the following:
   1. Demolition, removal and disposal of designated items
   2. Careful removal, protection and re-installation of designated items
   3. Careful removal and salvage of designated items
   4. Disconnection and capping of existing utility and/or irrigation lines
   5. Incidental demolition of abandoned utility and irrigation lines
   6. Spraying until dead, clearing, grubbing vegetated areas and/or roto-tilling in existing turf areas.
   7. Protection of existing plant material
   8. Removal of designated trees and planting areas

C. Related sections can include, but may not be limited to:
   1. Section 02050 - Tree Protection
   2. Section 02200 - Earthwork

1.02  REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition

1.03  SUBMITTALS

A. Conform to requirements of Section 01300 Submittals and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Indicate the proposed time line for site clearing and demolition work including all required shut off times and capping of utility services on the project schedule.

C. Provide product information on herbicides to be used for approval prior to use.

1.04  QUALITY ASSURANCE

A. The Owner shall obtain and pay for all permits required in connection with this work. Fees for the dumping of debris shall be paid for by the Contractor.

1.05  PROJECT CONDITIONS

A. Dust Control:
   1. The contractor shall, at all times, prevent the formation of airborne dust on and around the project site with the use of sprinkled water or other means acceptable to the Owner's representative. Non-compliance with proper dust control measures shall be grounds for issuance of "stop work" orders by the Owner's representative until such time as satisfactory measures are implemented.

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B. Utility Services:
1. Issue written notices of planned demolition operations to utility companies and coordinate site clearing and demolition improvements as requested by said utility companies.
2. Existing power poles and lines serving existing occupied buildings shall remain. Arrange all necessary work in order to maintain utilities not designated for removal.
3. Coordinate work in order to maintain utilities to any applicable temporary on-site facilities.

PART 2 PRODUCTS

2.01 Herbicides

A. All herbicides shall conform to Owner’s approved chemicals list.

B. Herbicide shall be non-selective broad spectrum systemic herbicide for perennial vegetation and straight contact herbicide for annual vegetation in accordance with a licensed pest control advisor or herbicide manufacturers recommendations.

PART 3 EXECUTION

3.01 EXAMINATION

A. Conform to Section 01400 - Quality Control (as applicable).

B. Carefully identify limits of demolition.

C. Mark project areas as directed by the Owner’s representative and as necessary to clearly identify the interface of items to be removed and items to be left in place intact.

3.02 PREPARATION

A. Protection:
1. Make provisions and take necessary precautions to protect all existing items not designated for removal. Any existing item or area damaged during construction operations shall be replaced or repaired to an “as-was” or better condition at no additional cost to the project and subject to the acceptance of the Owner’s representative.
2. Erect barriers, fences, guard rails, enclosures, chutes, and shoring as necessary to protect personnel, structures, and utilities remaining intact.
3. Provide warning signs and lighting as necessary for vehicular and personnel protection. Maintain warning signs during construction as required by applicable safety ordinances and as reasonably prudent.
4. Coordinate arrangements for items to be salvaged and turned over to the Owner.
5. Notify Underground Service Alert (USA), (800) 642-2444, and local utility companies to verify locations of existing utilities a minimum of 48 hours prior to beginning work.
6. Provide tree protection fencing prior to any demolition work.

B. Traffic Access:
1. Ensure minimum interference with roads, streets, driveways, sidewalk and adjacent facilities.
2. Do not close or obstruct streets, sidewalk, alleys or passageways without acceptance from the Owner’s representative.
3. Provide approved alternate routes around closed or obstructed traffic ways as required by the Owner’s representative.
4. Maintain access to adjacent existing buildings to ensure uninterrupted operations during demolition work.
3.03 DEMOLITION

A. General:
   1. Refer to drawings for extent of demolition work.

B. Paving:
   1. Demolish paving in accordance with local noise ordinance regulations and as acceptable to the Owner’s representative.

C. Filling:
   1. Completely fill below-grade areas and voids resulting from demolition work. Install appropriate, acceptable fill material consisting of soil, gravel or sand, free of trash and debris, stones over 6” diameter, roots or other organic matter. Meet compaction requirements as specified.

D. Other:
   1. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both the nature and extent of the conflict. Submit report to Owner’s representative in written, accurate detail. Pending receipt of directive from Owner’s representative, rearrange selective demolition schedule as necessary to continue overall job progress without delay.

E. Clearing and Grubbing:
   1. Remove trees as shown on Drawings. Removal shall include trunks and roots over one inch (1”) in diameter to a depth of eighteen inches (18”) below subgrade elevations.
   2. Mow all existing turf areas to a height of 1” and remove cuttings.
   3. Prior to site clearing, all existing vegetation (below twelve inches (12”) in height) and turf areas to be removed shall be sprayed with a non-selective broad spectrum systemic herbicide for perennial vegetation and straight contact herbicide for annual vegetation in accordance with a licensed pest control advisor or herbicide manufacturers recommendations.
   4. Allow a sufficient period of time to ensure that all sprayed vegetation is dead (refer to manufacturer’s recommendations).
   5. Irrigation heads, valves, and controllers shall be salvaged and provided to Owner.
   6. Clear/strip vegetative material from soil surface and remove unless noted otherwise.
   7. Contractor is responsible for stockpiling and protecting all topsoil needed for landscaping improvements. Refer to Earthwork and Landscape Specifications.

F. Utilities and Related Equipment:
   1. The locations of existing utilities, as may be shown on the Drawings, are approximate. Should existing utilities not shown on the Drawings be encountered during construction operations, notify the Owner’s representative immediately, and re-direct work to avoid delay. The Owner’s representative shall then determine what action, if any, is required.
   2. Remove all abandoned utilities as indicated and as uncovered by the work, and terminate in a manner conforming to code.
   3. Remove and salvage designated items and related equipment and deliver to a location acceptable to the Owner’s representative.

G. Underground Piping:
   1. Existing storm drain and irrigation systems, as may be shown on the Drawings, may be modified to allow for construction of new items as a part of this project. Caution shall be exercised so as not to damage underground piping not scheduled for removal.
   2. Remove underground piping as indicated, or as necessary, and backfill to designated compaction density.
3. Manholes and lines scheduled for removal which connect to active systems shall have their active remaining portions capped, plugged, or blind-flanged as appropriate.
4. Materials used for pipe terminations and temporary connections shall be the same as the existing lines. Fittings and flanges shall be of weight and class suitable for the service in which used.

3.04 SALVAGE

A. Demolition:
   1. Materials or equipment to be demolished shall become the property of the Contractor except for items specified to be salvaged for the Owner.
   2. Carefully remove items to be salvaged to avoid damage.
   3. Irrigation heads, valves and existing controller shall be salvaged and provided to Owner. Contractor shall clean and box items. Items shall be returned to Owner corporation yard.

B. Replacement:
   1. In the event items not scheduled to be demolished are damaged, promptly replace or repair such items to an as-was or better condition per the discretion of the Owner’s representative at no additional cost.

C. Materials scheduled for removal shall not be placed on view to prospective purchasers or sold on site.

3.05 CLEANING

A. Debris and Rubbish:
   1. Remove and transport debris and rubbish as it accumulates and dispose in a legal manner via recognized haul routes per Section 01500, in a manner that will prevent spillage on streets or adjacent areas.
   2. Remove all tools, equipment and appliances used for demolition from the site upon completion of the work.
   3. Clean entire project area, adjacent streets, and pavements to a broom-clean, “stain-free” condition per the discretion of the Owner’s representative.
PART 1  GENERAL

1.01  SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all
    earthwork and related work shown on the Drawings and/or specified herein.

B. Scope of work:
   The general extent of the earthwork is shown on the Drawings and can include, but is not
   necessarily limited to the following:
   1. Topsoil stripping, stockpiling, and replacement into planting areas
   2. Rough grading
   3. Filling and backfilling to attain required grades
   4. Excavating for paving, footings and foundations
   5. Adherence to requirements, recommendations and/or Best Management Practices (BMPs)
      for storm water management as may be outlined in the Erosion and Sediment Control Plan,
      or as required by governing agencies

C. Related sections can include, but may not be limited to:
   1. Section 01050 - Field Engineering
   2. Section 01300 - Submittals
   3. Section 01720 - Project Record Drawings
   4. Section 02050 - Tree Protection
   5. Section 02100 - Site Clearing and Demolition
   6. Section 02230 - Base Courses
   7. Section 02900 - Landscaping

1.02  REFERENCES AND REGULATORY REQUIREMENTS

A. 2010 California Building Code (CBC)

B. American Society for Testing and Materials (ASTM):
   1. D 1557-07 - Standard Test Methods for Laboratory Compaction Characteristics of Soil
      Using Modified Effort

C. California Occupational Safety and Health Standards (OSHA):
   1. Article 6 - Excavations and Shoring.


E. Geotechnical Investigation Reports prepared by Parikh Consultants, Inc. in November 2005 and Lai
   & Associates on May 9, 2016.

1.03  SUBMITTALS

A. Conform to requirements of Section 01300 Submittals and/or applicable Division One and Division
   Two specifications, General Conditions and Special Provisions.

B. Project Record Drawings:
   1. Conform to Section 01720 and/or applicable Division One and Division Two
specifications, General Conditions and Special Provisions.

2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts, and slope gradients.

C. Import Topsoil

1. It is the contractor’s responsibility to determine if import topsoil is required on the project.

2. As applicable, contractor shall submit four (4) samples (1 quart-sized “zip-lock” plastic bag min. each) of proposed import topsoil(s) with their current accompanying fertility and structure analyses, prepared by a recognized soil and plant laboratory, for review and acceptance by the Owner’s representative prior to use.

1.04 QUALITY ASSURANCE

A. Geotechnical Investigation:

1. A geotechnical investigation report has been prepared for use on the three park projects. The recommendations contained therein shall be followed and considered a part of the Contract Documents.

2. The Owner may designate and pay for the services of a Geotechnical Engineer to make recommendations based on the soil conditions encountered the results of field and laboratory tests, and observations of the activities performed under this Section.

3. Compaction densities specified for structural fills under footings, slabs, or pavements shall be determined in accordance the geotechnical engineer’s written recommendations.

B. Certification:

1. The contractor shall certify source and type of backfill and topsoil proposed to be incorporated into the work, at the request of the Owner’s Representative.

2. The contractor shall certify elevations of excavations, footings, subgrades and finish grades with the use of a Licensed Surveyor, at contractor’s expense, at the request of the Owner’s Representative.

C. Control of Work: Conform to Section 5 of the Standard Specifications.

D. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.05 PROTECTION

A. Protect all existing structures, fences, roads, sidewalks, paving, curbs, and other items as necessary from earthwork activity.

B. Protect above or below grade utilities which are to remain.

C. Protect trees to remain in accordance with Section 02050 - Tree Protection (as applicable).

D. Repair damage to any existing site features which are to remain. Repair and restoration shall be equal to quality and appearance of prior condition and to the satisfaction of the Owner’s representative.

1.06 PROJECT / SITE CONDITIONS

A. Underground Utilities: Unknown buried utility lines may exist. If encountered, notify Owner’s representative immediately for direction and re-direct work to avoid delay.

1. Cooperate and coordinate with Owner’s representative and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
2. Do not interrupt existing utilities serving occupied facilities without proper notification to, and written direction from, Owner’s representative.

B. Wet Conditions: No grading operations shall be conducted when excessively wet conditions exist as determined by the Owner’s representative.

C. Contractor shall provide de-watering equipment as required to continue scheduled operations and provide optimum working conditions at no additional cost to Owner.

D. Dry Conditions: Contractor shall apply sufficient water to materials during construction to properly compact materials and control dust. Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to subgrades as necessary to achieve compaction goals.

1.07 GRADE STAKES AND LINES

A. All grading and subgrading shall be controlled by contractor-installed intermediate grade stakes and lines necessary to obtain the finished grade elevations shown or implied in the Drawings. Subgrade and finish grade surfaces shall conform to the control planes established by these grade stakes and lines.

B. Protect and maintain all existing bench marks, monuments and other reference points. If disturbed or destroyed, they shall be replaced at the Contractor’s expense.

C. Contractor shall set temporary bench marks as necessary to properly complete construction operations.

1.08 SURVEYING

A. Contractor shall be responsible for hiring a licensed professional surveyor to perform all surveying, layout and staking. Contractor shall be responsible for informing Owner’s representative (minimum two (2) working days notice) when staking and layout is scheduled so that a review of completed chalk lines and staking can take place.

1.09 TOLERANCES

A. Refer to related specification sections for grading tolerances of specified improvements.

PART 2 PRODUCTS

2.01 MATERIALS

A. Select material for structural backfill shall be in accordance with applicable portions of Section 19 - Earthwork, of the Standard Specifications, unless modified by this section or by recommendations and requirements of the Project Geotechnical Report.

B. Topsoil: Excavated material from top 6 inches (maximum) of existing grade (unpaved areas) and/or acceptable import material graded free of roots and rocks larger than two inches, subsoil, debris, weeds, large mats of grass, and other deleterious material.

C. Subsoil: Excavated material below top 6 inches of existing grade, graded free of clay clods larger than 6 inches, rocks larger than 3 inches, and debris.
PART 3  EXECUTION

3.01  PREPARATION

A. Identify all required lines, levels, contours, datum, control points and property lines required to properly establish limits of work.

B. Verify elevations of critical existing grades as noted on Drawings and as directed by Owner’s representative. Notify Owner’s representative of discrepancies prior to start of work and re-direct work to avoid delay.

C. Identify all known below grade utilities. Stake and flag locations.

D. Identify and flag surface grades and utilities.

E. Contact Underground Service Alert (USA) (800-642-2444) and local utility companies to verify locations of existing utilities a minimum of two (2) working days prior to excavation.

3.02  PROTECTION

A. Maintain and protect existing utilities remaining which pass through work area.

B. Perform excavation work near utilities by hand. Provide necessary protection as the work progresses.

C. Provide and maintain protection for walks, curbs, drains, trees, corners of structures, etc., as necessary to prevent damage.

D. Barricade and/or cover open excavations occurring as part of this work and post with warning lights to the satisfaction of the Owner’s representative. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

E. Keep adjacent properties, streets and drives clean of any dirt, dust, or stains caused by earthwork operations.

F. Upon discovery of unknown utility or concealed conditions, notify the Owner’s representative immediately and re-direct work to avoid delay.

G. Control dust on and near the work, and on and near off-site borrow areas.
   1. Thoroughly moisten surfaces as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of any other activities that may occur on the site.
   2. Non-compliance with proper dust control measures shall be grounds for issuance of "stop work" orders by the Owner’s representative until such time as satisfactory measures can be implemented.

3.03  TOPSOIL EXCAVATION

A. Excavate topsoil from all areas scheduled for paving or rough grading and stockpile material in neat wind-row(s) in location(s) that have been previously established which will cause least interference to construction operations, and which is/are acceptable to the Owner’s representative.

B. Do not excavate topsoil that has become wetted to, or beyond, the saturation point that would be required for optimum compaction.
C. Stockpile topsoil in wind-row(s) of a height not to exceed 8 feet, protect from erosion, and cover as necessary to prevent formation of dust.

D. Topsoil excavation shall occur for the entire area or per field. No topsoil excavation shall occur for partial field areas without approval.

E. Topsoil staging areas shall be clearly defined and protected from other grading and utility operations.

3.04 ROUGH GRADING

A. Grade site subsoil to establish proper subgrade elevations and site contouring as described or implied in the Drawings:

B. Contouring:
   1. Construct landforms depicted in the Drawings to the satisfaction of the Owner’s representative.
   2. ”Round-off” all tops of slopes.
   3. “Feather” all toes of slopes.

C. Compaction: Compact subgrade for the specific areas as follows unless otherwise noted:
   1. **Areas to be planted:** Maximum eight inch (8”) loose lifts to be between 85% and 88% relative compaction.
   2. **Areas to be paved:** Shall be as follows:
      a. Maximum eight inch (8”) loose lifts to at least 90% relative density.
      b. Additional lifts should not be placed if the previous lift did not meet the required density, relative compaction, moisture content or if the soil conditions are not stable.
      c. All fill soils shall be compacted to no less than 90% relative compaction at moisture content of 2 to 4 percent for pavement area.
      d. Compacted subgrade should be non-yielding under construction traffic, including a loaded ten-wheel truck such as a water or dump truck, in all pavement areas. Removal and subsequent replacement of some material (i.e. areas of excessively wet materials, unstable subgrade, or pumping soils) may be required to obtain the minimum 95 percent compaction to the recommended depth of 12 inches.
      e. Subgrade preparation for pavement areas shall extend laterally for at least two feet beyond the edge of pavement.
   3. **Areas to receive synthetic turf and resilient play surfacing:** Shall be as follows:
      a. Compacted subgrade should be non-yielding under construction traffic, including a loaded ten-wheel truck such as a water or dump truck, in all pavement areas and synthetic turf subgrade areas. Removal and subsequent replacement of some material (i.e. areas of excessively wet materials, unstable subgrade, or pumping soils) may be required to obtain the minimum 95 percent compaction to the recommended depth.

D. **Additional Information**
   a. For Depot Park, refer to the Geotechnical Report, by Parikh Consultants, Inc., prepared on November 2005, for additional information.
   b. For Llagas Creek Park and Hilltop Park, refer to the Geotechnical Report, by Lai & Associates, prepared on May 9, 2016, for additional information.

D. Remove all excess subsoil material from site and dispose of in a legal manner. Refer to “Material Storage” below.

E. Entire project or individual field area shall be rough graded at one time. No earthwork operation shall occur for partial field areas without receiving direction from the Owner or prior written approval from the Owner.
3.05 EXCAVATION

A. Remove and dispose of all miscellaneous materials encountered when establishing required grade elevations:
   1. Miscellaneous materials can include but are not limited to: pavements and other obstructions, underground structures, utilities, abandoned irrigation materials, and other materials encountered per the discretion of the Owner’s representative.

B. Stability of Excavations:
   1. Comply with any applicable recommendations contained within the Project Geotechnical Report and requirements of agencies having jurisdiction.
   2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

C. De-watering: Provide and maintain, at all times during construction, ample means and devices with which to promptly remove and properly dispose of water from any source entering structural excavation, pipe trenches, or other excavations. All costs incurred from de-watering activities shall be paid for by the contractor.

D. Excavation for Structures:
   1. Conform to elevations and dimensions shown in the drawings within a tolerance of plus-or-minus one tenth (0.10') of a foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete form-work, installation of services, and quality review.

E. Excavation for Pavements:
   1. Cut surface under pavements to comply with cross-sections, elevations, and grades as shown in the Drawings.

F. Material Storage: Stockpile satisfactory excavated materials where appropriate, until required for use.
   Stockpile topsoil and subgrade soil in separate piles.
   Place, grade and shape stockpiles for proper drainage.
   1. Locate and retain stockpiles away from edge of excavations.
   2. Dispose of excess soil material in a legal fashion after it has become evident that the material is no longer needed on the project and is of no value to the Owner.

3.06 TOPSOIL PLACEMENT

A. Thoroughly cross-rip all subgrade soil to a depth of twelve (12) inches prior to placing the specified thickness of topsoil back into all applicable planting areas. Secure review and acceptance of ripping depth prior to placement of topsoil. Refer to Section 02900 – Landscaping for this process.

B. Topsoil placement requirements for planting areas shall be as follows:
   1. All planting areas: Shall contain or receive a minimum of six (6) inches of clean, acceptable topsoil.
   2. Topsoil shall not be placed until all earthwork and utility operations are complete.
   3. Topsoil shall be installed at one time for entire project or entire field area. No partial placements shall occur.

C. Compact topsoil to 84% to 89% relative density.
D. Maintain all slopes and gradients established during subgrade operations and shape landforms to satisfaction of the Owner’s representative.

E. Refer to Section 02900 - Landscaping for finish grading information and finish grades at edge of planting areas and hardscape.

3.07 TOLERANCES

A. Shall conform to Conform to Section 26 of the Standard Specifications, unless more stringent requirements in these Contract Documents are provided, in which place the more stringent tolerances shall govern. Refer to specification section 01070 for additional project requirements.

3.08 FIELD QUALITY CONTROL

A. The Owner Representative shall review and accept work at the following stages:
1. Topsoil removal and stockpile.
2. Grading plan for project. Plan shall provide strategy for grading sequence for entire site at one time or by field. Limits and sequence shall be reviewed and coordinated.
3. Cross ripping of subgrade shall be reviewed and observed.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to complete all excavation, trenching, backfilling, compaction, and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of all trenching, backfilling, and compaction is shown on the Drawings and may include, but is not necessarily limited to, the following:
1. Sanitary Sewer Line Installation
2. Storm Drainage System Installation
3. Potable Water Line Installation
4. Irrigation System Installation
5. Electrical Conduit Installation
6. Paving Installation
7. Rubber Resilient Surfacing Installation
8. Synthetic Turf Installation

C. Related sections can include, but may not be limited to:
1. Section 01050 - Field Engineering
2. Section 01720 - Project Record Drawings
3. Section 02050 - Tree Protection
4. Section 02200 - Earthwork
5. Section 02510 - Asphalt Concrete Paving
6. Section 02520 - Portland Cement Concrete
7. Section 02700 - Storm Drainage
8. Section 02713 - Domestic Water Systems
9. Section 02722 - Sanitary Sewerage
10. Section 02810 - Irrigation
11. Section 02900 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS


1.03 SUBMITTALS

A. Project Record Drawings:
1. Conform to requirements of Section 01720 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.
2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts and slope gradients as practical.
1.04 QUALITY ASSURANCE

A. Control of Work: Comply with Section 5 of the Standard Specifications.

B. Control of Materials: Comply with Section 6 of the Standard Specifications.

C. Trench Safety: Comply with applicable portions of Sections 5 and 7 of the Standard Specifications and requirements of other agencies having jurisdiction (OSHA etc.).

1.05 PROJECT/SITE CONDITIONS

A. Wet Conditions: No trenching shall occur when excessively wet conditions exist in the opinion of the Owner’s Representative.

B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to work as necessary to achieve compaction goals.

1.06 SEQUENCING AND SCHEDULING

A. Refer to all other Contract Documents, determine the extent and character of related work, and properly coordinate work specified herein with that described elsewhere to produce a complete, operational installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide materials as described below free of debris, roots, wood, scrap material, vegetative matter, refuse, soft unsound particles, or other deleterious and objectionable materials.

B. Select Backfill: Select backfill material shall be sand conforming to Section 19-3.02E (2) of the Standard Specifications.

C. Native Backfill: Native backfill shall be acceptable soil material excavated from the project site. This material will be considered unclassified and no testing other than for compaction will be required. Additional material required for backfill shall be acceptable to the Owner’s Representative.

D. Permeable Material: Permeable material shall be Caltrans Class II permeable rock material.

E. Aggregate Base: Refer to Section 02230 – Base Courses.

PART 3 EXECUTION

3.01 PREPARATION

A. General:
   1. Prior to trenching, the contractor shall pothole existing utilities at locations indicated or implied on the plans, where new piping or utilities will cross existing utilities of uncertain depth to determine the elevation of the utility in question and ensure that the new line will clear the potential obstruction.
   2. The Contractor shall mark out all construction areas in white, non-permanent paint and contact Underground Service Alert (U.S.A.) (800-642-2444) to locate all known utilities a minimum 48 working hours prior to any excavation.
   3. Should an existing crossing utility present an obstruction, the proposed line shall be adjusted as acceptable to the Owner’s Representative to clear the existing utility.
TRENCH EXCAVATION

A. General:
   1. Excavation shall include removal of all water and materials that interfere with construction. Remove any water which may be encountered in the trench by pumping or other methods prior to pipe laying, bedding and backfill operations. Trenches shall be sufficiently dry to permit proper jointing and compaction.
   2. It shall be the contractor’s responsibility to direct vehicular and pedestrian traffic safely through or around the work area at all times.
   3. The contractor shall relocate, replace, reconstruct or repair, to an “as-was” or better condition, all surface or subsurface improvements which are in the line of construction or which may be damaged, removed, disrupted or otherwise disturbed by the construction activities. Except as specified in other Sections or shown in the Drawings, this provision applies to all surface improvements of whatever nature such as walls, fences, above-grade utilities, landscaping, paving, structures, or other physical features whether shown in the Drawings or not and to all subsurface improvements such as utilities which may be indicated in the Drawings or marked in the field. The contractor shall connect such utilities to existing systems and leave all in a workable and operating condition. The cost of this work shall be considered as included in other items of work and no additional compensation will be allowed.
   4. The maximum allowable trench width at the top of pipe shall be 18 inches greater than the pipe diameter.
   5. New utility trenches extending deeper than 2 feet below finish grade should be located a minimum of five feet away from foundations.

B. Existing Paving Areas:
   1. Existing asphalt concrete paving over new trenches shall be sawcut, removed, and legally disposed. Existing asphalt concrete paving shall be neatly sawcut one foot (1') greater on each side than the trench width. If a longitudinal pavement joint or edge of pavement is located within three feet of the limit of excavation, all intervening pavement shall be removed and replaced after completion of backfilling. If concrete curb and/or gutter are to be replaced, the adjacent existing asphalt concrete paving shall be sawcut two feet (2') from the edge of concrete curb and/or gutter.
   2. Existing Portland cement concrete paving over new trenches shall be sawcut to a minimum depth of 1-1/2 inches in straight lines either parallel to the curb or at 90 degree angles to the alignment of the sidewalk prior to being broken out. No section to be replaced shall be smaller than 30 inches in either length or width. If the sawcut would fall within 30 inches of a construction joint, expansion joint, or edge, or within 12 inches of a score mark, the concrete shall be removed to the joint, edge, or mark.

C. Walkway Areas:
   Backfill for trenches or other excavations within walkway areas should be compacted in six inch (6") maximum layers, unless otherwise noted, with hand-held tampers to assure adequate subgrade support.

D. Compacted Fill Areas:
   Where trenches must be excavated in compacted fill, these trenches shall be backfilled with the fill materials excavated and re-compacted in the layers and to the density specified for the particular area.

E. Open Trench:
   1. No trench shall be left in an open un-protected condition at the end of the day. At the end of the day any open trench shall be protected in a manner acceptable to the Owner’s Representative.
   2. Provisions for trench crossings and access shall be made at all street crossings, driveways, water gate valves, and fire hydrants unless otherwise acceptable to the Owner’s Representative.
F. Excavated Material:
   1. All excavated material not required for backfill or of value to the Owner shall be removed and legally disposed of by the contractor at no additional cost.
   2. Material excavated in streets and roadways shall be laid alongside the trench no closer than two feet from the trench edge and kept trimmed to minimize inconvenience to public traffic.
   3. Provisions shall be made whereby all storm and waste water can flow uninterrupted in gutters or drainage channels to drainage structures.
   4. Excavated material shall not be stored on existing landscaping or paving without provisions being made to protect the surface below from being stained or otherwise adversely affected.

G. Shoring
   1. Should excavations extend more than 4 feet below existing ground surface, shoring will be required.
   2. Excavations can be sloped back to an inclination of 1.5 horizontal to 1 vertical as an option for shoring in these conditions.
   3. Utility trenches shall be excavated according to accepted engineering practices following OSHA.

3.03 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 Owner’s Representative shall determine the suitability of the trench bottom and the amount of sand, gravel, or crushed rock needed to stabilize the soft foundation.

3.04 TRENCH BACKFILL AND COMPACTION

A. General:
   1. Construct backfill in two operations (initial and final).
   2. Do not backfill where the foundation material in trench is already saturated, except as acceptable to the Owner’s Representative. Provide a minimum cover as may be specified.
   3. Where settling greater than the tolerance allowed for grading occurs in trenches and pits due to un-stable subgrade material, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation.
   4. For utilities under roads, streets, concrete slabs or other areas to be paved, rubber resilient play surfacing and synthetic turf subgrade areas, place final backfill in 6-inch maximum loose lifts. Compact all backfill surrounding ducts, conduits, pipes and other structures, including the top 12-inches of subgrade to 95 percent of ASTM D1557 maximum density. Backfill to permit the rolling and compacting of the completed excavation with the adjoining material providing the specified density necessary to enable rock placement of paving of the area immediately after backfilling has been completed.

B. Initial Backfill:
   1. Prior to trench backfill, the condition of the trench and laying of pipe shall be acceptable to the Owner’s Representative.
   2. Select backfill material shall be used as initial backfill for all utilities except irrigation piping, unless otherwise noted. After the pipe has been properly laid and accepted by the Owner’s Representative, select backfill material shall be placed on both sides of the pipe and compacted to the depth shown in the Drawings.
   3. Compaction: The initial backfill material shall be hand tamped in layers not exceeding four inches (4") in un-compacted depth and shall be brought up uniformly on both sides of the pipe to avoid bending or distortional stress. After hand tamping, the relative compaction of the initial backfill material shall be at least 95% relative compaction.
C. Final Backfill:
1. Native backfill material shall be used for final backfill, unless otherwise noted.

2. Compaction: Final backfill compaction shall be by mechanical means with backfill material placed in layers not exceeding six inches (6") 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. Final backfill shall be compacted to a relative compaction of 95% for paving areas, rubber resilient play surfaces and synthetic turf subgrade areas. In planting areas, provide acceptable topsoil to required depth compacted to 85% to 89% maximum relative compaction.

D. Jetting: No jetting shall be allowed.

3.05 TRENCH SURFACING

A. General:
1. In unimproved areas, the trench surface shall be restored to its original condition. No mounds of earth shall be left along the trench.

2. All backfill shall be flush with adjoining grade in a firm, unyielding position with no visible settling for a period of one year after Final Acceptance.

B. Paved Areas:
1. Temporary surfacing acceptable to the Owner’s Representative shall be laid within one day after backfilling (except where the contractor elects to place permanent surfacing within this time period) until permanent paving is installed.

END OF SECTION
PART 1  GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all base course preparation, installation and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the base course work is shown on the Drawings and may include, but is not necessarily limited to, the following:
1. Grading and compaction of subgrade soil for areas to receive pavement, structures, base material, etc.
2. Furnishing and placing of aggregate base material.

C. Related sections can include, but may not be limited to:
1. Section 01050 - Field Engineering
2. Section 02200 - Earthwork
3. Section 02510 - Asphalt Concrete Paving
4. Section 02520 - Portland Cement Concrete

1.02 REFERENCES AND REGULATORY REQUIREMENTS


1.03 SUBMITTALS

A. Conform to the requirements of Section 01300 and/or applicable Division One and Division Two Specifications, General Conditions and Special Provisions.

B. Submit material certificates of compliance and/or sieve analyses for all products and materials proposed to be used in work covered by this Section.

1.04 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of the Standard Specifications.

B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.05 PROJECT/SITE CONDITIONS

A. Wet Conditions: No subgrade preparation or base material placement shall occur when excessively wet conditions exist in the opinion of the Owner's Representative.

B. Dry Conditions: Contractor shall provide dust control in conformance with Section 10 of Standard Specifications and shall provide water to subgrades and base courses as necessary to achieve compaction goals.
1.06 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be stockpiled on site in locations that, in the opinion of the contractor, cause least interference with construction operations and as acceptable to the Owner's Representative.

B. Materials shall not be stockpiled in proposed planting areas.

C. Protect materials from segregation, contamination and wind and water erosion.

1.07 SEQUENCING AND SCHEDULING

A. Work of this section shall not proceed until all underground utilities and irrigation sleeving has been installed and accepted.

B. Contractor shall schedule work so that installation of paving/surfacing occurs no later than five (5) working days after placement and proper compaction of base materials. Base materials left unpaved longer than this time period shall be subject to testing and re-compaction at the contractor's expense.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate Base:
Aggregate base shall be Class 2, 3/4" maximum material conforming to Section 26-1.02A of the Standard Specifications. No recycled materials will be accepted for rubber resilient surfacing, synthetic turf, or restroom building pad areas. All other paving and surfacing using aggregate base can use recycled materials.

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION

A. Preparation of subgrade shall conform to Section 6 of the Standard Specifications and as described in Section 02200.

B. Remove unsuitable subgrade material as necessary and replace with suitable material or aggregate base per the discretion of the Owner's Representative.

C. Refer to the Geotechnical report for additional information.

3.02 BASE MATERIAL PLACEMENT

A. Conform to Section 26 of the Standard Specifications.

B. Obtain acceptance of subgrade preparation work prior to placing base material thereon.

C. Place and compact base material in six inch (6") maximum lifts unless otherwise noted. Compaction shall be at least 95 percent relative compaction.

D. Base material shall be moisture conditioned to between optimum and 3 percent above optimum prior to placement and compaction.

E. Refer to the Geotechnical report for additional information.
3.03 TOLERANCES

A. Conform to Section 26 of the Standard Specifications, unless more stringent requirements in these Contract Documents are provided, in which place the more stringent tolerances shall govern.

3.04 CLEAN-UP OF WORK AREA

A. The contractor shall remove and legally dispose of excess materials/spoils and debris from the job site on a daily basis.

3.05 PROTECTION OF FINISHED PRODUCT

A. The contractor shall provide lighted barricades, signs and other devices as necessary to prevent damage to finished base courses.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to complete all asphalt paving, and related work as shown on the Drawings and/or specified herein.

B. Scope of Work: The general extent of the asphalt paving is shown on the Drawings and may include, but is not necessarily limited to, the following:
   1. Asphalt Concrete installation
   2. Concrete edgeband installation

C. Related sections can include, but may not be limited to the following:
   1. Section 01300 - Submittals
   2. Section 02200 - Earthwork
   3. Section 02230 - Base Courses
   4. Section 02520 - Portland Cement Concrete
   5. Section 02700 - Storm Drainage
   6. Section 02870 - Site Furnishings

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition

1.03 PROTECTION OF WORK

A. Curbs and other work shall be covered with suitable material and protected from staining or injury by equipment and contact with oil, emulsion, and asphalt. All manholes, catch basins, and other gratings shall be covered with suitable material so that no asphalt or emulsion will come in contact with the inside walls or floors of the structures. Any damage to such work shall be repaired and/or replaced at the contractor’s expense.

1.04 SUBMITTALS

A. Conform to requirements of Section 01300 Submittals and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Submit cut-sheets, mill certificates, certificates of compliance etc. for all products proposed for use on the project.

1.05 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of Standard Specifications.

B. Control of Materials: Conform to Section 6 of Standard Specifications.

1.06 SEQUENCING AND SCHEDULING

A. Time delay between placement and compaction of base material and installation of asphaltic
concrete shall not be more than 5 calendar days. Base material left unpaved longer than this time period shall be subject to testing and re-compaction at the expense of the contractor.

1.07 GENERAL REQUIREMENTS

A. Asphalt paving surfaces shall have positive drainage as indicated on the Drawings. Upon completion of the work, paved areas included in this section shall be subject to a water drainage test. Areas that fail to drain properly, as determined by the Owner’s Representative, shall be corrected and repaired at no additional cost. If repaired, the entire surface shall have a seal coat applied at contractor’s cost. Type of seal coat will be determined by the Owner’s Representative.

B. Asphalt concrete paving shall be free from excessive segregation (gaps between aggregate visible at 3/16” or larger), cracking, potholes, raveling, slippage, depressions, corrugations, or other defects at the date of completion and acceptance of the project.

C. All repairs shall be made within fifteen calendar days of notification at the expense of the contractor.

PART 2 PRODUCTS

2.01 ASPHALT CONCRETE PAVING

A. Paving Asphalt Binder: Shall be PG 64-10, conforming to Section 92 of the Standard Specifications.

B. Prime Coat: Liquid asphalt to conform to the requirements for SC-70 liquid asphalt as per Section 93 of the Standard Specifications.

C. Tack Coat: Asphaltic emulsion to be penetration type conforming to the RS-1 (or SS-1, if seal coat is specified) requirements of Section 94 of the Standard Specifications.

D. Aggregates (all aggregates in asphalt mix to be virgin material):
   1. Traffic Areas: Aggregate for all surfaces shall be 1/2 inch medium per Section 39 of the Standard Specifications, unless otherwise specified or noted. Traffic area aggregate shall be used in parking and street areas.
   2. Pedestrian Areas: Aggregate for shall be 3/8 inch maximum or No. 4 maximum aggregate per Section 39 of the Standard Specifications, unless otherwise specified or noted. Pedestrian area aggregate shall be used in all other asphalt areas.
   3. Multiple Lift Sections: Refer to details for two lift sections with varying aggregate sizes.

2.02 AGGREGATE BASE

A. Aggregate base shall conform to Section 02230 Base Courses.

PART 3 EXECUTION

3.01 EDGEBAND / WOOD HEADER INSTALLATION

A. Install as to conform with shapes, lines, dimensions and grades shown on Drawings.

B. All radii shall be smooth and constant with properly aligned tangent points.

3.02 INSTALLATION

A. Conform to Sections 37 and 39 of Standard Specifications.
B. Prime Coat: Apply specified material to compacted base at a rate of 0.25 gallons per square yard.

C. Tack Coat: Apply specified material to all vertical surfaces of existing pavement, curbs, and header boards.

D. Asphaltic Concrete:
   1. Place and compact in accordance with Section 39 of the Standard Specifications.
   2. Base lifts shall not exceed 2 inches.
   3. Surface lift shall not exceed 2 inches.

E. Asphalt concrete shall be compacted to a minimum of 96 percent of the maximum laboratory compacted (Hveem) unit weight.

3.03 OVERLAY LIFTS

A. General:
   1. Except for grinding of roadbed, before starting daily pavement activities sweep the area constructed the previous day to remove loose material.
   2. Do not use a heating device to soften the pavement.

B. Surface Preparation:
   1. Before pavement overlaying activities start, prepare the existing roadway surface by:
      a. Clearing foreign matter including vegetation.
      b. Removing standing water.
      c. Fill joints, cracks, and spills wider than 3/4 inch and deeper than 1 inch by applying tack coat and placing minor HMA under section 39, except use the no. 4 gradation instead of 3/8-inch.
      d. Remove all loose debris and sweep the pavement.
      e. If cracks in the existing parking area pavement surface are from 1/4 to 1 inch wide, treat the cracks under Caltrans section 37-5. Do not place the pavement overlay lift until the Engineer determines that the crack treatment is cured.
      f. After any crack treatment and before placing pavement overlay lift, clean the pavement surface, including removal of oil and grease spots. Do not use solvents.
      g. If cleaning the pavement surface with detergents, thoroughly rinse with water. Allow standing water to dry before placing pavement overlay lift.
      h. Contractor must seal oil and grease spots that remain after cleaning. Use an oil seal primer and follow the manufacturer’s instructions.

3.04 EQUIPMENT

A. Spreading and rolling equipment shall be in accordance with Section 39-3.03 of the Standard Specifications.

B. Spreading and compaction shall be in accordance with Section 39-3.04 of the Standard Specifications.

END OF SECTION
PART 1  GENERAL

1.01  SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all striping and related work shown on the Drawings and/or specified herein.

B. Scope of Work: The general extent of the striping work is shown on the Drawings and can include, but is not necessarily limited to the following:

1. Curb painting
2. Accessibility striping
3. Street striping

C. Related sections can include, but may not be limited to the following:

1. Section 02510 - Asphalt Concrete Paving
2. Section 02520 - Portland Cement Concrete

1.02  REFERENCES AND REGULATORY REQUIREMENTS


1.03  SUBMITTALS

A. Conform to requirements of Section 01300 Submittals and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

1.04  PROJECT/SITE CONDITIONS

A. Work shall not be performed during wet, or other adverse conditions as determined by the Owner’s Representative and/or paint manufacturer’s instructions.

PART 2  PRODUCTS

2.01  MATERIALS

A. Unless otherwise specified, all striping shall be two coats of solvent borne, rapid dry paint (of the colors indicated in the Drawings) in conformance with Section 84 of the Standard Specifications.

B. Colors shall be as follows:

1. Parking stalls - white
2. Accessible parking – blue.
3. No parking and emergency access – red.

PART 3  EXECUTION

3.01  PREPARATION

A. Contractor shall make provisions and take all necessary precautions to protect existing improvements and surrounding property from overspray or damage due to pavement marking work.
B. Contractor shall layout all striping (with chalk-lines or other acceptable method) prior to start of work for review and acceptance by the Owner’s Representative. Adjust layout as directed by the Owner’s Representative.

3.02 APPLICATION

A. No striping shall be installed until the pavement surface has fully cured and/or has been properly stripped, cleaned and prepped per the paint manufacturers' instructions.

B. Paint shall be applied at rates approximately as follows:
   1. First Coat: 360 square feet per gallon of paint
   2. Second Coat: 150 square feet per gallon of paint

C. Lines shall be 4" wide, or as per City standards.

D. Curb painting:
   1. ADA spaces shall be painted blue.
   2. No parking areas shall be painted red.

E. ADA spaces to have white lettering stating “NO PARKING”.

3.03 PROTECTION

A. The contractor shall provide appropriate barriers, warning signs, and/or other acceptable arrangements to protect all painted surfaces until project Final Acceptance.

END OF SECTION
SECTION 02520
PORTLAND CEMENT CONCRETE

PART 1  GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to complete all concrete and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the concrete work is shown on the Drawings and may include, but is not necessarily limited to the following:
1. Vertical Curbs and Seatwalls
2. Curbs and Gutters
3. Edge bands
4. Accessible Ramps
5. Driveway Aprons
6. Flatwork, Slabs and Walkways
7. Expansion, Deep Score and Score Joints
8. Misc. Footings
9. Reinforcement and/or Doweling

C. Related sections can include, but may not be limited to:
1. Section 01300 - Submittals
2. Section 02200 - Earthwork
3. Section 02230 - Base Courses
4. Section 02700 - Storm Drainage
5. Section 02810 - Irrigation
6. Section 02870 - Site Furnishings
7. Section 02900 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition

B. California Building Code 2010

1.03 SUBMITTALS

A. Conform to Section 01300 and applicable Division One and/or Division Two specifications, General Conditions and Special Provisions.

B. Submit cut-sheets, mill certificates, certificates of compliance etc. for all products proposed for use on the project.

1.04 QUALITY ASSURANCE

A. Concrete
   1. Conform to Section 01400 Quality Control (as applicable).
2. All formwork, joint patterns, base material, reinforcement and other miscellaneous items such as “dobies” and ties shall be reviewed and accepted by the Owner’s Representative prior to pouring concrete. Contractor shall have any and all such items in place and shall give a minimum of two (2) working day lead-time notice to Owner’s Representative when scheduling the review request. Contractor shall also schedule and allow a minimum of two (2) working days after review for possible modifications to concrete preparation work, at no cost or delay to the project.

3. The Owner’s Representative shall at all times have access to any off-site batch plant or quarry supplying materials for subject project and trucks en route to the project site. The Owner’s Representative may at any time request slump tests and secure samples of concrete, cement, aggregates or other materials. All applicable materials shall be provided by the contractor at no additional cost to the Owner.

4. Any specified review or observation by the Owner’s Representative of the concrete work shall be requested by the contractor at least two (2) working days prior to the need for the review or observation.

5. Finishes and colorants other than the concrete darkening agent (see Part 2 Products) are called out in the Drawings. A four foot by four foot (4’ x 4’) sample of all concrete colorants (including concrete darkening agent) and finishes shall be poured by the contractor in the field for review and acceptance by the Owner’s Representative. Sample shall include all joints, finishes and tooled conditions for approval. Contractor shall schedule review well in advance of concrete operations to allow for color and/or finish modifications if necessary.

6. Codes and Standards: Comply with the provisions of the following codes, specifications and standards, except where more stringent requirements are shown or specified:
   a. California Building Code 2010, Title 24, Part 2, Chapter 19A - Concrete
   b. ACI 301 Specifications for Structural Concrete for Buildings
   c. ACI 318 Building Code Requirements for Reinforced Concrete
   d. ACI 614 Recommended Practice for Measuring, Mixing, and Placing Concrete
   e. Concrete Reinforcing Steel Institute, Manual of Standard Practice

7. Concrete Testing Service: The Owner may retain and engage a testing laboratory to perform material evaluation tests.

1.05 DELIVERY AND STORAGE

A. Deliver concrete reinforcement to job site properly tagged and ready to set. Store above ground surface on platforms, skids, or other supports. Coordinate delivery and storage of all other materials as appropriate.

PART 2 PRODUCTS

2.01 CONCRETE MATERIALS

A. Concrete shall be Portland Cement Concrete conforming to Section 90 of the Standard Specifications. Unless otherwise specified, all concrete shall be Class B at a minimum.

B. Cement shall be Type II cement conforming to ASTM Designation C150 as modified by Section 90 of the Standard Specifications.

C. Mortar shall conform to Section 51 of the Standard Specifications. Mortar, when used for patching, shall match the color of the work to be patched.

D. Water used for mixing shall be potable.
E. Minimum mix requirements: It shall be the contractor’s responsibility to design the concrete mixes to provide the minimum requirements listed below. Increase cements content over that listed if necessary to obtain the specified compressive strength. Minimum ultimate compression strength of concrete at 28 days is as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Strength</th>
<th>Max. slump</th>
<th>Size of aggregate</th>
<th>Cement (# of 94 lb. sacks per yard)</th>
<th>W/C Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slab-On-Grade</td>
<td>3,000</td>
<td>4&quot;</td>
<td>3/4&quot;-1&quot;</td>
<td>5</td>
<td>.60</td>
</tr>
<tr>
<td>Walls/Footings</td>
<td>3,000</td>
<td>4&quot;</td>
<td>3/4&quot;-1&quot;</td>
<td>5</td>
<td>.60</td>
</tr>
<tr>
<td>Thrust Blocks</td>
<td>2,500</td>
<td>4&quot;</td>
<td>3/4&quot;-1'</td>
<td>4.5</td>
<td>.45</td>
</tr>
</tbody>
</table>

2.02 OTHER MATERIALS

A. Formwork materials shall be surfaced lumber, plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide from material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection, and as follows:

1. All form panels shall be placed in a neat, symmetrical pattern, subject to the acceptance of the Owner’s Representative.
2. Form clamps or bolts shall be used to fasten forms. The use of ties consisting of twisted wire loops to hold forms in position during the placing of concrete shall not be permitted unless noted otherwise.
3. All exposed sharp edges shall be bullnosed to prevent mortar runs and to preserve smooth, straight lines, unless otherwise acceptable to the Owner’s Representative or noted in the Drawings.
4. Before concrete is placed in forms, all inside surfaces of forms which will later be removed shall be thoroughly coated with commercial quality form oil, which will permit the ready release of the forms and will not discolor the concrete.
5. Where form panels are attached directly to the studding or joists, the panels shall be not less than five-eighths of an inch (5/8") thick, and the studding, or joists, shall be spaced not more than twelve inches (12") center to center.
   a. Form panels less than five-eighths of an inch (5/8") thick, otherwise conforming to the requirements specified, may be used with a continuous backing of surfaced material three-fourths of an inch (3/4") thick.
   b. Form panels more than five-eighths of an inch (5/8") thick attached to studding or joists spaced at more than twelve inches (12") center to center may be used, provided that the deflection of the panel between studding or joists does not exceed that of a five-eighths inch (5/8") thick panel attached to studding or joists spaced at eighteen inches (18") center to center.
6. Curved surfaces shall be formed with timber, plywood, masonite, or sheet metal as appropriate. Sheet metal shall have masonite or plywood backing. Plywood for forming shall be ACX or better grade.

B. Expansion Joints:

1. Joint primer: Sonneborn horizontal paving joint primer No. 733, or No. 766, one component solvent based primer or acceptable equal.
2. Expansion joint: One-half inch (1/2") asphalt impregnated fiber strips in compliance with ASTM D1751 or acceptable equal. Expansion joint material shall be variety with “zip-
strip” H-channel joint sealant receptacles. If proposed joint material is not installed with sealant receptacles then, the expansion joint material shall be completely covered with a Sonneborn “Sonofoam” closed cell backer rod or acceptable or equal prior to application of joint sealant. Provide three eighth inch (3/8”) tooled edges each side of joint material. Refer to Drawings for additional information.


Sonneborn products are available through the Cade Co. San Jose, CA (408) 292-3435.

C. Score Joints:
   1. Score joints: Shall be three eighth inch (3/8”) radius tooled joints to a one inch (1”) depth.

D. Reinforcing bars: Comply with Section 52-1.028 of Standard Specifications, Section 1907 of IBC, Title 24, C.C.R. and ASTM A-615A. Grade 60, deformed, except #3 and smaller may be Grade 40. Test in accordance with IBC Section 1704.4 and Title 24, C.C.R. Bars shall be in a new, “first-class” condition.

E. Smooth Dowel Steel Bars for Expansion Joints: ASTM A-29, #3 smooth Grade 40. Provide as indicated on drawings. Where shown, provide metal dowel sleeve at one end of dowel (or other approved break-bond method), to permit lateral movement at dowel within concrete section. Provide for movement with equals joint width plus one-half inch (1/2”). Bars shall be in a new, “first-class” condition.

F. Tie Wires: Black annealed, ASTM A-82, minimum 16 gauge.

G. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, support and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying owner CRSI specifications, unless otherwise acceptable.

I. Concrete Darkening Agent: Add one quarter pound (1/4 lb.) of Davis Colors Inc. colorant #8084 Black (or acceptable equal) per 94 lb. sack of cement to all exterior concrete which will be exposed to view when cured (Drain rims and concrete receiving other colorants excluded). Contact Davis Colors Inc. for local distribution information Ph.: (800)-800-6856 Fx.: (213)-269-1053. Other colorants shall be as noted in the Drawings.

J. No admixtures will be allowed without prior acceptance by the Owner’s Representative.

PART 3 EXECUTION

3.01 EXCAVATION

A. In addition to the general grading excavation required, the contractor shall excavate to the required depths in the locations shown for flatwork, retaining walls, curbs, footings, etc. Excess excavation shall be replaced with concrete poured monolithically with the wall or pavement, at no additional cost to the Owner.

3.02 FORMING

A. All forming shall conform to Section 51 of the Standard Specifications and as follows:
   1. The Contractor shall build forms with a high degree of care and shall select from materials of adequate strength and smoothness to produce smooth, even surfaces of uniform texture
and appearance, free of bulges, depressions, or other imperfections per the discretion of the Owner’s Representative. Remove any residue remaining on concrete after forms are removed.

2. Concrete walls are to be vibrated as necessary to provide uniform density. No concrete surfaces with “rock pockets” or “honeycombing” shall be accepted.

3. Transition of curves to straight lines and of curves to curves shall be formed as smooth, continuous, and uninterrupted with typical 90 degree radius alignment at the points of tangency.

3.03 CONCRETE CONSTRUCTION

A. All concrete shall be mixed in accordance with Section 90 of the Standard Specifications.

B. Construction of concrete substructures shall conform to applicable provisions of Section 51 of the Standard Specifications.

C. Construction of concrete curbs, gutters, sidewalks, wheelchair ramps, and driveway aprons shall conform to Section 73 of the Standard Specifications.

D. At the termination of all curbs, the final eighteen inch (18”) length of curb shall be tapered from the full curb height to the gutter flow line or adjacent pavement elevation unless noted otherwise on the plans.

3.04 CONCRETE JOINTS

A. Joints shall be constructed at locations indicated and as detailed in the Drawings.

B. Construct concrete joints as follows:
   1. Expansion Joints:
      a. General. Refer to drawings for location and type expansion joints.
      b. Install to full depth of slab per drawings and manufacturer’s instructions.
      c. Fiber expansion joints - After allowing concrete to fully cure, remove zip strips and install expansion joint sealant. Expansion joint sealant. Install per drawings and manufacturer’s instructions.
   2. Score Joints: Refer to drawings for locations.

C. Curb and edge band joint locations – unless otherwise noted on plans
   1. Every five feet for score joints
   2. Install fiber expansion joints fifteen feet maximum.
   3. Align score and fiber expansion joints with proposed fence posts.
   4. Install fiber expansion joints at all corners, beginnings and endings of radii.

3.05 EDGING

A. All edges of slabs, curbs, and other structures shall be tooled with a one-half inch (1/2”) radius edging tool, unless otherwise specified in the Drawings.

B. All trowel marks resulting from tooing of edges shall be carefully trowelled out.

3.06 REINFORCEMENT

A. Reinforcement installation shall conform to the provisions of the Standard Specifications as follows:
   1. Cleaning - Section 52-1.03B
   2. Bending - Section 52-1.03C
3.07 CONCRETE PLACEMENT

A. Concrete placement shall conform to Section 40-103H of the Standard Specifications.

B. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than six feet. Spouts, elephant trunks, or other acceptable means shall be used to prevent segregation.

3.08 SURFACE DRAINAGE

A. Finish surfaces shall drain properly with no areas of standing water. Tops of curbs, walls and foundations shall be level unless otherwise specified.

3.09 CURING

A. All newly placed concrete shall be cured in accordance with the provisions in Section 90 of the Standard Specifications.

3.10 PROTECTION

A. All newly placed concrete shall be protected in accordance with the provision in Section 40-1.03P of the Standard Specifications.

B. Provide all necessary security to protect the concrete from vandalism. Any concrete which is defaced or damaged during the course of this contract shall be replaced by the Contractor at no additional cost to the Owner.

3.11 CONCRETE FINISHES

A. Patching of concrete to repair or disguise flaws, imperfections or other damage, shall commence only with the acceptance of the Owner’s Representative. Patching color and finish shall conform to the original adjacent concrete color and finish and the Owner’s Representative shall be the sole judge in this respect. Any patching of concrete walls must occur prior to final wall finishing.

B. Provide concrete finishes where shown in the Drawings and as follows:
   1. Trowel Finish: Trowel finish shall be smooth and clean with no obvious trowel marks.
   2. Broom Finish: Broom with medium bristled broom to a uniformly roughened surface. Finished surface shall be clean with uniform and straight lines.
   3. Provide samples, as previously specified, of all concrete finishes for review and acceptance prior to pouring concrete. All accepted samples shall be left on Job site as quality control examples until removal and disposal of samples is acceptable to the Owner’s Representative.
   4. Paving with a slope equal to or greater than 6% shall be heavy broom finish and paving less than 6% shall be a medium broom finish.

3.12 BUILT-INS

A. Refer to drawings for additional information relating to built-ins that shall be coordinated with concrete work (e.g., light fixtures, benches, handrails, guardrails, site furnishings, signs, etc).
3.13 CLEANING

A. Remove excess base material, concrete spills, cement stains and all other excess materials from all project areas prior to Final Acceptance.

3.14 TOLERANCES

A. Concrete
1. Vertical deviation from specified grades shall not exceed 0.04 foot.
2. Surface smoothness deviations shall not exceed 1/8 inch in 8 feet, in any direction.
3. Thickness shall not be more than 0.01 foot less than planned thickness at any point.

END OF SECTION
SECTION 02545
MISCELLANEOUS PAVING / SURFACING

PART 1     GENERAL

1.01    SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation, and services to install and complete all miscellaneous paving and surfacing and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the miscellaneous paving surfacing is shown on the Drawings and may include, but is not limited to:
1. Decomposed Granite Paving
2. Resin Pavement Paving
3. Wood fiber resilient surfacing – Llagas Creek Park play areas
4. Poured in place rubber resilient surfacing – Depot Park play areas
5. Synthetic Turf surfacing – Depot Park play area

C. Related sections can include, but may not be limited to:
1. Section 02200 - Earthwork
2. Section 02230 - Base Courses
3. Section 02870 - Site Furnishings

1.02    REFERENCES AND REGULATORY REQUIREMENTS

A. State of California Department of Transportation Standard Specifications, Current Edition

1.03    SUBMITTALS

A. Conform to Section 01300 and applicable Division One and/or Division Two specifications, General Conditions and Special Provisions.

B. Submit two (2) (unless noted otherwise) one quart samples of the following:
1. Mulch surfacing - paths
2. Decomposed granite
3. Synthetic turf surfacing
4. Wood fiber resilient surfacing
5. Poured in place rubber surfacing - Contractor shall submit a 1'x1' poured sample of each color of poured-in-place rubber resilient surfacing to be used by the Owner’s Representative for approval prior to delivery of material to the site.

1.04    QUALITY ASSURANCE

A. Materials Source: Sources of materials specified herein shall not be changed during course of work without review and written acceptance by the Owner’s Representative.

1.05    SEQUENCING AND SCHEDULING

A. Coordinate all applicable subgrade preparations, installations of base course materials and all other work with work of this section to insure a proper, timely installation.
PART 2  PRODUCTS

2.01 MATERIALS

A. Aggregate Base: shall be per Section 02230 - Base Courses.

B. Decomposed granite: California Gold
   1. Stabilizer from “Stabilizer Solutions Incorporated of Phoenix, Arizona”. Material is to be delivered pre-blended, and to be mixed with gold pathway fines at 12lbs per ton.
   2. All of the above is available from: TMT Enterprise, Inc., San Jose, 19666 Oakland Road, 95131, 408.432.9040.

C. Resin pavement paving: Shall be NaturalPave XL Resin Pavement, as available from Soil Stabilizing Products Company, Inc., P.O. Box 2779, Merced, CA 95344, (800)523-9992 or (209)383-3296. Or, TerraPave, as available from Wheeler Zamaroni, 3500 Petaluma Hill Road, Santa Rosa, CA 94504, (707) 543-8400.

D. Wood fiber surfacing: Wood Fiber Resilient Surfacing in the play areas shall be Fibar System, available through Husbands and Associates, Pleasanton, CA 925-426-5001, or approved equal. Wood fiber resilient surfacing shall conform to ASTM F1292 appropriate for the fall height of the equipment.

E. Poured in Place Rubber Resilient Surfacing: Shall be TotTurf TPV Supreme as manufactured by Robertson Recreation Surfaces, Phone no. 800-858-0519 or approved equal. Poured-in-place rubber resilient surfacing installation shall include Wear Mats (44"x48"x1"), set flush to finished surface of the EPDM surface. Surfacing shall conform to ASTM F1292 appropriate for the fall height of the equipment. Binder for poured-in-place rubber resilient surfacing shall be aliphatic (U.V. stable).

F. Synthetic Turf surfacing:
   1. AstroTurf - PureGrass 8mm. Contact: Jim Savoca. Phone (512) 635-2621.
   2. Other products are acceptable, provided they meet the minimum requirements of this specification. Contractor must submit equal substitutions for acceptance at least five business days prior to the bidding date for review.
   3. The City reserves the right to choose the AstroTurf product, even if it is not the low synthetic turf bid item product. As well, the City reserves the right to choose one of the alternate bid synthetic turf products, whether they are the lowest synthetic turf bid item or not.

PART 3  EXECUTION

3.01 AGGREGATE BASE

A. Install as per Drawings.

3.02 DECOMPOSED GRANITE

A. Install base course as specified per Section 02230 – Base Courses.

B. Spread evenly and compact in 2 inch lifts in designated areas.

C. Water lightly and compact with roller.

D. Spread additional material, roll and compact to establish even finished grade at specified elevation.

Morgan Hill Downtown Parks and Trails Project
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02545 - 2
3.06 RESIN PAVEMENT PAVING
A. Resin Pavement shall be as shown on the Plans and be approved by the Engineer, both to color and gradation.
B. Resin Pavement shall be installed as per the manufacturer’s details, specifications and directions.
C. Final thickness of the completed path section shall not vary more than ½-inch from the dimensions indicated.
D. Fill in any low spots or cracks with additional Resin Pavement.

3.04 LOOSE WOOD FIBER RESILIENT SURFACING
A. Install per manufacturer’s specifications where shown on the Drawings.
B. Install loose wood Fibar fill material to level specified on plans.

3.05 POURED IN PLACE RUBBER RESILIENT SURFACING
A. Install per manufacturers specifications where shown on the Drawings.
B. Surface colors are as specified on the plans.

3.03 SYNTHETIC TURF SURFACING
A. Install synthetic turf as per manufacturer’s details and specifications.
B. Synthetic Turf shall be installed by Manufacturer certified installers.
C. Manufacturer’s Representative shall provide Owner with maintenance instructions and training, and a written 8 year warranty at completion of installation.

3.01 INSTALLING THE SYNTHETIC TURF
A. The installation shall be performed in full compliance with the reviewed and accepted product submittal.
B. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer/manufacturer supervisors, shall undertake any cutting, sewing, gluing, shearing, topdressing or brushing operations.
C. The turf contractor shall strictly adhere to the installation procedures outlined in this section. Any variance from these requirements must be submitted to and accepted in writing, by the manufacturer’s onsite representative, and submitted to the Owner, verifying that the changes do not, in any way, affect the warranty.
D. The turf manufacturer and installation subcontractor shall inspect and accept the field base, and provide documentation to that effect, prior to the installation of the synthetic grass system. The surface must be perfectly clean as installation commences and shall be maintained in that condition throughout the process.
E. The carpet rolls are to be installed directly over the properly installed base material. Refer to the synthetic turf base specification section. No equipment with loads greater than 35 pounds per square inch (35 psi) shall be allowed on the field. As required, Contractor is responsible for altering operations in order to adhere to this requirement. Contractor shall always make sure that those vehicles being used are equipped with pneumatic (air-filled) tires, preferably turf tires.
These tires are designed to spread loads and minimize damage to surface. Foam Filled or solid tires as well as tires with aggressive lug patterns should not be used on the Brock base, without synthetic turf installed. **If possible, use of an A-frame for unrolling of the synthetic turf is strongly recommended.**

F. Any cutouts in the synthetic turf shall be per plans. Coordinate all cutouts in turf with Owner’s Representative before cutting turf for utility boxes or other structures.

G. The carpet rolls are to be installed directly over the properly prepared base. Extreme care should be taken to avoid disturbing the base, both in regard to compaction and planarity. It is suggested that a 2-5 ton static roller is on site and available to repair and properly compact any disturbed areas of the prepared base.

H. The full width rolls shall be laid out across the width of the turf area. Utilizing standard state of the art sewing procedures each roll shall be attached to the next. When all of the rolls of the playing surface have been installed, the sideline areas shall be installed at right angles to the play area edges as much as possible. **Gluing of rolls shall not be acceptable.**

I. The synthetic turf area shall utilize sewn seams. Minimum gluing will only be permitted to repair problem areas, corner completions, and as required by the specifications. Seams between turf panels must be sewn. All seams shall be sewn using double bagger stitches and polyester thread or adhered using seaming tape and high grade adhesive (per the manufacturer’s standard procedures). Seams shall be flat, tight, and permanent with no separation or fraying.

J. Connections of the perimeter synthetic turf edges shall be completed by one of the following two methods (refer to drawings for applicable details):
   1) Connection to perimeter concrete edges (with recessed edge) with the manufacturer-approved adhesive.
   2) Connection to the recycled plastic header boards shall be done with industrial staples (min. depth embedment is one inch (1") at maximum 2 inch (2") on center staple spacing.

K. At near Substantial Completion of the synthetic turf fields, the turf contractor shall test for shock absorbency. The turf contractor and/or manufacturer shall pay for an independent testing laboratory accredited for such tests (who shall be pre-approved by the Owner). All testing and analysis of findings shall be completed by qualified persons utilizing correct techniques. The laboratory shall provide the necessary testing data to the Owner that verifies the finished field meets or exceeds the required shock attenuation. The G-max range shall be between 95 and 160 for the life of the warranty, as determined by the ASTM F355A and F1936 test procedures. Any test results that do not meet the requirements of this specification or if any one test value is greater than ten percent (10%) greater in variance as specified in 3.03-G, then the Contractor’s field installer shall address the failed test area, be required to retest the entire field as stated above, and conform to these requirements prior to the issuance of the Certificate of Substantial Completion.

3.06 TOLERANCES

A. Vertical deviation from specified lines, grades, and detail cross sections shall not exceed 0.04 foot for all surfacing specified in this section.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all storm drainage system improvements and related work as shown on the Drawings and/or specified herein.

B. Scope of work: The general extent of the drainage work is shown on the Drawings and includes, but is necessarily limited to, the following:
   1. Storm drainage system installation

C. Related sections can include, but may not be limited to:
   1. Section 01300 - Submittals
   2. Section 01720 - Project Record Drawings
   3. Section 02200 - Earthwork
   4. Section 02221 - Excavation, Backfilling and Compaction
   5. Section 02230 - Base Courses
   6. Section 02510 - Asphaltic Concrete Paving
   7. Section 02520 - Portland Cement Concrete
   8. Section 02870 - Site Furnishings

1.02 REGULATORY REQUIREMENTS AND REFERENCES


1.03 SUBMITTALS

A. Submit cut-sheets or samples of all products to be used in conformance with Section 01300 Submittals and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Record Drawings:
   1. Conform to Section 01720 - Project Record Drawings.
   2. Accurately record location of new piping, drain structures, and connections to existing systems using horizontal dimensions, elevations, inverts and slope gradients as applicable.

1.04 QUALITY ASSURANCE

A. Control of Work: Conform to Section 5 of the Standard Specifications.

B. Control of Materials: Conform to Section 6 of the Standard Specifications.

1.05 PROTECTION OF PROJECT SITE

A. Make provisions for, and take the necessary precautions to protect existing and new work from damage during entire life of project.
1.06 DELIVERY, STORAGE, AND HANDLING

A. Store pipe neatly and orderly, stacked and blocked to prevent damage. Cracked, checked, spalled or otherwise damaged pipe shall be removed from site.

B. Use of chain slings shall not be permitted.

C. All piping, fittings and related materials shall be carefully handled at all times.

D. All pipelines, fittings and drainage structures shall be kept clean and closed during construction.

1.07 PROJECT/SITE CONDITIONS

A. Work of this section shall not be executed when site conditions are detrimental to quality of work as determined by the Owner’s Representative.

1.08 SEQUENCING AND SCHEDULING

A. Coordinate work of this section with all other work contained in the Contract Documents.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

A. All pipe and fittings shall be clearly and permanently marked to identify manufacturer, type, class, or schedule and NSF approval as applicable.

B. Corrugated High Density Polyethylene (CHDPE) Pipe (Perforated and Solid - Dual Wall)

1. High-density polyethylene perforated corrugated pipe with an integrally formed smooth waterway. Nominal sizes shall have a full circular cross-section, with an outer corrugated pipe wall and an essentially smooth inner wall (waterway). Corrugations may be either annular or spiral. All sizes shall conform to the AASHTO classification "Type S". Pipe manufacturer for this specification shall comply with the requirements for test methods, dimensions, and markings found in AASHTO Designations M252 and M294. Pipe and fittings shall be made from virgin PE compounds which conform with the requirements of cell class 324420C as defined and described in ASTM D 3350.

a. The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>Pipe Stiffness (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 inch (100 mm)</td>
<td>50 psi (340 kPa)</td>
</tr>
<tr>
<td>6 inch (150 mm)</td>
<td>50 psi (340 kPa)</td>
</tr>
<tr>
<td>8 inch (200 mm)</td>
<td>50 psi (340 kPa)</td>
</tr>
<tr>
<td>10 inch (250 mm)</td>
<td>50 psi (340 kPa)</td>
</tr>
<tr>
<td>12 inch (300 mm)</td>
<td>50 psi (340 kPa)</td>
</tr>
<tr>
<td>15 inch (375 mm)</td>
<td>42 psi (290 kPa)</td>
</tr>
</tbody>
</table>

2. The fittings shall not reduce or impair the overall integrity or function of the pipeline. Common corrugated fittings include in-line joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as “tees”, “wyes”, and end caps. These fittings may be installed by various methods, such as snap-on, screw-on, bell and spigot, and wrap around. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Only fittings supplied or recommended by the pipe manufacturer shall be used. Where designated on the plans and as required by the manufacturer, a neoprene or rubber gasket shall be supplied. Installation of the pipe specified above shall be in accordance with ASTM Recommended Practice D2321 as covered elsewhere in these specifications.
3. Corrugated Polyethylene Pipe shall be N-12 drainage pipe as manufactured by Advanced Drainage Systems, Inc. or approved equal.

C. Smooth Polyvinyl Chloride Pipe (P.V.C.) and fittings: Shall be polyvinyl chloride pipe, SDR 26 Spigot, Type I P.V.C. 1120, NSF approved. Comply with ASTM D3034.

D. Smooth Polyvinyl Chloride Perforated Drain Pipe (Perf P.V.C.) and fittings: Conform to Section 68 of the Standard Specifications. Provide bell and non-pressure rated P.V.C. SDR35 pipe with two rows of perforations 120 degrees apart on bottom of pipe five inches on center. Pipe shall conform with ASTM D 2729 or ASTM D 3034.

E. Unless otherwise noted, Contractor has option of using either CHDPE or PVC pipe as specified.

F. Reinforced Concrete Pipe (RCP) and fittings: Shall be reinforced concrete pipe conforming to Section 65 of the Standard Specifications. Pipe shall be Class III unless otherwise shown on the Drawings.

2.02 DRAINAGE STRUCTURES (as applicable)

A. Manholes: Provide frame, cover, grade rings, and all related materials as required by the construction drawings for a four foot diameter manhole. Materials available through Hansen Concrete Products. Ph: (408) 262-1091, Fax (408) 262-0936, or approved equal.

B. Catch Basins:
   1. 12-inch basins shall be V12 drain box as supplied by Christy Concrete (H20 loading with ADA lockable grate), or acceptable equivalent product. Christy: ph (800) 486-7070.
   2. 18-inch basins shall be CB18 as supplied by Central Precast – US Concrete (with ADA compliant lockable round grate), or acceptable equivalent product. Ph: (925) 462-6804. Note that this grate is not ADA compliant and shall not be used in pedestrian hardscape areas.
   3. 24-inch basins shall be CB24 as supplied by Central Precast – US Concrete (with ADA lockable round grate), or acceptable equivalent product. Ph: (925) 462-6804.
   4. 36-inch basins shall be U43 drain box as supplied by Christy Concrete (H20 loading with ADA lockable grate), or acceptable equivalent product. Christy: ph (800) 486-7070.
   5. Grates in paved areas shall have grates that conform to ADA Regulations.
   6. All catch basins to have locking mechanism or screw down grate to frame.
   7. Provide two grade rings at each catch basin.

C. Extensions: Provide box extensions, junction boxes and grade rings compatible with structures as necessary to finish at the proper elevation and to facilitate future elevation adjustments as noted below.

D. Clean Outs: Shall be as shown or noted in the Drawings.

F. Atrium Drains: Shall be 6” brass atrium grates no. 908, provided by NDS, ph: (800) 726-1994

G. Drinking fountain and play area drain: NDS 9”x9” spigot adapter no. 931 with 9” square brass grate no. 930B, provided by NDS, ph: (800) 726-1994.

H. Drywell: Manufactured products as indicated on the drawings shall be provided by NDS (part number NDS FWAS24 with FWBP24 bottom), ph: (800) 726-1994.

2.03 MISCELLANEOUS MATERIALS (as applicable)

A. Permeable rock beneath synthetic turf area: Refer to Specification Section 02541.
B. Drainage Rock: Shall be ¾” inch permeable crushed drain rock as shown in the drawings, materials available through Stevens Creek Quarry, Cupertino, or TMT Enterprises, San Jose.

C. Filter Fabric: Shall be Mirafi 140N or acceptable equal.

E. Filter Fabric Fasteners: Metal clip type staple.

F. Mortar: Shall conform to all applicable sections of the Standard Specifications. Mixture shall be a 1:2 Portland Cement to sand mixture with a minimum of water.

G. Reinforcing bars: Refer to Section 02520.

H. Minor concrete: Refer to Section 02520.

I. Structural Adhesives for Manholes, Catch Basins, and Junction Boxes: Shall be Ramnek or equivalent product. Available thru multiple suppliers.

PART 3 EXECUTION

3.01 PIPE LAYING

A. General: Pipe shall be installed per manufacturers’ instructions and in conformance with the Contracts Documents.

B. CHDPE Pipe:
   1. Pipe shall be installed with a minimum cover under the H-20 live load = 12 inches to the top of subgrade elevation.
   2. Minimum compaction for pipe subject to H-20 live load is 90% per Section 19, Standard Specifications.
   3. CHDPE pipe shall be laid and jointed in accordance with generally accepted practice and the following provisions to provide the required work.

C. P.V.C. (perforated and non-perforated) Pipe:
   1. Pipe shall be laid in trench to specified lines and grades fully and evenly supported by bedding material. Excavate bedding as required so bell fittings are clear from soil 12” on each side of joint and to a depth sufficient to avoid contamination of joint.
   2. Pipe shall be laid beginning at the outlet and proceeding with each bell end facing upgrade.
   3. Cut pipe square and ream to remove burrs.
   4. Connections shall be solid, true to grade and watertight. Grease gaskets as necessary to facilitate joining pipe.

3.02 DRAINAGE STRUCTURES

A. General: Set rim or cover elevations to specified grades utilizing a minimum of two grade rings (or extensions) at top of drainage structure to facilitate potential elevation adjustments in the future.

B. Catch Basins: Install as shown in the Drawings and as follows:
   1. Excavate as required.
   2. Set on firm, unyielding base. Set on compacted select backfill material if directed by Owner’s Representative.
   3. Prefabricated units not having a bottom shall be set on a poured-in-place concrete slab with smooth trowel finish. Mortar and properly seal unit to slab, making a water tight connection.
   4. Install pipe inlets and outlets to specified elevations. Grout and/or seal all joints to a watertight condition with material per manufacturer’s recommendation.
C. Manholes: Install per manufacturer’s recommendations and as shown in the Drawings.

D. French Drains and Cleanouts:
   1. Select backfill shall not be contaminated with site soil and protected during construction. No amendments or rototilling shall occur in or above these lines.
   2. Install as shown in the Drawings.

E. Drywells, Drinking Fountain Drains, Atrium Drains and Drop Inlets: Install as shown in the Drawings and in accordance with the manufacturer’s written recommendations.

3.03 FIELD QUALITY CONTROL

A. The Owner’s Representative shall review and accept work at the following stages:
   1. Excavated trench with bedding in place prior to any pipe being laid.
   2. Pipe laid prior to backfilling. Any pipe covered prior to review and acceptance shall be uncovered and re-backfilled at contractor’s expense.
   3. Drainage device location and pipe connection.
   4. New drainage system shall be flood tested and clean of debris.

END OF SECTION
SECTION 02713

DOMESTIC WATER SYSTEMS

PART 1   GENERAL

1.01   SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all domestic water systems and related work shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the domestic water system work is shown on the Drawings and can include, but is not necessarily limited to the following:
   1. Water supply and distribution system(s):
      a. Domestic water system, including all pipes, fittings, valves, valve boxes and connections
      b. Compliance with AWWA C-600-87
      c. Intermediate staking and layout for domestic water system

C. Related sections can include, but may not be limited to:
   1. Section 02221 - Excavation, Backfilling, and Compaction
   2. Section 02230 - Base Courses
   3. Section 02520 - Portland Cement Concrete
   4. Section 02810 - Irrigation
   5. Section 02900 - Landscaping

1.02   REFERENCES AND REGULATORY REQUIREMENTS

A. AWWA - current edition

B. California Plumbing Code - current edition


1.03   SUBMITTALS

A. Conform to requirements of Section 01300 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Submit copies of product data or “cut-sheets” for all products proposed for use.

1.04   RECORD DOCUMENTS

A. Project Record Drawings:
   1. Conform to Section 01720 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.
   2. Accurately record locations of utilities remaining, re-routed utilities, new utilities, and newly discovered utilities by horizontal dimensions, elevations, inverts, and slope gradients.

1.05   QUALITY ASSURANCE

A. Unless otherwise specified, install all materials in accordance with manufacturer’s recommendations. Contractor shall make all necessary repairs to the domestic water system as well as to other work affected by defects in the system through project Final Acceptance and specified warranty period. All repairs shall be made at the contractor’s sole expense.
1.06 DELIVERY, STORAGE, AND HANDLING

A. Store pipe in a neat and orderly manner fully supported and protected from sunlight.
B. Do not dump pipe off truck. Pipes are to be delivered, unloaded and handled so as to prevent damaging the material.

1.07 PROJECT/SITE CONDITIONS

A. PVC pipe shall not be cemented during wet conditions as determined by the Owner’s Representative.
B. Trench excavation and backfilling shall not be executed during excessively wet conditions as determined by the Owner’s Representative.

1.08 SEQUENCE AND SCHEDULING

A. Refer to all other Contract Documents, determine the extent and character of related work, and properly coordinate work specified herein with that described elsewhere to produce a complete, operational installation.
B. 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.

1.09 GUARANTY

A. Conform to Section 01700 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.
B. Contractor shall provide a written guarantee 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 warranty period. Repairs shall be made at the Contractor’s sole expense.

1.10 MAINTENANCE

A. Service: Contractor shall service and maintain domestic water system as necessary until project Final Acceptance.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

A. General:
   1. Pipe materials for domestic water line shall be in conformance with the Uniform Plumbing Code and local agencies.
   2. Plans and details, if shown, are schematic in nature and do not necessarily identify all fittings and appurtenances required to provide a complete installation. The contractor is responsible for providing complete and functional systems.
   3. Materials and procedures not specifically addressed herein shall comply with the appropriate AWWA standard.
   4. All materials proposed for use shall be in a new, “first class” condition unless otherwise noted.
B. Water Lines 3 Inches and Greater Diameter:
   1. Ductile Iron Pipe (DIP): Pipe shall conform to AWWA C151, minimum Class 52. All ductile iron pipe shall be cement mortar lined in conformance with AWWA C104. Pipe shall be of domestic manufacture; U.S. Pipe Tyton joint, Pacific States; or acceptable equal. Buried
ductile iron pipe and fittings shall be wrapped in an 8-mil thick polyethylene film sleeve. The Contractor shall furnish certification that all pipe supplied for this project has been manufactured in compliance with all requirements of AWWA C151.

2. Polyvinyl Chloride Pipe (PVC): Pipe shall conform to AWWA C900, Class 200, cast iron O.D. sizes. Pipe shall be of domestic manufacture; JM Mfg. Co., PW Pipe, Certain teed Fluid-Tite; or acceptable equal. Pipe shall be furnished with integral bells. Spigot end pipe with separate double hub couplings is not acceptable. The Contractor shall furnish certification that all pipe supplied for this project has been manufactured in compliance with all requirements of AWWA C900.

C. Water Lines 2 (two) Inches and Smaller Diameter: Shall be one of the following:
1. Pipe shall be annealed (soft) Type “K” copper (Cu).
2. Polyvinyl Chloride Pipe (PVC): Pipe shall conform to AWWA C900, Class 200, cast iron O.D. sizes. Pipe shall be of domestic manufacture; JM Mfg. Co., PW Pipe, Certain teed Fluid-Tite; or acceptable equal. Pipe shall be furnished with integral bells. Spigot end pipe with separate double hub couplings is not acceptable. The Contractor shall furnish certification that all pipe supplied for this project has been manufactured in compliance with all requirements of AWWA C900.

D. Couplings and Sleeves:
1. General: Couplings and Sleeves shall be a minimum of 200-psi working pressure-rated unless otherwise noted. Couplings and sleeves shall be mechanical joint type.
2. For DIP and PVC Pipe 3" thru 12":
   a. Unless otherwise noted, couplings and sleeves for DIP and PVC shall be ductile iron conforming to AWWA C153, and shall be 350 psi working pressure rated. Couplings, sleeves, and accessories shall be of domestic manufacture; U.S. Pipe Trim Tyte, Union Foundry, Tyler; or acceptable equal.
   b. Unless otherwise noted, flanges on all DIP spools shall conform to AWWA C115.
3. For PVC Pipe 2 1/2" and smaller:
   a. Schedule 40, solvent-weld PVC socket couplings.
4. For Copper Tubing:
   a. Couplings for copper tubing shall be Mueller 110 compression connections or acceptable equal.

E. Valves:
1. Gate valves:
   a. Use gate valves designed for a working pressure of not less than 150 psi.
   b. Provide connections as required for the piping in which they are installed.
   c. Provide an arrow on the operating nut or wheel, cast in metal, indicating direction of opening.
2. Thrust Blocks:
   a. Thrust blocks shall be constructed of Class “A” concrete. Thrust block dimensions shall conform to the California Plumbing Code.

F. Valve Boxes
1. Shall be 10” round boxes for gate valves.
2. Valves shall be labeled with “water” on lid.
3. Boxes located in landscape areas shall be plastic. Valve boxes shall be round model equivalent to Carson Model 910-10 with 910-4 lid.
4. Boxes located in paving shall be concrete with concrete lid.
5. Valve boxes shall have a bolt down lid.

G. 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.

PART 3  EXECUTION

3.01  EXAMINATION

A. Prior to starting work, test and verify that water pressure levels meet the domestic water system requirements. Notify the Owner’s Representative immediately of any discrepancies and re-direct work to avoid delay.

B. The utility plan and the piping details are diagrammatic. Pipe lines shown parallel in the Drawings may be placed in a common trench, provided that a minimum horizontal distance of six (6) inches is maintained between buried lines, except for sanitary sewer lines, which require ten feet (10’) horizontal clearance.

3.02  HANDLING

A. Handle pipe accessories so as to ensure delivery to the trench in sound, undamaged condition.

B. Use pinch bars or tongs for aligning or turning the pipe only on the bare end of the pipe.

C. Thoroughly clean interior of pipe and accessories before lowering pipe into trench. Keep clean during laying operations by plugging or other acceptable method.

D. Before installation, inspect each piece of pipe and each fitting for defects:

E. Replace all material found to be defective (before or after laying) with sound material meeting the specified requirements, without additional cost to the Owner.

F. Rubber gaskets: Store in a cool dark place until just prior to time of installation.

3.03  PIPE CUTTING

A. Cut pipe neatly and without damage to the pipe.

B. Unless otherwise recommended by the pipe manufacturer, cut pipe with mechanical cutter only.

C. Use wheel cutters when practicable.

D. Cut pipe square, and remove all burrs prior to use.

3.04  TRENCHING

A. Conform with Section 02221.

B. Excavate trenches with vertical sides uniform bottom, free of deleterious materials, and wide enough for pipes to lay side by side, fully supported on bottom.
   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 degree (45-90°), and a minimum of six (6) inch vertical clearance shall be maintained.

C. Provide minimum coverage as follows:
   1. Pressurized service: 24” in landscape areas, 30” under pavement.

3.05  PLACING AND LAYING

A. General:
   1. Lower pipe and accessories into trench by means recommended by the manufacturer.
   2. Except where necessary in making connections to other lines, lay pipe with the wide bell end opening facing source.
   3. Rest the full length of each section of pipe solidly on the pipe bed, with recesses excavated to accommodate wells, couplings, and joints.
4. Replace pipe that has been disturbed after laying.
5. Do not lay pipe in water, or when trench conditions are unsuitable for the work. De-water trench until jointing is completed.
6. Securely close open ends of pipe and valves when work is not in progress.
7. Where any part of coating or lining is damaged, repair at no additional cost to the Owner.
8. Follow manufacturer’s detailed instructions in installing and assembling pipe.

B. Plastic Pipe:
1. Position pipe and fittings in trench in a manner that identifying markings will be readily visible for inspection.
2. Cutting and joining:
   a. Protect against abrasion from serrated holding devices.
   b. Remove burrs and glosses from surfaces to be jointed; use abrasive paper, file, or steel wool.
   c. Remove dirt, dust, and moisture by wiping clean with dry cloth.
3. Align pipe system components without strain.
4. Support plastic pipe in trenches with a two (2) inch min. layer of bedding. Provide a min. three (3) inch bedding sand cover. Allow no rocks, debris, or potentially damaging substances within six (6) inches of plastic pipe in trenches.

C. Connections:
1. Use appropriate fittings to suit the actual condition where connections are made between new work and service points.

3.06 JOINTING

A. Other joints:
1. Mechanical joints and push-on type joints: Install in accordance with AWWA C600, modified as necessary by the recommendation of the manufacturer to provide for special requirements of specified pipe.
2. Make connections between different types of pipe and accessories with transition fittings.
3. Rubber gaskets: Handle and install in strict accordance with the recommendations of the manufacturer. Lubricants for gaskets shall be manufactured by or approved by the pipe manufacturer for use under the conditions found in the field.

3.07 SETTING VALVES AND VALVE BOXES

A. General:
1. Center valve boxes on the valves, setting plumb.
2. Tamp earth fill around each valve box to a distance of four feet on all sides, or to be undisturbed trench face if less than four feet.
3. Tighten mechanical joints, and fully open and close each valve to assure that all parts are in working condition.

3.08 THRUST BLOCKS

A. General:
1. Provide and install thrust blocks in accordance with California Building Code requirements and installation guidelines.

3.09 TESTING, INSPECTING, AND DISINFECTION

A. Closing uninspected work: Do not allow or cause any of the work of this Section to be covered up or enclosed until after it has been completely inspected and tested, and has been accepted.

B. Time for making test:
1. Except for joint material setting, or where concrete reaction backing necessitates a five day delay, pipelines joints, or couplings may be subjected to hydrostatic pressure, inspected, and tested for leakage at any time after partial completion of backfill. All testing of water service shall be in accordance with the requirements of AWWA C600 for hydrostatic testing.
Contractor to keep records of each piping test, including date and time of test, name of witnessing Owner representative, test pressure, description of piping tested, and remarks (i.e. leaks and repairs made). All tests shall last 4 hours and be tested at 200 psi.

C. Disinfection:
   1. Before acceptance of the potable water system, disinfect each unit of completed service line in accordance with AWWA C601 and criteria of the local governing jurisdiction.
      a. Proposed method shall be submitted to the Owner’s Representative for review and acceptance.
      b. Perform all tests and disinfection in a manner acceptable to governmental agencies having jurisdiction.
   2. Furnish two copies of a Certificate of Compliance to the Owner.

3.10 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 specified or shown in Drawings free from deleterious material.
   4. Compact trenching to 95% relative compaction under pavement and 85% relative compaction within planting areas.
   5. Trench surfaces shall be flush with finish grade. All trench settling shall be corrected by the contractor at no additional cost to the Owner.
   6. Install pipe detection tape and reinforced tracer wire above all pressurized lines.

3.11 DEMONSTRATION
A. Instruct Owner’s personnel in complete and proper operation of domestic water system per Section 01770 Contract Closeout.

3.12 FINAL REVIEW
A. Provide Owner’s Representative with all Guaranty and record drawing requirements prior to Final Review.

END OF SECTION
SECTION 02722

SANITARY SEWERAGE

PART 1  GENERAL

1.01  SUMMARY

A.  Furnish all labor, materials, equipment, facilities, transportation and services to complete all sanitary sewerage and related work as shown on the Drawings and/or specified herein.

B.  Scope of work: The general extent of the sewerage work is shown on the Drawings and includes, but is necessarily limited to, the following:
   1.  Sanitary sewerage system installation

C.  Related sections can include, but may not be limited to:
   1.  Section 02200 - Earthwork
   2.  Section 02221 - Excavation, Backfilling and Compaction
   3.  Section 02230 - Base Courses
   4.  Section 02510 - Asphaltic Concrete Paving
   5.  Section 02520 - Portland Cement Concrete
   6.  Section 02713 - Domestic Water Systems
   7.  Section 02870 - Site Furnishings

1.02  REGULATORY REQUIREMENTS AND REFERENCES

A.  California Plumbing Code, current edition

1.03  QUALITY ASSURANCE

A.  Control of Work: Conform to Section 5 of the Standard Specifications.
B.  Control of Materials: Conform to Section 6 of the Standard Specifications.

1.04  PROTECTION OF PROJECT SITE

A.  Make provisions to take the necessary precautions to protect existing work from damage during execution of this work.

1.05  DELIVERY, STORAGE, AND HANDLING

A.  Store pipe neat and orderly stacked and blocked to prevent damage. Cracked, checked, spalled or otherwise damaged pipe shall be removed from site.
B.  Use of chain slings shall not be permitted.
C.  Pipe, fittings, precast sections, cast iron fittings, covers and all other materials shall be carefully handled at all times.
D.  All pipelines and fittings shall be kept clean and closed during construction.
1.06  PROJECT/SITE CONDITIONS

A. Work of this Section shall not be executed when site conditions are detrimental to quality of work as determined by the Owner’s Representative.

B. PVC pipe shall not be solvent welded during wet conditions.

1.07  SEQUENCING AND SCHEDULING

A. Refer to all other Contract Documents, determine the extent and character of related work, and properly coordinate work specified herein with that described elsewhere to produce a complete, operational installation.

B. 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.

PART 2  PRODUCTS

2.01  PIPE AND FITTINGS

A. All pipe and fittings shall be clearly and permanently marked to identify manufacturer, type, class, or schedule and NSF approval as applicable.

B. Polyvinyl Chloride Pipe (P.V.C) and fittings: Polyvinyl chloride pipe shall be SDR 26 Bell and Spigot, Type I P.V.C 1120, NSF approved. Comply with ASTM D-3034.

C. Ductile Iron Pipe (DIP) joints and fittings: Shall be Class 50, rubber gasket push-on type, in compliance with AWWA C-151, C-111 and C-110.

D. Vitrified Clay Pipe (VCP), and fittings: Shall be extra strength in compliance with ASTM C700,unglazed for socket and spigot joint.

2.02  STRUCTURES

A. Clean Outs: Shall be as detailed on Drawings. Christy “F8” clean out boxes are acceptable in non-vehicular travel areas. For vehicular travel areas, Christy “G5” clean out boxes shall be used.

2.03  MISCELLANEOUS MATERIALS

A. Crushed Rock: Shall be ¾” bedding rock as conforming to Section 200.1.2 of the “Standard Specification for Public Works Construction”, commonly referred to as the “Greenbook.”

B. Mortar: Conform to all applicable sections of the Standard Specifications. Mixture shall be a 1:2 Portland Cement to sand mixture with a minimum of water.

C. P.V.C. Solvent Cement: Conform to pipe manufacturer’s recommendations.

D. P.V.C. Primer: Conform to pipe and solvent cement manufacturer’s recommendations.

E. Reinforcing Bars: Refer to Section 02520.

F. Minor concrete shall conform with Section 02520 and all applicable sections of the Standard Specifications.
PART 3  EXECUTION

3.01 PIPE LAYING

A. General: The Owner’s Representative shall review and accept all pipe prior to installation. Pipe shall be installed in conformance with Section 02221 of these Specifications. All sanitary sewer installations shall be reviewed and accepted by the Owner’s Representative prior to backfilling.

B. Pipe:
   1. Pipe shall be laid in trench to specified lines and grades fully and evenly supported layer of bedding material as specified and identified on the Drawings. Excavate bedding as required so bell fittings are clear from soil six inches (6") on each side of joint and to a depth sufficient to avoid contamination of joint. Refer to Drawings for additional information.
   2. Pipe shall be laid beginning at the outlet and proceeding with each bell end opening facing upgrade.
   3. Cut pipe square and ream to remove burrs prior to use.
   4. Connections:
      a. Thoroughly clean and dry all components to be joined.
      b. Apply primer and sufficient cement to coat joint surfaces of both components and fill gaps but not in excess.
      c. Join pipe, wipe off excess cement, and fully support pipe until joint has cured.

C. Provide sleeving where shown or needed and wherever pipes run through walls using schedule 40 PVC pipe (min. one quarter [1/4] inch diameter larger than pipe) or other acceptable method.

3.02 STRUCTURES AT GRADE

A. General: Set rim or cover elevations to specified grades. Adjust as required to set flush with proposed grades and/or pavement sections.

B. Clean Outs:
   1. Excavate as required.
   2. Set on firm unyielding base. Set on compacted select backfill material unless noted otherwise.

3.03 SANITARY SEWER CONNECTIONS

A. Sanitary sewer connections to existing sewer mains shall be made water tight, straight and true to line, grade and “crown to crown” unless noted otherwise.

3.04 FIELD QUALITY CONTROL

A. The Owner’s Representative shall review and accept work at the following stages:
   1. Excavated trench with bedding in place prior to any pipe being laid
   2. Pipe laid prior to backfilling. Any pipe covered prior to acceptance shall be uncovered for review and re-backfilled at contractor’s expense.

B. The Contractor shall furnish the necessary labor, equipment and materials necessary to perform air tests of the completed sewerage project before the system is placed in operation or connected to other lines.

C. In no case shall the Contractor place the newly constructed sewer in operation without acceptance by the Owner’s Representative.

3.05 PIPELINE TESTING & FLUSHING

A. New sections of sanitary sewer main shall be air tested using the following procedures:

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02722 - 3
1. Test is conducted between two (2) consecutive manholes, or as directed by the Owner’s Representative.

2. The test section of the sewer line is plugged at each end. One of the plugs used at the manhole must be tapped and equipped for the air inlet connection for filling the line from the air compressor.

3. Service laterals, stubs and fittings into the sewer test section should be properly capped or plugged and carefully braced against the internal pressure to prevent air leakage by slippage and blowouts.

4. Connect air hose to tapped plug selected for the air inlet. Then connect the other end of the air hose to the portable air control equipment which consists of valves and pressure gauges used to control the air entry rate to the sewer test section, and to monitor the air pressure in the pipe line. More specifically, the air control equipment includes a shut-off valve, pressure regulating valve, pressure reduction valve and a monitoring pressure gage having a pressure range from 0-5 psi. The gage shall have minimum divisions of .10 psi and an accuracy of .40 psi.

5. Connect another air hose between the air compressor (or other source of compressed air) and the air control equipment. This completes the test equipment set-up. Test operations may commence.

6. Supply air to the test section slowly, filling the pipe line until a constant pressure of 3.5 psi is maintained. The air pressure must be regulated to prevent the pressure inside the pipe from exceeding 5.0 psi.

7. When constant pressure of 3.5 psi is reached, throttle the air supply to maintain the internal pressure above 3.0 psi for at least 5 minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall. During this stabilization period it is advisable to check all capped and plugged fittings with a soap solution to detect any leakage at these connections. If leakage is detected at any cap or plug, release the pressure in the line and tighten all leaky caps and plugs. Then start the test operation again by supplying air. When it is necessary to bleed off the air to tighten or repair a faulty plug, a new five-minute interval must be allowed after the pipe line has been refilled.

8. After the stabilization period, adjust the air pressure to 3.5 psi and shut-off or disconnect the air supply. Observe the gage until the air pressure reaches 3.0 psi. At 3.0 psi commence timing with a stop watch which is allowed to run until the line pressure drops to 2.5 psi at which time the stop watch is stopped. The time required, as shown on the stop watch, for a pressure loss of 0.5 psi is used to compute the air loss.

9. If the time, in minutes and seconds, for the 0.5 psi drop is less than that shown in the following table for the designated pipe size, the section undergoing test shall have passed and shall be presumed to be free of defects. The test may be discontinued at that time.

10. If the time, in minutes and seconds, for the 0.5 psi drop is greater than that shown in the following table for the designated pipe size, the section of the pipe shall not have passed the test; therefore, adequate repairs must be made and the line retested.

<table>
<thead>
<tr>
<th>Pipe size (in inches)</th>
<th>Time</th>
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(For larger diameter pipe use the following: Minimum time in seconds = 462 x pipe diameter in feet).

11. For eight (8) inch and smaller pipe, only: If, during the five minute saturation period pressure drops less than 0.5 psi after the initial pressurization and air is not added, the pipe section undergoing test shall have passed.

12. Multi-pipe sizes: When the sewer line undergoing test is 8" or large diameter pipe and includes 4" or 6" laterals, the figures in the table for uniform sewer main sizes will not give reliable or accurate criteria for the test. Where multi-pipe sizes are to undergo the air test, compute the average size in inches which is then multiplied by 38.2 seconds. The results will give the minimum time in seconds acceptable for a pressure drop of 0.5 psi for the averaged diameter pipe.

13. Adjustment Required for Groundwater:
   a. An air pressure correction is required when the ground water table is above the sewer line being tested. Under this condition, the air test pressure must be increased .433 psi for each foot the ground water level is above the invert of the pipe.
   b. Where ground water is encountered or is anticipated to be above the sewer pipe before the air testing will be conducted, the following procedure shall be implemented at the time the sewer main and manholes are constructed.
      1) Install a pipe nipple (threaded one or both ends, approximately 10" long) through the manhole wall directly on top of one of the sewer pipes entering the manhole with threaded end of nipple extending inside the manhole.
      2) Seal pipe nipple with a threaded cap.
      3) Immediately before air testing, determine the ground water level by removing the threaded cap from the nipple, blowing air through the pipe nipple to remove any obstructions, and then connecting a clear plastic tube to the pipe nipple.
      4) Hold plastic tube vertically permitting water to rise in it to the groundwater level.
      5) After water level has stabilized in plastic tube, measure vertical height of water, in feet, above invert of sewer pipe.
      6) Determine air pressure correction, which must be added to the 3.0 psi normal starting pressure of test, by dividing the vertical height in feet by 2.31. The result gives the air pressure correction in pounds per square inch to be added.

Example: If the vertical height of water from the sewer invert to the top of the water column measures 11.55 feet, the additional air pressure required would be:

\[(11.55) / (2.31) = 5.0 \text{ psi}\]

Therefore, the starting pressure of the test would be 3.0 plus 5 or 8.0 psi, and the 0.5 lb. drop becomes 7.5 psi. There is no change in the allowable drop (0.5 psi) or in the time requirements established for the basic air test.

B. After the line has passed the air test, it shall be ballued and flushed with water to clean. A metal screen shall be used downstream at the point of connection to the existing system to collect and remove any rock or other debris that is flushed out during cleaning.

END OF SECTION
PART 1  GENERAL

1.01  SUMMARY

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. Scope of work:
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 and flow sensing system
2. Installation of automatic irrigation systems and controls

C. Related sections can include, but may not be limited to:
1. Section 02221 - Excavation, backfilling and compacting
2. Section 02900 - Landscaping
3. Section 02970 - Landscape & Site Maintenance

1.02  REFERENCES AND REGULATORY REQUIREMENTS

A. American Society for Testing and Materials (ASTM)
   6. F477 Specification for Elastomeric seals (gaskets) for joining plastic pipe.

B. National Sanitation Foundation (NSF), requirements for Seal of Approval.

C. Plastics Pipe Institute (PPI), recommendations for hydrostatic design stresses for PVC pipe.


E. Permits and Fees: Contractor is responsible to obtain all required permits and pay all associated fees unless otherwise noted.

1.03  SUBMITTALS

A. Conform to requirements of Section 01300 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

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.
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, i.e: 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:
   a) One (1) Quick Coupler attachment key equipped with standard thread hose bib per (5) Quick Couplers installed on the project.
   b) 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

1.04 RECORD DOCUMENTS

A. Comply with Section 01720 and applicable Division One and Division Two 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.

1.05 QUALITY ASSURANCE

A. Unless otherwise specified, install all materials in accordance with manufacturer's recommendations.

1.06 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.

1.07 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.

1.08 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.

1.09 GUARANTY

A. Conform to Section 01700 and/or applicable Division One and Division Two 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.
1.10 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

2.01 GENERAL

A. Use only new materials of brands shown on Drawings, specified herein or as acceptable to the Owner's Representative.

2.02 PIPE

A. PVC Pipe: Polyvinyl chloride (Type I) plastic pipe PVC 1120 and NSF approved per plan, unless otherwise noted.

B. Intermittent-pressure lateral piping shall be Schedule 40 PVC with Schedule 80 PVC solvent weld fittings.

C. Constant-pressure mainline piping 1-1/2 inches and smaller shall be Schedule 40 PVC with Schedule 80 PVC solvent weld fittings.

D. Constant-pressure mainline piping 2 inches to 3 inches shall be Class 200 PVC ring-tite or Class 315 PVC with Schedule 80 PVC solvent weld fittings and thrust blocks.

E. Constant-pressure mainline piping 4 inches and larger shall be Class 200 PVC ring-tite with IPS ductile iron fittings and mechanical restraints at all bell fittings, bends and tees.

F. All main line water piping shall be protected against movement with thrust blocks or mechanical restraints.

G. Copper pipe shall be type "K".

2.03 PVC FITTINGS

A. PVC Fittings: Polyvinyl chloride (Type I) plastic fittings 1120, Schedule 80 PVC.

B. PVC Nipples: Polyvinyl chloride (Type I) plastic fittings 1120, Schedule 80 PVC.

2.04 SWING JOINTS

A. Swing Joints for pop-up heads shall be as per detail.

B. Swing Joints for rotors shall be by LASCO Fittings, Inc. with ASTM F2768 Standard for Swing Joint ACME Threads, or equal.

C. Swing Joints for water cannons shall be Ductile Iron by Harco, Underhill International, or equal.
2.05 BACKFLOW PREVENTER DEVICE
   A. As specified on Drawings.
   B. If the system is using recycled water, label all potable water backflow preventers with tags or labels reading: “potable water” in black letters on blue background, per city details.

2.06 BACKFLOW PREVENTER ENCLOSURE
   A. Strongbox model series SBBC-CR.
   B. Enclosure size to be verified with size of installed backflow device by Contractor.
   C. Insulation Blanket: WeatherGuard Blanket by Best Choice USA, or equal.

2.07 VALVES AND SENSORS
   A. Master Valve: As specified on Drawings.
   B. Gate Valves / Ball Valves: As specified on Drawings.
      1. Main line gate valves shall have 1-1/4" dia. steel, or bronze, rod stem extensions as necessary, with 1/4"x7" dia. steel steadying plate and 2" AWWA nut.
   C. Remote Control Valves: As specified on Drawings.
   D. Quick Coupling Valves: As specified on Drawings. Provide purple lid if system is designed for recycled water.

2.08 SENSORS
   A. Flow Sensors: As specified on Drawings. Flow Sensor wiring: Contractor is to install a shielded Direct Burial cable with at least one twisted pair of conductors. The cable must be UF rated. Use #20 AWG (up to 2,000 feet) or larger stranded copper communications conductors. There are to be NO splices in the conductors between the flow sensor and the controller. If the conductor run is over 500 feet, contractor is to connect one end (only) of the cable shield to a properly installed 8 foot copper ground rod. Flow Sensor conductors and cable conduit: Shall be Schedule 80 grey PVC electrical conduit ASTM F-512, size as required.
   B. Rain Sensors: As specified on Drawings.

2.09 PLASTIC VALVE BOXES - For planting areas unless otherwise noted
   A. Master Valve: MV valve box shall be rectangular model equivalent to Carson 1419-12 with 1419-T locking lid for 1” and 1-1/2” valves, 1730-18 with 1730T locking lid for valves 2” and larger. Boxes shall be labeled as "Irrigation - MV" on lid.
   B. Flow Sensor: FS valve box shall be rectangular model equivalent to Carson Model 1419-12 with 1419-T locking lid for sensors up to 3". Boxes shall be labeled as Irrigation - "Irrigation - FS" on lid.
   C. Gate Valves / Ball Valves: GV/BV valve boxes shall be round model equivalent to Carson Model 910-10 with 910-T locking lid. Boxes shall be labeled as “Irrigation – Valve” on lid.
   D. Remote Control Valves: RCV valve boxes shall be rectangular model equivalent to Carson 1419-12 with 1419-T locking lid for 1” and 1-1/2” valves and 1730-12 with 1730-T locking lid for valves 2” and larger. Boxes shall be labeled as “Irrigation – RCV” on lid.
E. Quick Coupling Valves: QCV valve boxes shall be round model equivalent to Carson Model 910-10 with 910-T locking lid. Boxes shall be labeled as “Irrigation – QC” on lid.

F. Valve Boxes: Valve boxes shall have locking or bolt down type lids. Approved box manufactures as equals: Applied Engineering Inc., NDS, Christy and Carson Industries.

G. Color of plastic boxes shall be green.

2.10 AUTOMATIC CONTROLLER AND ENCLOSURE

A. Controller: As specified on Drawings.

B. Enclosure: As specified on Drawings.

2.11 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 "DBR/Y6" splice connectors or acceptable equal.

2.12 CONNECTING COMPOUNDS

A. Primer: IPS Corporation Weld-on #P-70.

B. Cement:
   1. IPS Corporation Weld-On #705 low VOC PVC solvent cement for Class 200 P.V.C. or schedule 40 P.V.C. (up to 6" diameter).
   2. IPS Corporation Weld-On #711 low VOC PVC solvent cement shall be used for larger pipe diameters and schedule 80 P.V.C.
   3. IPS Corporation Weld-On #795 low VOC PVC solvent cement for flexible P.V.C. to rigid P.V.C. connections.
   4. IPS Corporation Weld-On #P-70 low VOC PVC and CPVC Primer for pipe and fittings.

2.13 SPRINKLER HEADS

A. Sprinkler Heads: As specified on Drawings.

2.14 ADDITIONAL MATERIALS


B. 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.

C. Sleeves: All sleeves shall be PVC class 200. Install sleeves in locations and at the depths shown on the drawings. Sleeves shall extend a minimum of 6" past the above hard surface for ease of location.
D. Teflon tape shall be of a variety commonly used for wrapping threaded connections.

F. Valve Tags: Plastic pre-labeled station tags.

G. Drain Rock: Shall be ¾” washed drain rock.

PART 3 EXECUTION

3.01 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. Pipe lines 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.

3.02 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.

3.03 TRENCHING

A. Conform to Section 02221 and/or applicable Division One and Division Two 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 inches (3”) vertical clearance shall be maintained.

C. Provide minimum coverage depths as follows:
   1. Mainline: 24” in landscape areas, 30” in sleeves under paving.
   2. Lateral Lines: 18” in landscape areas, 30” in sleeves under paving.

D. Hydraulic driving methods shall not be used under paved surfaces.

3.04 PIPE INSTALLATION

A. Comply with applicable Division One and Division Two specifications, General Conditions and/or Special Provisions and manufacturer’s instructions.

B. Rubber Ring Seal Joint:
   1. Use factory-made male end or prepare field-cut male end to exact specifications of factory-made end.
   2. Carefully clean bell or coupling and insert rubber ring without lubricant. Position ring carefully according to manufacturer’s specifications.
   3. Lubricate male end according to manufacturer’s instructions and insert male end to specified
depth. Use hands only when inserting PVC pipe.

C. Thrust Blocks:
1. Thrust blocks shall be provided on 3" and 4" main lines where specified and as necessary to resist system pressure on pressurized lines and fittings. Thrust blocks shall be concrete and the size shall be based on an average soil safe bearing load of 3,000 pounds per square foot.
2. Main lines of 3" and 4" with operating pressures of 90 PSI or more shall have mechanical restraints at all changes of flow direction.
3. Main lines 6" and larger shall have ductile iron fittings with joint restraints installed at all changes in flow direction.
4. Form thrust blocks in such a manner such that concrete comes in contact only with the fittings. Thrust blocks shall be between solid soil undisturbed and the fitting.
5. Install thrust blocks as shown in Drawings and as described above.

D. 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.

E. 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.

F. Snake pipe a minimum of one (1) additional foot per one hundred (100) feet of pipe to allow for expansion and contraction.

G. Pipe shall be installed as specified and generally as shown in Drawings.

H. Cap or plug openings as soon as pipes have been installed to prevent intrusions of debris.

I. Sleeves:
1. Install pipe sleeves where necessary, where shown 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 of six inch (6") beyond edge of paving or structure above. Provide removable non-decaying plug or cap at each end of sleeve, to prevent earth from entering pipe.

J. Thoroughly flush system prior to installing valves and nozzles.

K. Install pipe detection tape and reinforced tracer wire above mainline as per details.

3.05 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. Valves shall be installed in valve boxes to provide 3" clearance between the highest point of the valve and the bottom of the valve box lid.
4. Install valve tags in an acceptable manner with valve station and controller number.
5. Provide twelve (12) inches minimum separation when valve boxes are grouped together and align in a parallel, even, and orderly manner.
6. Locate all boxes a minimum of 10 feet from striping of any field of play.
7. Locate valves in shrub/ground cover areas whenever possible.

C. Gate Valves / Ball Valves:
1. Install as shown in Drawings.
2. Gate Valves shall be installed in valve boxes to provide a minimum of 3" clearance between the highest point of the valve and the bottom of the valve box lid.

D. Quick Coupler Valves:
1. Install as shown in Drawings.
2. Quick Coupling Valves shall be installed in valve boxes to provide 2" clearance between the highest point of the valve cover and the bottom of the valve box lid.
3. Locate all boxes a minimum of 10 feet from striping of any field of play.

E. Controller:
1. Install as shown in Drawings.
2. Owner’s Representative shall determine final approved controller location(s).
3. Label cabinet door exterior with permanent, one (1) inch tall (minimum) letter or number of controller designations corresponding with plan designations (as applicable).
4. 120 power, junction box and conduit from power source to controller is to be provided and installed by an Electrical Contractor.
5. 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. (Do not use with two wire systems)
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. (Do not use with two wire systems)
7. All wiring under paving shall be installed in a PVC pipe sleeve large enough to allow withdrawal and insertion of individual proposed wires and room for (12) additional wires. (Do not use with two wire systems)
8. If any control wire run is over 2000’, up-size applicable control wire to be 12 gauge.

G. Rotator Heads:
1. Install as shown in Drawings.
2. Install plumb with finish grade.
3. Thoroughly flush all lines prior to installing nozzles.

H. Tree 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.

3.06 FIELD QUALITY CONTROL

A. General:

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02810 - 8
1. Notify Owner’s Representative for the following reviews, with 2 working days minimum notice:
   a) Pressure testing mains and laterals prior to installing heads.
   b) Coverage test prior to planting turf shrubs and or groundcover.
   c) Pre-maintenance observation prior to acceptance of installed irrigation system.
   d) Final observation prior to release of project to Owner.

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.
   5. 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.
6. Correct all deficiencies revealed by tests to the satisfaction of the Owner’s Representative.

C. System Flushing:
   1. After sprinkler pipe lines 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. No overspray or runoff of recycled water is allowed on any non-approved use area.

3.07 BACKFILLING

A. General:
   1. Backfill only after specified tests have been performed and accepted.
   3. Clean trenches of all debris and deleterious material before backfilling.
   4. 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.
   5. Compact trenching to 95% relative density under pavement and 85% relative density within planting areas.
   6. Dress off and compact trench surfaces with finish grade in a manner to ensure no settling of trenches will occur.

3.08 ADJUSTING

A. Adjust and balance system to eliminate over spray and fogging/misting and as directed by Owner’s Representative.
3.09 DEMONSTRATION

A. Contractor to coordinate controller manufacturer to provide programming and monitoring instruction and complete and proper operation and maintenance of system to City maintenance personnel prior to Final Acceptance.

3.10 FINAL REVIEW

A. Provide Owner's Representative with all Record Drawing submittals, turn-over materials, salvaged items and warranty requirements prior to Final Review.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities, transportation and services to complete all chain link fencing installations and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the chain link fencing improvements is shown on the Drawings, and can include but is not necessarily limited to the following:
1. Galvanized chain link fabric, posts, gates, hardware, and related appurtenances
2. Chain link fence with integrally woven privacy plastic "slats"
3. Concrete footings and/or mowbands

C. Related sections can include, but may not be limited to:
1. Section 01300 - Submittals
2. Section 02520 - Portland Cement Concrete
3. Section 02870 - Site Furnishings
4. Section 02900 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS

A. ASTM:
1. A53/A53M-04a Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
5. ASTM F1043 Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework
6. ASTM F1083 Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures
7. ASTM A500 (HSS) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

B. Chain Link Fence Manufacturers Institute (CLFMI)

C. Industrial Steel Guide for Fence, Rails, Posts, Gates and Accessories


1.03 SUBMITTALS

A. Product Data: Submit manufacturer’s descriptive literature and/or standard catalog "cut-sheets" of all materials, coatings, fittings and equipment proposed to be furnished and installed under this portion of the work. Include the manufacturer’s name and catalog number for each item where applicable. Clearly annotate (star or asterisk-in black ink) which portions of "cut-sheets" are applicable if more than one product is shown.
B. Shop Drawings: Submit complete Shop Drawings for all different types and sizes of backstop unit(s), gates and fencing systems.
   1. Shop Drawings shall include, but may not be limited to:
      a. All information regarding clearances, connections, components and any miscellaneous related appurtenances (such as wood baseboards at backstops, locking mechanisms etc.)
      b. Concrete footing and reinforcement information

C. Installation Instructions and/or Drawings: Submit as applicable.

D. Samples:
   1. Sample of privacy slat system

1.04 SEQUENCE AND SCHEDULING

A. Contractor shall coordinate construction timing of all chain link fencing and related work with installation of concrete work (Section 02520 - Portland Cement Concrete) and all other work.

PART 2 PRODUCTS

2.01 MATERIALS - General Note: It is intended that all fencing, by area, receive the same finish coating wherever possible. Nuts, bolts, applicable moving portions of hinges etc. shall be painted to match with PVC touch-up paint in vinyl or powder coated systems.

A. Fabric:
   1. Selvage: Knuckled finish top and bottom.
   3. Size: Two (2) inch mesh, 9-gauge (0.148 inch diameter) unless noted otherwise.
   4. Galvanized Wire: Zinc coated wire-ASTM A 392, Class 1, with not less than 1.2 oz. zinc per sq. ft.

B. Framing:
   1. Strength requirements for posts and rails shall conform to ASTM F 1043.
   2. Pipe shall be straight, true to section, material, and sizes specified, and shall conform to the following weights per foot:

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<th>Outside Diameter (OD) in inches</th>
<th>Type I Steel</th>
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<td>28.55</td>
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</table>

C. Steel Framework:
1. Posts, Rails, Braces, and Gate Frames:
   a. Type I Steel Pipe: Hot-dipped galvanized steel pipe conforming to ASTM F 1083, plain ends, standard weight (Schedule 40) with not less than 1.8 oz. zinc per sq. ft. of surface area coated.
   b. Type II pipe: not applicable
2. End, corner, and pull posts for following fabric heights:
   a. Under 6 feet: 2.375" OD (2-1/2" OD)
   b. 6 feet to 10 feet: 2.875" OD (3" OD) (with privacy slats provide 3.5" OD)
3. Line or intermediate posts for following fabric heights:
   a. Under 6 feet: 1.90" OD (2" OD)
   b. 6 feet to 8 feet: 2.375" OD (2-1/2" OD) (with privacy slats provide 3" OD)
4. Top, Bottom and Horizontal Intermediate Rails:
   a. Top, bottom and horizontal intermediate rails (as applicable) shall be 1.66" OD (1-5/8" OD)
5. Gate Posts: Furnish posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:
   a. 6 feet to 10 feet: 3.5" OD
   b. Under 6 feet: 2-7/8" OD
6. Gate Frames: Furnish frames (single or double gate), for nominal gate widths as follows:
   a. 6 feet to 10 feet: 1.90" OD (2" OD)
   b. Under 6 feet: 1.66" OD (1-5/8" OD)

D. Fittings and Accessories:
1. Material: Comply with ASTM F 626. Mill-finished aluminum or galvanized iron or steel, to suit manufacturer’s standards.
   a. Zinc Coating: Unless specified otherwise, steel fence fittings and accessories shall be galvanized in accordance with ASTM A 153, with zinc weights per Table 1 of ASTM A153.
2. Tension Wire: 7-gauge (0.177 inch diameter) coil spring steel with finish to match fabric (where applicable).
3. Tie Wires: 9 gauge (0.148 inch diameter) steel with finish to match fabric.
4. Post and Line Caps: Provide weather tight closure cap for each post. Provide line post caps with loop to receive wire or top rail with finish to match fabric.
5. Tension Bars: Hot-dip galvanized steel with minimum length 2 inches less than full height of fabric, minimum cross-section of 3/16 inch by 3/4 inch and minimum of 1.2 oz. zinc coating per sq. ft. of surface area.
7. Truss Rods: Hot-dipped galvanized steel rods with a minimum diameter of 5/16" (7.9 mm).
8. Hinges: Master Halco heavy duty, or acceptable equal.
9. Concrete: Concrete for footings shall be Class B minimum. Refer to Section 02520 Portland Cement Concrete for additional information.
10. Privacy Plastic Slats: Shall be the pre-woven variety in 3.5” x 5.5” galvanized chain-link mesh. Color shall be tan.

PART 3  EXECUTION

3.01 PREPARATION

A. Prior to excavation, layout all fencing locations for review and acceptance by Owner’s Representative.
3.02 INSTALLATION

A. Conform to layout shown on Drawings, except as modified by the Owner’s Representative.

B. Erect fencing in strict conformance with reviewed and accepted Drawings, Shop Drawings, and manufacturer’s recommendations.

C. Install new footings as shown on Drawings.

D. Posts shall be installed vertical and plumb.

E. General: Install fence in compliance with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted.

F. Excavation: Drill or hand-excavate holes for posts to diameter and spacing indicated in firm, undisturbed or compacted soil.
   1. Unless noted otherwise, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4 times largest cross section of post.
   2. Unless noted otherwise, excavate hole depths approximately 3 inches lower than post bottom, with bottom of posts set not less than 36 inches below finish grade surface.

G. Setting Posts: Center and align posts in holes 3 inches above bottom of excavation. Space chain link posts maximum 8 feet o.c. unless noted otherwise. Surface mount posts with mounting plates where indicated. Fasten with lag bolts and shields.

H. Top Rails: Run rail continuously through line posts caps, bending to radius for curved runs and at other posts termination into rail end attached to posts or post caps fabricated to receive rail. Provide expansion couplings as recommended by fencing manufacturer.

I. Bottom Rails: Install bottom rails between posts with fittings and accessories as shown in Drawings (as applicable).

J. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.

K. Tension Wire: As applicable, install at bottom of fabric (and at top if top rail is not specified) as shown in Drawings. Install tension wire before stretching fabric and attach to each post with ties. Secure wire to fabric with 12.5 gauge hog rings at 24” on center maximum.

L. Fabric: Leave approximately 2 inches between finish grade and bottom selvages (1 inch at backstops) unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on park or primary use side of fence (unless noted otherwise), and anchor to framework so that fabric remains in tension after pulling force is released.

M. Tension Bars: Provide one bar for each gate and end post, and two for each corner and pull post, except where fabric integrally woven into post. Thread through fabric, and secure to end, corner, pull, and gate posts with tension clips spaced not over fifteen (15) inches on center.

N. Tie Wires: Use U-shaped wire of proper length to secure fabric firmly to posts and rails with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing. Tie fabric to line posts 12 inches maximum on center and to rails and braces 24 inches maximum on center.
O. Fasteners: Install nuts for tension clips and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts. Cut all bolts within three threads of nut or less.

P. Welding: All welds shall be shop fabricated prior to galvanizing unless otherwise acceptable to Owner’s Representative. Any and all field welds shall be completed by a Certified Structural Welder and shall be "spray-galvanized" or otherwise treated subject to the discretion of the Owner's Representative.

Q. All bolts shall be cut back to within three threads of the nut.

R. Provide touch-up paint applications to fencing framework, fittings and accessories where powder coat paint was affected by installation.

END OF SECTION
SECTION 02832
ORNAMENTAL PICKET FENCING

PART 1 GENERAL

1.01 SUMMARY

A. Furnish all labor, materials, equipment, facilities transportation and services to complete all ornamental picket fencing installations and related work as shown on the Drawings and/or specified herein.

B. Scope of work:
The general extent of the ornamental picket fencing improvements is shown on the Drawings, and can include but is not necessarily limited to the following:
1. Ornamental picket fence, posts, hardware, concrete footings, and related appurtenances

C. Related sections can include, but may not be limited to:
1. Section 01300 - Submittals
2. Refer to Structural Plans

1.02 SUBMITTALS

A. Changes in specification may not be made after the bid date

B. Shop Drawings: Layout of fence and gates with dimensions, details and finishes of component accessories and post foundations.

C. Product Data: Manufacturer’s catalogue cuts indicating material compliance and specified options

D. Samples: Color selections for polyester finishes. If requested, samples of material (e.g. finials, caps and accessories).

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Approved Manufacturers:
Merchants Metals
3838 N. Sam Houston Pkwy E., Suite 600
Houston, Texas 77032
866.888.5611
281.372.3801 fax

Ameristar Fence Products
5678 Concours Street
Ontario, CA 91764
888.333.3422

B. Product: Secure-Weld Plus
1. Industrial grade product line
2. 10 year warranty
2.02 ORNAMENTAL PICKET FENCE

A. Rails, Pickets and Posts: Per Plans

B. Finish: All pickets, channels, posts, fittings and accessories shall be polyester coated individually after drilling and layout, to ensure maximum corrosion protection. Color black.

C. Fence system shall have spot welds or anti-theft measures for all bolted items. Any spot welds shall be treated and painted to match fence system.

D. Hinges, latches and locking canes shall be submitted for review and approval.

2.03 ACCESSORIES

A. Industrial Drive Rivets: Of sufficient length to attach items in a secure non-rattling position/ Rivet to have a minimum of 1000 lbs. Holding power and a shear strength of 1500 lbs.

B. Ornamental Picket Fence Accessories: Provide indicated items required to complete fence system. Including but not limited to latches, locks, holds and handles. Galvanize each ferrous metal item in accordance with ASTM B695 and finish to match framing.

C. Standard Post Caps: Formed steel, cast of malleable iron or aluminum alloy, weathertight closure cap. Provide one standard style post cap for each post. Caps shall be secured to posts by sleeve or epoxy.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify areas to receive fencing are completed to final grades and elevations.

B. Ensure property lines and legal boundaries of work are clearly established.

3.02 INSTALLATION

A. Install fence in accordance with manufacturer’s instructions.

B. Space posts uniformly at 8’ maximum center to center unless otherwise indicated per fence manufacturer’s requirements.

C. Concrete Set Posts: Drill hole in firm, undisturbed or compacted soil. Gate Posts and Hardware: Set keepers, stops, sleeves and other accessories into concrete.

D. Check each post for vertical and top alignment, and maintain in position during placement and finishing operation.

E. Align fence panels between posts.

3.03 GATE INSTALLATION

A. Attach hardware by means, which will prevent unauthorized removal.

B. Adjust hardware for smooth operation.
3.04 ACCESSORIES
   A. Install post caps and other accessories to complete fence.

3.05 CLEANING
   A. Clean up debris and unused material, and remove from site.

END OF SECTION
PART 1  GENERAL

1.01  SUMMARY

Furnish all labor, materials, miscellaneous hardware, foundations, miscellaneous appurtenances, facilities, transportation and services required for installation of all site furnishings and related work as shown on the Drawings and/or specified herein.

A.  Scope of work:
The general extent of work contained in this section is shown on the drawings and can include, but may not be limited to, installation of the following:

- **Depot Park**
  1. Drinking fountain
  2. Trash and Recycling Receptacles
  3. Benches
  4. Kiosks
  5. Shade Structures
  6. Bike Racks
  7. Truncated Domes
  8. Wheel Stops
  9. Sound Wall
 10. Play Equipment
 11. Restroom Building
 12. Picnic Benches
 13. Picnic Tables – ADA
 14. Picnic Tables with Game Board
 15. Riparian Signage
 16. Bridges
 17. Bike Fix-it Station
 18. Retaining Walls and Steps
 19. Pet Waist Station
 20. Vehicular Barrier Gates
 21. Bollards
 22. Vista Signage
 23. Trail Markers
 24. Slides
 25. Outdoor Exercise Equipment

B.  Related sections can include, but may not be limited to:

1. Section 01300 - Submittals
2. Section 02510 - Asphaltic Concrete Pavement
3. Section 02520 - Portland Cement Concrete
4. Section 02545 - Miscellaneous Paving and Surfacing

1.02  REFERENCES AND REGULATORY REQUIREMENTS


1.03  SUBMITTALS

A.  Conform to Section 01300 Submittals and applicable Division One and Division Two specifications,
General Conditions and/or Special Provisions.

B. Product Data: Submit catalog cut sheets of all materials and equipment proposed to be furnished and/or installed under this portion of the work. Include the manufacturer and distributor name, sub-contractor as applicable. Insure that the cut sheets clearly describe the specific product by catalog number and that additional non-specified products that may appear on the same cut sheet are crossed out where applicable.

C. Samples: Submit samples of colors and finishes for all applicable products and furnishings for selection by Owner’s Representative.

D. Shop Drawings: Submit complete shop drawings for all materials or furnishings requiring field or shop fabrication.

1.04 QUALITY ASSURANCE

A. Review: All equipment shall be reviewed for conformance with the intent of the Contract Documents and accepted by the contractor prior to installation. All site furnishings shall be in a new, “first-class” condition, per the discretion of the Owner’s Representative, prior to Final Acceptance.

1.05 DELIVERY, STORAGE AND HANDLING

A. The contractor is responsible for coordination of the delivery, acceptance, handling and storage of all site furnishings.

B. Store and handle site furnishings as acceptable to the Owner’s Representative and so that work or access of others is not impeded.

C. The contractor shall protect all site furnishings from theft or damage at all times until such items have been accepted by the Owner.

PART 2 PRODUCTS

2.01 SITE FURNISHINGS DEPOT PARK

<table>
<thead>
<tr>
<th>Description</th>
<th>Manufacturer</th>
<th>Model No.</th>
<th>Finish/Color</th>
<th>Distributor/Contact</th>
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<tr>
<td>A. Drinking Fountain</td>
<td>Most Dependable Fountains</td>
<td>10155 SMSS with Bottle Filler and Pet Fountain</td>
<td>Blue</td>
<td>Most Dependable Fountains 5705 Commander Drive, Arlington, TN 38002 800.552.6331</td>
</tr>
<tr>
<td>B. Trash and Recycling Receptacles</td>
<td>Columbia Cascade Company</td>
<td>TimberForm® Renaissance™ series model No. 2817-DT</td>
<td>Powder Coated Forest Green</td>
<td>ParkPacific, Inc. 888.460.7275</td>
</tr>
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<td>C. Benches</td>
<td>Dumor</td>
<td>Bench 493</td>
<td>Powder Coated Forest Green</td>
<td>Ross Recreation 100 Brush Creek Road Santa Rosa, CA 95404 707.538.3800</td>
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<td>D. Kiosk</td>
<td>Vacker Signs for Parks &amp; Trails</td>
<td>Bulletin Cases with clear acrylic door opening &amp; set of two aluminum posts; Proposal # 2236</td>
<td>Posts: black texture powder coat</td>
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<td>E. Shade Structures</td>
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<td>Custom Sail Shade System, Proposal #18663</td>
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<td>Recreation Republic, Inc. 802 N. Twin Oaks Valley Road, Suite 107 San Marcos, CA 92069</td>
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<td>Bike Racks</td>
<td>Dero</td>
<td>Quote # 121257 HRHD-FT-FV-A WEDGE-375-3.000 TRIPLE-SLOT-NUT TRIPLE-SLOT-TOOL Surface mount, galvanized 504 Malcolm Ave SE, Suite 100, Minneapolis, MN 55414</td>
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<td>G.</td>
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<td>ArmorTile</td>
<td>ADA-C-3648YW Yellow ArmorTile 916.844.4132</td>
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<td>H.</td>
<td>Wheel Stops</td>
<td>American Precast Inc.</td>
<td>C B04 Concrete American Precast, Inc. 2246 N Durfee Ave. El Monte, CA 91732 1-800-691-7118</td>
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<td>I.</td>
<td>Sound Wall</td>
<td>Sierra Wall Systems by Oldcastle Precast</td>
<td>Lighthouse White Sierra Wall Systems 408.779.1000</td>
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<td>J.</td>
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<td>Goric</td>
<td>SEN0702045 N/A Recreation Republic, Inc. 802 N. Twin Oaks Valley Road, Suite 107 San Marcos, CA 92069 760.690.4030</td>
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<td>K.</td>
<td>Floating Rocks</td>
<td>Goric</td>
<td>SEN07010190 N/A Recreation Republic, Inc. 802 N. Twin Oaks Valley Road, Suite 107 San Marcos, CA 92069 760.690.4030</td>
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<td>L.</td>
<td>The Rainmaker</td>
<td>Goric</td>
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<tr>
<td>M.</td>
<td>BLX4101</td>
<td>Kompan</td>
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<td>N.</td>
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<td>Kompan</td>
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<td>P.</td>
<td>Macro Spacenet</td>
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<td>COR21401 N/A Recreation Republic, Inc. 802 N. Twin Oaks Valley Road, Suite 107 San Marcos, CA 92069 760.690.4030</td>
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| Q. | PlayOdyssey Tower | LSI | #2962 | 97525-2-2 combo d | Ross Recreation  
100 Brush Creek Road  
Suite #206  
Santa Rosa, CA 95404  
855.892.3240 |
|---|---|---|---|---|---|
| R. | Tot Play-Play Motion | LSI | Smart Play: Play Motion | N/A | Ross Recreation  
100 Brush Creek Road  
Suite #206  
Santa Rosa, CA 95404  
855.892.3240 |
| S. | Custom Train | LSI | Custom Train | N/A | Recreation Republic, Inc.  
802 N. Twin Oaks Valley  
Road, Suite 107  
San Marcos, CA 92069  
760.690.4030 |
| T. | Giant Wood Xylophone | Freenotes Harmony Park Instruments | Giant Wood Xylophone | N/A | NSP3  
1555 Tahoe Court  
Redding, CA 96003  
877.473.7619 |
| U. | Contrabass Chimes | Freenotes Harmony Park Instruments | Contrabass Chimes | N/A | NSP3  
1555 Tahoe Court  
Redding, CA 96003  
877.473.7619 |
| V. | Tuned Drums | Freenotes Harmony Park Instruments | Tuned Drums | N/A | NSP3  
1555 Tahoe Court  
Redding, CA 96003  
877.473.7619 |
| W. | Bear Cub | IDSculture | TC001 | Natural Theme | NSP3  
1555 Tahoe Court  
Redding, CA 96003  
877.473.7619 |
| X. | Restroom Building (Bid Alternate no. 1) | Exeloo | Juniper 22/23 US Main Assembly No. ASJUP22DD-US1SAW | As per plans | Exeloo  
PO Box 13310  
San Luis Obispo, CA 93406  
Alex Carter, 805.858.8955 |

2.02 SITE FURNISHINGS LLAGAS CREEK PARK

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<th>Model No.</th>
<th>Finish/Color</th>
<th>Distributor/Contact</th>
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</thead>
</table>
| A. Drinking Fountain | Most Dependable Fountains | 10155 SMSS with Bottle Filler and Pet Fountain | Powder Coated Green | Most Dependable Fountains  
5705 Commander Drive,  
Arlington, TN 38002  
800.552.6331 |
888.460.7275 |
| C. Benches | Outdoor Creations | 402 Concrete Flat Bench | Sandstone | Outdoor Creations Inc.  
2270 Barney Street,  
Anderson, CA 96007  
530.365.6106 |
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<td>Picnic Tables</td>
<td>Outdoor Creations</td>
<td>107S Round Concrete Picnic Table</td>
<td>Sandstone</td>
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<td>E.</td>
<td>Picnic Tables - ADA</td>
<td>Outdoor Creations</td>
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<td>Sandstone</td>
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<td>F.</td>
<td>Picnic Tables with Game Board</td>
<td>Outdoor Creations</td>
<td>107S Round Concrete Picnic Table with Chess/Checker Board</td>
<td>Sandstone</td>
<td>Outdoor Creations Inc. 2270 Barney Street, Anderson, CA 96007 530.365.6106</td>
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<td>G.</td>
<td>Picnic Tables with Game Board - ADA</td>
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<td>107AC Round Concrete Picnic Table w/wheelchair entry with Chess/Checker Board</td>
<td>Sandstone</td>
<td>Outdoor Creations Inc. 2270 Barney Street, Anderson, CA 96007 530.365.6106</td>
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<tr>
<td>H.</td>
<td>Truncated Domes</td>
<td>ArmorTile</td>
<td>ADA-C-364BYW</td>
<td>Yellow</td>
<td>ArmorTile 916.844.4132</td>
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<tr>
<td>I.</td>
<td>Wheel Stops</td>
<td>American Precast Inc.</td>
<td>C B04</td>
<td>Concrete</td>
<td>American Precast, Inc. 2246 N Durfee Ave. El Monte, CA 91732 1-800-691-7118</td>
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<td>J.</td>
<td>Kiosk</td>
<td>Vacker Signs for Parks &amp; Trails</td>
<td>Bulletin Cases with clear acrylic door opening &amp; set of two aluminum posts; Proposal # 2236</td>
<td>Posts: black texture powder coat</td>
<td>Vacker Signs for Parks &amp; Trails 948 Sherren Street West, Roseville, MN 55113 651.487.3100</td>
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<td>K.</td>
<td>Riparian Signage</td>
<td>Vacker Signs for Parks &amp; Trails</td>
<td>Angle Mount Frameless Pedestal; Proposal # 2236. Signage by City</td>
<td>Aluminum post and 12”x18” mounting plate, powder coat black</td>
<td>Vacker Signs for Parks &amp; Trails 948 Sherren Street West, Roseville, MN 55113 651.487.3100</td>
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<td>L.</td>
<td>Pet Waste Station</td>
<td>Dog Waste Depot</td>
<td>DEPOT-006B</td>
<td>Aluminum Powder coat forest green</td>
<td>Dog Waste Depot 12316 World Trade Drive Ste 102, San Diego, CA 92128 800.678.1612</td>
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<td>M.</td>
<td>Bollards</td>
<td>Columbia Cascade Company</td>
<td>TimberForm® model No. 2190-RH</td>
<td>Coated Coffee Tan</td>
<td>ParkPacific, Inc. 888.460.7275</td>
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<td>N.</td>
<td>Trail Markers</td>
<td>Vacker Signs for Parks &amp; Trails</td>
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<td>Recycled plastic lumber and TUFF panel inserts</td>
<td>Vacker Signs for Parks &amp; Trails 948 Sherren Street West, Roseville, MN 55113 651.487.3100</td>
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<td>O.</td>
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<tr>
<td>Q. Pedestrian Bridge</td>
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<td>#J4652 (see 3.02 installation)</td>
<td>Weathered Steel</td>
<td>Excel Bridge Manufacturer Jodi Seidl @ 320.762.1368</td>
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<td>R. Vehicular Bridge</td>
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<td>#J4652 (see 3.02 installation)</td>
<td>Weathered Steel</td>
<td>Excel Bridge Manufacturer Jodi Seidl @ 320.762.1368</td>
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<td>S. Climbing Rocks – The Peak</td>
<td>Landscape Structures, Inc.</td>
<td>Project No. 99704-1-1 Part no. 160418A</td>
<td>Natural Theme</td>
<td>Ross Recreation 100 Brush Creek Road Suite #206 Santa Rosa, CA 95404 855.892.3240</td>
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<tr>
<td>T. Climbing Rocks – Pinnacle and Pointe</td>
<td>Landscape Structures, Inc.</td>
<td>Project No. 99704-1-1 Part no. (1) 156067A and (1) 156065A</td>
<td>Natural Theme</td>
<td>Ross Recreation 100 Brush Creek Road Suite #206 Santa Rosa, CA 95404 855.892.3240</td>
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<tr>
<td>U. Mushroom Steps</td>
<td>Landscape Structures, Inc.</td>
<td>Project No. 99704-1-1 Part no.'s (2) 8” 171568 (2) 16” 171570 (2) 24” 171572</td>
<td>Natural Theme</td>
<td>Ross Recreation 100 Brush Creek Road Suite #206 Santa Rosa, CA 95404 855.892.3240</td>
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<tr>
<td>V. Acorn Seats</td>
<td>Landscape Structures, Inc.</td>
<td>Project No. 99704-1-1 Part no. 186579A</td>
<td>Natural Theme</td>
<td>Ross Recreation 100 Brush Creek Road Suite #206 Santa Rosa, CA 95404 855.892.3240</td>
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<td>W. Balance Log Stumps</td>
<td>Landscape Structures, Inc.</td>
<td>Project No. 99704-1-1 Part no.'s 9”0 8” 173907 (6) 18” 173908 (2) 28” 173909</td>
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<td>X. Balance Beam</td>
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<td>Project No. 99704-1-1 Part no. 173596A</td>
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2.03 SITE FURNISHINGS HILLTOP PARK

<table>
<thead>
<tr>
<th>Description</th>
<th>Manufacturer</th>
<th>Model No.</th>
<th>Finish/Color</th>
<th>Distributor/Contact</th>
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<tbody>
<tr>
<td>A. Drinking Fountain</td>
<td>Most Dependable Fountains</td>
<td>10155 SMSS with Bottle Filler and Pet Fountain</td>
<td>Green</td>
<td>Most Dependable Fountains 5705 Commander Drive, Arlington, TN 38002 800.552.6331</td>
</tr>
<tr>
<td>B. Trash and Recycling Receptacles</td>
<td>Columbia Cascade Company</td>
<td>TimberForm® Renaissance™ series model No. 2817-DT</td>
<td>Coated Forest Green</td>
<td>ParkPacific, Inc. 888.460.7275</td>
</tr>
<tr>
<td>C. Benches</td>
<td>Outdoor Creations</td>
<td>402 Concrete Flat Bench</td>
<td>Sandstone</td>
<td>Outdoor Creations Inc. 2270 Barney Street, Anderson, CA 96007 530.365.6106</td>
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<tr>
<td>D. Picnic Tables</td>
<td>Outdoor Creations</td>
<td>1075 Round Concrete Picnic Table</td>
<td>Sandstone</td>
<td>Outdoor Creations Inc. 2270 Barney Street, Anderson, CA 96007</td>
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<td>Item Description</td>
<td>Supplier/Details</td>
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<tr>
<td>E</td>
<td>Picnic Tables with Game Board</td>
<td>Outdoor Creations 107S Round Concrete Picnic Table with Chess/Checker Board</td>
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<td>Sandstone</td>
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<tr>
<td>F</td>
<td>Kiosk</td>
<td>Vacker Signs for Parks &amp; Trails Bulletin Cases with clear acrylic door opening &amp; set of two aluminum posts; Proposal # 2236</td>
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<tr>
<td></td>
<td></td>
<td>Posts: black texture powder coat</td>
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<td>Vacker Signs for Parks &amp; Trails 948 Sherren Street West, Roseville, MN 55113</td>
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<tr>
<td></td>
<td></td>
<td>651.487.3100</td>
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<tr>
<td>G</td>
<td>Vista Signage</td>
<td>Vacker Signs for Parks &amp; Trails Angle Mount Frameless Pedestal; Proposal # 2236</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>Aluminum post and 16”x20” mounting plate, powder coat black</td>
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<td>Vacker Signs for Parks &amp; Trails 948 Sherren Street West, Roseville, MN 55113</td>
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<td></td>
<td>651.487.3100</td>
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<tr>
<td>H</td>
<td>Retaining Walls and Steps</td>
<td>Versa-Lok Retaining Wall Systems  Standard units with Cobble units at tight radii</td>
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<td></td>
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<td>Weathered with Earthtone colors</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Evergreen Supply Co 2984 Monterey Road San Jose, CA 95111</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>408.225.4186</td>
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<tr>
<td>I</td>
<td>Pet Waste Station</td>
<td>Dog Waste Depot DEPOT-0068</td>
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<td></td>
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<td>Aluminum Powder coat forest green</td>
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<td></td>
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<td>Dog Waste Depot 12316 World Trade Drive Ste 102, San Diego, CA 92128</td>
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<tr>
<td></td>
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<td>800.678.1612</td>
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<td>J</td>
<td>Trail Markers</td>
<td>Vacker Signs for Parks &amp; Trails Trail Marker Post; Proposal # 2236</td>
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<tr>
<td></td>
<td></td>
<td>Recycled plastic lumber and TUFF panel inserts</td>
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<td></td>
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<td>Vacker Signs for Parks &amp; Trails 948 Sherren Street West, Roseville, MN 55113</td>
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<tr>
<td>K</td>
<td>Bike Racks</td>
<td>Dero Quote # 121257 HRHD-FT-FV-A WEDGE-375-3.000 TRIPLE-SLOT-NUT TRIPLE-SLOT-TOOL</td>
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<td></td>
<td></td>
<td>Surface mount, galvanized</td>
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<td></td>
<td></td>
<td>504 Malcolm Ave SE, Suite 100, Minneapolis, MN 55414</td>
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<td>L</td>
<td>Vehicle Barrier Gate</td>
<td>Hoover Fence Quote # HF25302 and (2) pairs of wires for the two Keypad connections</td>
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<td></td>
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<td>Steel - color Black</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Hoover Fence Co. 4521 Warren Ravenna Road Newton Falls, OH 44444 330.358.2335</td>
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<td>M</td>
<td>Slides (Bid Alternate no. 2)</td>
<td>Columbia Cascade Company Proposal #: Q-16-76260-A1 1650-123-EMB-M 1650-263-EMB-M</td>
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<td>Plastic, Green</td>
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<td></td>
<td></td>
<td>ParkPacific, Inc. 888.460.7275</td>
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<tr>
<td>N</td>
<td>Outdoor Fitness Equipment</td>
<td>Columbia Cascade Company Proposal #Q-16-77019-A1</td>
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<td>Powder Coat</td>
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<tr>
<td></td>
<td></td>
<td>ParkPacific, Inc. 888.460.7275</td>
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<td></td>
</tr>
</tbody>
</table>
PART 3  EXECUTION

3.01  SEQUENCING AND SCHEDULING

A. Coordinate construction timing of installation of site furnishings in conformance with all other pertinent work.

B. Concrete footings shall conform to requirements of Section 02520 Portland Cement Concrete unless noted otherwise.

3.02  INSTALLATION

A. Concrete Footings: Install as shown in Drawings unless noted otherwise.

B. Site Furnishings and Play Equipment: Conform to layout shown on Drawings. Erect in strict conformance with Details, accepted Shop Drawings, and manufacturer’s instructions.

C. Versa-Lok walls and stairs are to be installed as per manufacturer’s details and specifications.

D. All bolts shall be cut back to within three threads of the nut. Relevant to benches, bleachers, and other materials with exposed bolts.

E. Vehicular Bridge: 33'6" x 26'6" Beam Span, Weathered steel, Galvanized form pan to accept rebar & poured concrete deck by others, Bolt-on Horizontal safety rails, 85 psf live load, HS-20/72,000 lb. Vehicle load, & AISC Design code. This bridge will be delivered in 2-3 pieces utilizing male/female bolted splice connections.

F. Pedestrian Bridge: 31’ x 8’ H-section Pratt truss, Weathered steel, Galvanized form pan to accept rebar & poured concrete deck by others, Horizontal safety rails, 85 psf live load, 8,000 lb. Vehicle load, & AASHTO Design code. This bridge would be delivered in 1 piece.

3.03  FIELD QUALITY CONTROL

A. All site furnishings shall be inspected and accepted upon delivery by the Contractor. Final acceptance of site furnishings and locations of site furnishings shall be per the discretion of the Owner’s Representative.

END OF SECTION
SECTION 02900

LANDSCAPING

PART 1  GENERAL

1.01  SUMMARY

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. Scope of work:
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

C. Related sections can include, but may not be limited to:
1. Section 02100 - Site Clearing and Demolition
2. Section 02810 - Irrigation
3. Section 02970 – Landscape & Site Maintenance

1.02  REFERENCES AND REGULATORY REQUIREMENTS

A. American Joint Committee on Horticulture Nomenclature (AJCHN): Standardized Plant Names

B. American Association of Nurserymen, Inc. (AAN): American Standard for Nursery stock

C. Sunset Western Garden Book, Lane Publishing CO.

D. Agricultural Code of California.


1.03  SUBMITTALS

A. Conform to requirements of Section 01300 and/or applicable Division One and Division Two specifications, General Conditions and Special Provisions.

B. Plant Materials and Products:
1. Prior to ordering plant material, submit photographs of trees and plants with size pole or measuring tape to illustrate the plant material height from the top of the container and the width.
2. 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.
3. 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.
4. 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

1.04 SOURCE/QUALITY ASSURANCE

A. Control of work: Comply with Section 5 of the Standard Specifications.

B. Control of materials: Comply with Section 6 of the 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.

1.05 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.

1.06 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

1.07 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.

1.08 TURF ESTABLISHMENT PERIOD

A. Turf Establishment period shall include complete germination or rooting of ALL turf and at least two mowings as specified herein, prior to the commencement of the specified Landscape Maintenance Period.

1.09 MAINTENANCE PERIOD

A. Refer to Section 02970 - Landscape Maintenance for information.

PART 2 PRODUCTS

2.01 TOPSOIL

A. Topsoil shall be clean on-site material that has been previously stripped from the top 6 inches of original grade or acceptable import material (as applicable). Acceptable topsoil shall be free from “rocks” (rock, stones, rubble, clay clods, etc. over 2” in diameter), roots, toxins, and any other deleterious materials per the discretion of the Owner’s Representative. Refer to Section 02200 – Earthwork.
B. 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.

2.02 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 Potash

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

2.03 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:
<table>
<thead>
<tr>
<th>% Passing</th>
<th>Sieve Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>85-100</td>
<td>9.51 mm (3/8&quot;)</td>
</tr>
<tr>
<td>50-80</td>
<td>2.38 mm (No. 8)</td>
</tr>
<tr>
<td>0-40</td>
<td>500 Micron (No. 35)</td>
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</tbody>
</table>

   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. Soil Sulphur: Shall be agricultural grade, 99% pure, pelletized/granular form, not powdered.

D. 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.

2.04 MULCH TOP DRESS

A. Mulch top dress shall be a medium-sized (3/4”-1”) decorative chipped wood product free of deleterious and inorganic materials. Material shall be homogenous in appearance, free from sticks or shredded/stringy/fibrous materials.

2.05 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

2.06 TURF SOD

A. Sod shall be as follows:
   1. Sod shall be a Native Bentgrass.
   2. Sod shall have a ¾” cut thickness.
   3. Sod shall be standard roll cut.
   4. Sod shall have a sandy loam base.
   5. Sod shall be free of non-specified turf types, weeds and other deleterious materials.
   6. Sod is available at:
      a. Delta Bluegrass Co. - Native Bentgrass of Agrosis pallens
      111 N Zuckerman Road, Stockton, California 95201; 209-469-7979

2.07 SEED MIXES

A. All seed mixes and seed from which sod was grown shall be, or shall have been:
   1. From current or latest seasons crop
   2. Free of all weed seed and have producers “Statement of Analysis Guarantee”
   3. 95% pure by weight with a 90% germination rate
   4. Labeled in conformance to State and U.S.D.A. laws and regulations

B. Native Grass and Wildflower Mix: Shall be at the following in lbs per acre:
   1. 30 lbs Festuca rubra Molate Blue, Molate Blue Fescue
   2. 20 lbs Festuca idahoensis, Native Idaho Fescue
   3. 20 lbs Festuca occidentalis, Western Fescue
   4. 1.5 lbs Eschscholzia californica - California Poppy
   5. 1.5 lbs Lasthenia glabrata – Goldfields
   6. 3 lbs Lupinus nanus - Sky Lupine
   7. 1.25 lbs Clarkia bottae – Showy Clarkia
   8. .25 lbs Castelleja exerta – Purple Owls Clover
9. 1.50 lbs Collinsia heterophylla – Chinese Houses
10. Add 6 lbs of Vulpia microstachys or 20 lbs. of Regreen per acre if erosion control is to be accomplished primarily through the growth of winter germinating plants.

C. Erosion Control Seed: Shall be Winter Barley at 5 lbs. per 1,000 s.f.

D. Quality: All seed shall be in conformance with the California State Seed Law of the Department of Agriculture. Each seed bag shall be delivered to the site sealed and clearly marked as to species, purity, percent germination, dealer’s guarantee and dates of test. Prior to seeding at the request of Owner Representative, the contractor shall provide a letter of certification, original Association of Official Seed Analysts (AOSA) seed test results.

2.08 HYDROSEED SLURRY

A. Hydroseed slurry shall contain the following (or acceptable equal), thoroughly mixed and applied per acre. Method for hydroseeding shall be a two-step hydraulic straw treatment as follows:

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<thead>
<tr>
<th>Step One</th>
<th>lbs/acre</th>
<th>Description</th>
</tr>
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<tr>
<td>a)</td>
<td></td>
<td>hydroseed mix</td>
</tr>
<tr>
<td>b) 2000</td>
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<td>Hydro straw™ straw and tack mulch</td>
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<td>c) 1000</td>
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<td>7-2-3 Biosol</td>
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<td>d) As specified</td>
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<td>Native grass and wildflower seed mix</td>
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<td>e) 60</td>
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<td>AM 120 mycorrhizal inoculant</td>
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<td>a)</td>
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</tr>
<tr>
<td>b) 2000</td>
<td></td>
<td>Hydro straw™ straw and tack mulch</td>
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</table>

B. Hydroseed slurry shall contain green dye at a rate common to the industry so that hydroseed coverage can be confirmed visually from a distance.

C. Equipment used for application of hydroseed slurry shall be a commercial type hydro-seeder and have built-in agitation system with an operational capacity sufficient to agitate, suspend and homogeneously mix slurry. Tank capacity shall be a minimum of 1,500 gallons and shall be mounted on a truck to allow access to site. Distribution lines shall be large enough to prevent stoppage and allow for even distribution of slurry over the site. Pump shall be able to generate 150 psi at the nozzle.

2.09 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.

2.10 TREE STAKES AND TIES

A. Tree stakes and ties shall be as specified on Drawings.

2.11 OTHER MATERIALS

A. Header Board: As may be specified on the Drawings.

B. Root Barriers: Shall be model Deep Root #UB 36-2 “Universal Barrier” as produced by Deep Root Partners L.P.; Ph.: (800) 458-7668 Fx.: (800) 277-7668 or acceptable equal. Need to show locations on plan for quantifying.
C. Jute Netting
   1. Geo Jute Netting with ½” x ¾” holes made from hemp use with 8” jute staples.

D. Sonoma Moss Rocks: one, two and three head sized. Boulders shall be buried 1/3 depth with best, mossy side up.

E. Provide all other materials necessary to complete landscaping work as shown on Drawings and specified herein.

F. All products and materials, including those specified above, shall be new, first quality as acceptable to the Owner’s Representative.

PART 3 EXECUTION

3.01 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 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.

C. Refer to Section 02200 - Earthwork for rough grading for information.

3.02 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.

C. Concrete Mow bands and Wood Header Boards: Install per Drawings and repeat initial preparations described above as necessary.

3.03 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
   4. 20 Pounds Soil Sulfur

The above additive recipe shall be used for bid purposes only. A site specific fertility test shall be performed by the Contractor (at Contractor’s cost) after rough grading (and applicable topsoil placement or replacement) operations are complete. The results of the test(s) shall be reviewed by the Owner’s Representative and direction for amendment additives ratio will be provided. 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 Contractor shall perform another test (at Contractor’s cost) to check conformance with the newly 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.

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.

Soil testing shall be sent to Gro-Power, Soil and Plant Lab, or approved lab for tests.

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.

3.04 NATIVE GRASS AND WILDFLOWER HYDROSEEDING

A. Verify that soil is prepared and finish graded in accordance with this section prior to hydroseeding.

B. All slurry preparation shall be performed at job site. Water, mulch, fertilizer and other ingredients shall be added to the tank simultaneously so that the finished load is a homogenous mix of specified ingredients. Seed shall be added last and shall be discharged in 2 hours. Lovers held over 2 hours will be recharged with ½ the seed rate before application. Once fully loaded, the complete slurry shall be agitated for 3-5 minutes to allow for uniform mixing.

C. Apply hydroseed evenly and uniformly over areas to be seeded at rates described in the “Products” portion of this specification section. Apply in a sweeping motion to form a uniform application and form a mat at the specified rates.

D. Seeding shall occur before first germinating rains in the fall.

E. If mixture remains in the tank for more than 8 hours it shall be removed from the job site.

F. Remove or clean areas not intended to receive hydroseed treatment.

3.05 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 if not protected by other fencing. Use 6’ temporary fence for protection.

D. Refer to Section 02970 for mowing and maintenance procedures. As applicable, the contractor shall remove sod, re-grade any areas that have been rutted from mowers (or otherwise damaged) and replace sod to the satisfaction of the Owner’s Representative.

E. 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.

3.06 TURF ESTABLISHMENT PERIOD

A. Prior to commencement of specified maintenance period, all turf shall be completely knitted to subgrade soil and established as follows:
   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.

3.07 TREE, SHRUB AND GROUND COVER PLANTING

A. These areas shall receive topsoil and soil amendments per section 3.01, 3.02, and 3.03 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 amended 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.
3.08 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.

3.09 HERBICIDE APPLICATION
A. Apply in accordance with manufacturers’ recommendations.
B. Apply pre-emergent herbicide to soil prior to placement of bark mulch top-dress.

3.10 MULCH TOP DRESS
B. Apply three (3) inches of specified bark mulch top dress to all non-turf planting areas and other areas as may be specified in the Drawings.
C. 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”.
D. Mulch does not dictate finish grade in planting areas. Mulch is to be added to finish grade. Refer to 3.02.

3.11 OTHER MATERIALS
A. Header Board: Install as shown in the drawings.
B. Root Barriers: Install as shown in the drawings.
C. Jute Netting: Install in planting areas with grades of 3:1 or greater. Install prior to planting. Stake 36” on center. Install plants and mulch after netting.

3.12 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
1.01 SUMMARY

A. Furnish all labor, materials, facilities, transportation and services to complete all landscape maintenance and related work as shown on the Drawings and specified herein.

B. Scope of work:
The general extent of landscape maintenance can include, but may not be limited to the following:
1. Tree, shrub, ground cover and turf areas
2. Irrigation systems
3. General site clean-up

C. Related sections can include, but may not be limited to:
1. Section 02810 - Irrigation
2. Section 02900 - Landscaping

1.02 REFERENCES AND REGULATORY REQUIREMENTS


1.03 QUALITY ASSURANCE

A. Control of work: Comply with Section 5 of the Standard Specifications.

B. Control of materials: Comply with Section 6 of the Standard Specifications.

C. The Maintenance Contractor shall be experienced in horticulture and landscape maintenance, practices and techniques, and shall provide sufficient number of workers with adequate equipment to perform the work during the Landscape Maintenance Period.

1.04 LANDSCAPE MAINTENANCE PERIOD

A. Landscape Maintenance Period shall be 60 calendar days.

B. Continuously maintain the entire project area during the progress of the work, during the specified Landscape Maintenance Period or until Final Acceptance of the project by the Owner's Representative.

C. Landscape Maintenance Period shall not start until all elements of construction, planting and irrigation for the entire project are in accordance with Contract Documents. A prime requirement is that all turf and landscape areas shall be planted and that all turf areas shall show an even, healthy stand of "sod-like" turf which shall have been mown twice. If such criteria are met to the satisfaction of the Owner's Representative, a written notification shall be issued to establish the effective beginning date of Landscape Maintenance Period. Additionally, all elements contained on the Pre-maintenance Punch-list shall have been completed to the satisfaction of the Owner's Representative. The Landscape Maintenance period shall, per the discretion of the Owner's Representative, be allowed to start and finish at different times in different areas as applicable.

D. Any day of improper maintenance, as determined by the Owner's Representative, shall not be
credited as an acceptable Landscape Maintenance Period day. The Landscape Maintenance Period shall be extended on a day-for-day basis should this occur until proper maintenance, as determined by the Owner’s Representative, is being performed.

E. Contractor shall secure the project site against trespass, vandalism or theft during the Landscape Maintenance Period subject to the discretion of the Owner’s Representative.

1.05 GUARANTEE

A. All work executed under this section shall be guaranteed against any and all poor, inadequate or inferior materials and/or workmanship, as determined by the Owner’s Representative, for the entire Landscape Maintenance Period and for a period of one year after Final Acceptance of project.

B. The contractor shall install all replacement material in conformance with the Contract Documents.

1.06 FINAL ACCEPTANCE

A. Upon completion of all project work, including Landscape Maintenance Period, the Owner’s Representative will, upon written request from the contractor (2 working day minimum notice), make an observation to determine conformance with the Contract Documents.

B. If, at the final project observation, work is found at variance with the Contract Documents, or is otherwise unacceptable, the Owner’s Representative shall issue a punch-list of items requiring attention to the contractor. The contractor shall repair, replace or otherwise correct all non-compliant work, continue Landscape Maintenance Period, and make another written request to the Owner’s Representative to verify punch-list completion. If punch-list is found to be incomplete, or if site is still found to be unacceptable, the contractor shall be back-charged as necessary for all additional observations required to issue Final Acceptance. All replacement materials and installations shall be in accordance with the Contract Documents. Remove rejected work and materials immediately from project. Prior to Final Acceptance, contractor shall provide the Owner’s Representative with all Record Drawings and written Guaranty Statements in accordance with the Contract Documents.

PART 2 PRODUCTS

2.01 MATERIALS

A. All materials used shall either conform to Specifications in other sections or shall otherwise be acceptable to the Owner’s Representative. The Owner’s Representative shall be given a monthly record of all herbicides, insecticides and disease control chemicals used.

B. Maintenance fertilizer: shall be “Gro-Power High Nitrogen” as available through Gro-Power, Inc. (800) 473-1307, and shall contain the following chemical analysis (or approved equal):

14% nitrogen
4% phosphoric acid
9% potash

PART 3 EXECUTION

3.01 MAINTENANCE

A. General: Proper maintenance, including watering, weeding, mowing, edging, fertilization, repairing and protection shall be required until entire project is finally accepted, but in any event for a period of not less than the specified Landscape Maintenance Period.

B. Watering: Water appropriately (based on plant type) to insure vigorous and healthy growth until
work is accepted. Water or irrigate in a manner to prevent runoff or erosion. When hand watering, use a “water wand” to break the water force.

C. Weeding: Entire project site shall be kept free of weeds at all times. Control new weed growth with pre-emergent herbicides. If weeds develop, use legally approved herbicides.
   1. No herbicide shall be used without the Owner’s Representative prior consent. Use only herbicides in accordance with manufacturer’s recommendations. If selective herbicides are used, extreme caution shall be observed so as not to damage any other plants. Spraying shall be done only under windless conditions.
   2. Disease and Pest Control: Disease and insect damage shall be controlled by the use of fungicides and insecticides, subject to the prior consent of the Owner’s Representative. Mole and gopher mitigation shall be accomplished using legal means other than poison baits.

D. Tree “rings” in turf areas: Remove turf from around each tree to create a four (4) foot diameter turf free area.

E. Pruning:
   1. Trees: Prune trees to select and develop permanent scaffold branches; to eliminate narrow v-shaped branch forks that lack strength; to reduce potential toppling and wind damage by thinning out crowns; to maintain a natural appearance and to balance crown with roots. Prune only as directed by the Owner’s Representative.
   2. Shrubs: The objectives of shrub pruning are the same as for trees. Shrubs shall not be clipped into balled or boxed forms unless such is required by the design.
   3. All pruning cuts shall be made to lateral branches, buds or near flush with the trunk.
   4. “Stubbing” or heading cuts shall not be permitted.
   5. Only skilled workers shall perform pruning work in accordance with standard horticultural pruning practices. Remove from the project all pruned branches and material. Remove and replace any plant material excessively pruned or malformed resulting from improper pruning practices at no additional cost to the Owner.

F. Staking: Stakes shall remain in place through the maintenance and guaranty periods and shall be periodically inspected and adjusted by the contractor to prevent rubbing that causes bark wounds, loosen for proper growth or other appropriate reasons.

G. Protection: The contractor shall maintain protection of all planting areas until Final Acceptance. Damaged areas shall be repaired or replaced at the contractors expense. Install a temporary maintenance fence (4’ blaze orange with steel driven stakes or acceptable equal) around all turf areas for the entire length of Landscape Maintenance Period.

H. Trash: Remove trash in all project areas plus adjacent pedestrian walkways and parking areas.

I. Replacement: Refer to the Guaranty portion of this Section.

J. Fertilizing: Fertilizing: Turf shall be fertilized on day 30 and 60 after initial installation. Turf shall be fertilized with 20 lbs. of 16-16-16 fertilizer per 1,000 square feet.

3.02 TURF MAINTENANCE

A. Watering: Turf shall be watered at such frequency as weather conditions require to replenish soil moisture below root zone and to establish healthy turf areas.

B. Disease Control: Control all turf diseases throughout the Landscape Maintenance Period with legally approved fungicides and herbicides.
C. Weed Control: Control all broad leaf weeds with selective, legally approved herbicides. No herbicide shall be used without the prior consent of the Owner’s Representative.

D. Replacement: At or near the end of specified Landscape Maintenance Period, a final observation of turf areas shall be made. Remove deceased areas and unhealthy stands of turf from the site; do not bury into the soil. Replant all applicable areas with materials and in a manner acceptable to the Owner’s Representative.

3.03 IRRIGATION SYSTEM

A. System Observation: The contractor shall visually check all systems for proper operation on a weekly basis and make all necessary repairs. All equipment shall be adjusted as necessary for proper coverage and function.

B. Controllers: Program automatic controllers for appropriate seasonal water requirements. Perform a full instruction session in the presence of the Owner’s designated maintenance personnel demonstrating programming, system testing, trouble shooting, etc. Include instructions on how to turn off system in case of emergency.

C. Repairs: All repairs made to the irrigation system shall be at the contractor’s expense. All repairs shall be made within twenty-four (24) hours.

3.05 FIELD QUALITY CONTROL

A. Final Review: At, or near the end of specified Landscape Maintenance Period, the contractor shall make written request for a final review and the work shall be reviewed for conformance with the Construction Documents. If work is not accepted at time of review, a punch-list of items requiring attention will be issued to the contractor for correction. The Landscape Maintenance Period shall be extended at contractor’s sole cost as necessary. Upon completion of the punch-list the contractor shall again make written request for review. If, upon re-visiting the site, it is found that the punch-list has not been completed, the review shall end and the contractor shall be back-charged for all additional visits.

B. All re-inspections required due to contractor not being prepared or non-conformance with the Construction Documents shall be back charged to the contractor.

C. Final Acceptance: When work is found to be in conformance with the Contract Documents, subject to the discretion of the Owner’s Representative, a statement of Final Acceptance shall be issued to the contractor.

END OF SECTION
SECTION 032000
CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 SUMMARY OF WORK
   A. The work of this section consists of:
      1. Reinforcing steel bars and accessories for cast-in-place concrete.
      2. Reinforcing steel bars and accessories for masonry construction.

1.02 RELATED SECTION
   A. See the following specification section for work related to the work of this section:
      1. Section 031500 - Concrete Anchoring
      2. Section 033000 - Cast-in-Place Concrete

1.03 REFERENCES
   A. ACI 301 - Structural Concrete for Buildings.
   B. ACI 315 – Details and Detailing of Concrete Reinforcing.
   C. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
   D. ASTM A706 – Low alloy steel deformed bars for concrete reinforcement
   E. AWS D1.4 - Structural Welding Code for Reinforcing Steel.

1.04 SUBMITTALS FOR REVIEW
   A. Section 013000 - Submittals: Procedures for submittals.
   B. Submit reinforcement shop drawings. Shop drawings shall be completely detailed, including
      bending schedules, bending diagrams, placing details, size and location of reinforcing steel, and any
      proposed welding. Shop drawings shall clearly specify bar locations. On elevations of walls,
      beams, and columns, locate sleeves that conflict with typical details or reinforcing. Shop drawings
      shall not be copies of the construction drawings. Reinforcement shall not be fabricated or placed
      before the Engineer of Record has reviewed the shop drawings.
   C. Architectural, structural, mechanical, electrical, and other contract documents shall be reviewed for
      anchor bolt schedules, location of anchors, inserts, conduits, sleeves, and any other items which are
      required to be cast in concrete. Provisions shall be made so that reinforcing steel will not interfere
      with the placement of such embedded items.

1.05 DELIVERY AND STORAGE
   A. Reinforcing shall be delivered to site properly bundled and tagged. Store reinforcing steel off the
      ground and as required to prevent excessive rusting. Protect reinforcing from any coating that will
      interfere with bond. Do not use damaged or reworked materials.

1.06 QUALITY ASSURANCE
   A. Perform Work in accordance with ACI 301.
   B. Maintain one copy of latest construction documents on site, including design drawings, approved
      shop drawings and permit drawings.

PART 2 PRODUCTS

2.01 REINFORCEMENT
   A. Reinforcing Steel:
      1. ASTM A615, Grade 60, deformed bar, unless noted otherwise.
      2. ASTM A706, where reinforcement is to be welded.
3. Shall be new, free from rust, scale, oil, and dirt.

B. Spiral Reinforcement:
   1. ASTM A615 Grade 60, deformed bar.

2.02 ACCESSORIES
A. Tie Wire: Minimum 16 gage annealed type.
B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions.
C. Where supports bear on earth, use concrete blocks. For surfaces exposed to view, stainless steel support chairs, spacers, or bolsters shall be used.
D. The use of wood or organic supports or spacers inside the forms is not permitted.

2.03 FABRICATION
A. Fabricate concrete reinforcing in accordance with ACI 301.
B. Weld reinforcement in accordance with AWS D1.4. As a minimum, use E70 electrodes.
C. Reinforcing splices not indicated on drawings shall be located at points of minimum stress and approved by the Engineer of Record prior to placement.
D. In case of fabrication errors do not re-bend reinforcement in a manner that will damage or weaken the material.

PART 3 EXECUTION

3.01 PLACEMENT
A. Reinforcing steel shall be placed in accordance with the Construction Drawings, the reviewed shop drawings, and the requirements of the references. Place, support and secure reinforcement against displacement due to workmen and the placement of concrete. Do not deviate from required position.

B. Maintain minimum concrete cover over reinforcing as follows unless noted otherwise:
   - Concrete Formed against Formwork: 2 inches
   - Pier Footing Spirals: 3 inches
   - Concrete Formed against Earth: 3 inches

C. Obstructions: Where conduits, piping, inserts, sleeves, etc., interfere with placing of reinforcing steel, consult the Engineer of Record for resolution before placing concrete.

D. Accommodate placement of formed openings.

E. Do not displace or damage vapor barriers.

F. Tying: Push in tie wire so that concrete placement will not force the wire ends to the surface of exposed concrete.

G. Splicing: Locate splices as specified in the Construction Drawings. Stagger splices in adjacent bars wherever possible.

H. Field Bending: All reinforcing shall be bent cold. Assure that minimum bend radiiues are maintained. Do not re-bend reinforcement within 6 inches of previously bent areas without approval from the Engineer of Record. Reinforcing partially embedded in concrete shall not be field bent.

3.02 FIELD QUALITY CONTROL
A. Schedule inspections with the Engineer of Record a minimum of 48 hours prior to placing concrete.
SECTION 033000

CAST-IN-PLACE CONCRETE

PART 1  GENERAL

1.01  SUMMARY OF WORK

A. Cast-in-place concrete bridge abutments, wingwalls, drilled pier foundations, and walls.

1.02  RELATED SECTIONS

A. Section 031500 - Concrete Anchoring
B. Section 032000 - Concrete Reinforcement
C. Section 316300 - Drilled Concrete Piers

1.03  REFERENCES

A. ACI 301 - Structural Concrete for Buildings
B. ACI 302 - Guide for Concrete Floor and Slab Construction
C. ACI 308 - Standard Practice for Curing Concrete
D. ACI 309 - Guide for Consolidation of Concrete
E. ACI 318 - Building Code Requirements for Structural Concrete
F. ASTM C33 - Normal Weight Concrete Aggregates
G. ASTM C94 - Ready-Mixed Concrete
H. ASTM C150 - Portland Cement
I. ASTM C309 - Liquid Membrane-Forming Compounds

1.04  SUBMITTALS FOR REVIEW

A. Section 013300 - Submittals: Procedures for submittals.
B. Submit the proposed concrete mix designs stamped by a structural or civil engineer currently licensed in the State of California. The submittal should include a listing of all materials in the mix, source of materials, admixtures and their proportions, and product data sheets. Concrete shall not be placed before the Engineer of Record has reviewed the mix designs.

1.05  QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.
B. Maintain one copy of latest construction documents on site, including design drawings, approved shop drawings and permit drawings.
C. Structural observation by the Engineer of Record at the following milestones:
   1. Reinforcing steel placement prior to placing concrete.
D. Special Inspections. The following special inspections, as required by Section 1704.4 of the California Building Code, shall be provided during construction on the following types of work. The contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner. The Owner shall bear the costs of tests and inspections.

   Continuous Inspection is required for the following:
1. During the placement of concrete.
2. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests and determine the temperature of concrete.
3. Installation of all post-installed anchors.

Periodic Inspection is required for the following:
1. At the start and during each phase of the project to ascertain proposed conformity of materials, personnel qualifications as required, and procedures with the applicable codes, plans and specifications.
2. At such frequency as necessary to clearly confirm the placement of reinforcing steel.
3. Shape, location and dimensions of formwork for concrete member being formed.
4. For verification of delivered mix design before any concrete is placed.
5. Maintenance of specified curing temperature and techniques.

PART 2 PRODUCTS

2.01 CONCRETE MATERIALS
A. Cement: ASTM C150, Type II, and shall be provided by one manufacturer.
B. Pozzolan: Class F Fly Ash per ASTM C618 comprising 15-25% of total cementitious materials. Fly Ash may be added to a maximum ratio of 35% of total cementitious materials where testing reports are provided for the mix design review.
C. Coarse Aggregates: Coarse aggregates shall conform to ASTM C33, sizes 57, 67 or 7. Pea gravel aggregate shall not be used.
D. Fine aggregates: Fine Aggregates shall conform to ASTM C33.
E. Water: Clean and not detrimental to concrete.

2.02 ADMIXTURES
A. No admixtures shall be allowed without written acceptance by the Engineer of Record. Admixtures that have a negative impact on concrete finish shall not be used. When more than one admixture is used, admixtures shall be compatible.

2.03 ACCESSORIES
A. 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. SIKAGrout 212 or approved equal.
B. Exposed Form Snap-ties: Provide exposed fiberglass snap-ties installed per Landscape Architectural drawings.

2.04 CONCRETE MIX
A. Mix and deliver concrete in accordance with ASTM C94.
B. Addition of water to the mix after leaving the plant is not permitted.
C. Provide normal weight concrete to the following criteria:

<table>
<thead>
<tr>
<th>Compressive Strength (28 day):</th>
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<tbody>
<tr>
<td>Bridge Concrete (including piers)</td>
<td>4,000 psi</td>
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<tr>
<td>Drilled Concrete Piers</td>
<td>3,000 psi</td>
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<tr>
<td>Other Concrete</td>
<td>3,000 psi</td>
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<table>
<thead>
<tr>
<th>Normal Weight Aggregate</th>
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<tr>
<td>Water/Cement Ratio (maximum)</td>
</tr>
<tr>
<td>Drying Shrinkage Limit (@ 21 days)</td>
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PART 3 EXECUTION

3.01 EXAMINATION
A. Verify requirements for concrete cover over reinforcement.
B. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.02 PREPARATION
A. Prepare joints in previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer’s instructions.
B. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

3.03 PLACING CONCRETE
A. Place concrete in accordance with ACI 301.
B. Notify Engineer of Record and Special Inspector a minimum 48 hours prior to commencement of operations. Do not place concrete until forms and reinforcement as well as other required inspections have occurred and the Special Inspector is present to perform observations and testing during placement.
C. Ensure reinforcement, anchor rods, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.
D. Separate slabs on grade from vertical surfaces with 1/2 inch thick joint filler. Place joint filler to required elevations. Secure to resist movement by wet concrete.
E. Extend joint filler from bottom of slab to within 1/8 inch of finished slab surface.
F. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
G. Place concrete continuously between predetermined contraction joints.
H. Do not interrupt successive placement; do not permit cold joints to occur.

3.04 CONCRETE FINISHING
A. Provide formed concrete surfaces to be left exposed with a smooth finish. Coordinate finish with Landscape Architect prior to placing concrete.

3.05 CURING AND PROTECTION
A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
C. Cure floor surfaces in accordance with ACI 308.
D. Spraying: Spray water over floor slab areas and maintain wet for 7 days.

3.06 FIELD QUALITY CONTROL
A. Provide free access to Work and cooperate with Owner and Owner’s representatives.
B. Tests of cement and aggregates may be performed to ensure conformance with specified requirements.
C. One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.
D. At a minimum one slump test will be taken for each set of test cylinders taken.

3.07 PATCHING
A. Allow inspection of concrete surfaces immediately upon removal of forms.
B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer of Record upon discovery.
C. Patch imperfections in accordance with ACI 301.

3.08 DEFECTIVE CONCRETE
A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements; concrete with excessive honeycombs or other surface or finish defects.
B. Repair or replacement of defective concrete will be determined by the Engineer of Record.
C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of the Owner or Engineer for each individual area.
D. No additional compensation will be allowed for repair of defective concrete.

END OF SECTION
PART 1 GENERAL

1.01 SUMMARY OF WORK
   A. All labor, materials, equipment and services necessary for the completion of the steel work shown on
      the drawings, included but not limited to:
      1. Anchor bolts, rods and associated accessories.
      2. Pipe and Tube sections.
      3. Hollow Steel Sections (HSS).
      4. Miscellaneous steel plate and fasteners.

1.02 RELATED SECTIONS
   A. Section 031500 - Concrete Anchoring.
   B. Section 033000 – Cast-In-Place Concrete

1.03 SUBMITTALS FOR REVIEW
   A. Section 013300 – Submittals: Procedures for submittals.
   B. Additional requirements for submittals. Submit to the Engineer detailed shop drawings. Shop drawing
      shall be drawn to scale and shall not be based on copies of the design drawings. Deviations from the
      Construction drawings shall be noted. Structural steel shall not be fabricated or erected before the
      Engineer of Record has reviewed the shop drawings.
   C. Certified material test reports (mill test) for all structural steel.
   D. Welding Procedure Specifications (WPS).

1.04 QUALITY ASSURANCE
   A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which
      have been in satisfactory use in similar service for three years. Use experienced installers. Deliver,
      handle, and store materials in accordance with manufacturer’s instructions.
   B. Visual inspection of welding shall be the primary method to confirm that the procedures, materials, and
      workmanship incorporated in construction are those that have been specified and approved for the
      project. Visual inspection shall be conducted by qualified personnel, in accordance with a written
      practice. Nondestructive testing of welds in conformance with AWS D1.1 shall serve as a backup, but
      shall not serve to replace visual inspection. All complete and partial penetration welds shall be tested
      using approved nondestructive methods conforming to AWS D1.1.
   C. Special Inspections: Per Section 1704.3 of the 2010 California Building Code
      1. All field welding.
      2. Visual inspection of shop welding performed by approved Fabricator using certified Welders
         with appropriate documentation.
      3. All welding inspectors shall be trained, certified by the Building Official and thoroughly
         experienced in inspecting welding operations, and qualified in accordance with AWS D1.1.
      4. Field Bolting
PART 2 PRODUCTS

2.01 MATERIALS

A. Wide Flange Sections: ASTM A992 (50 ksi yield strength).

B. Hollow Steel Sections (HSS): ASTM A500 Grade B (42 ksi round, 46 ksi other).

C. Structural Steel Pipe: ASTM A53 Type E or S, Grade B (35 ksi).

D. Fence Post Pipe: ASTM F1083 (25 ksi).

E. Other Shapes and Plates: ASTM A36 (36 ksi).

F. Anchor bolts/rods: ASTM F1554 Grade 36/50.

G. High strength threaded fasteners: ASTM A325.

H. Other threaded fasteners and rods: ASTM A307.

I. Weld Metal: FExx = 70 ksi.

J. All steel exposed to earth or weather in the completed structure shall be Hot-Dipped Galvanized (HDG) after fabrication. Contractor shall use ZRC cold galvanizing compound (800-831-3273) or approved equal per manufacturer’s recommendations to repair damaged galvanized areas.

K. 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. SIKAGrout 212 or approved equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Comply with AISC codes and specifications, and with AWS "Structural Welding Code".

B. Secure field measurements required for proper and adequate fabrication and installation of the work.

C. When fabricating beams, place natural camber up.

D. All bolted connections shall have a minimum of two bolts, unless shown otherwise.

E. Minimum size of bolts for structural steel connections shall be 5/8" diameter except when otherwise shown or noted.

F. Provide beveled washers on all connection to sloping flanges of I sections and channels.

G. Where minimum AISC fillet weld thickness requirement exceeds welds shown on details, provide minimum AISC weld.

H. After fabrication, all steel shall be cleaned free of rust, loose mill, scale and oil.
I. The Contractor shall be responsible for the control of all erection procedures and sequences including but not limited to temperature differentials and weld shrinkage.

J. Structural elements having fabrication or erection errors or which do not satisfy tolerance limits shall be repaired at no additional expense to the City. Submit drawings showing reasons for, and details of, proposed corrective work for approval by the Engineer of Record prior to performing corrective work.

K. There shall be no field cutting of structural steel without prior approval of the Engineer of Record.

L. Touch-up field welds and abraded areas with shop primer.

END OF SECTION
PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. The work of this Section consists of providing all required labor, supervision, materials and equipment to satisfactorily complete all electrical installations that are shown on the Drawings, included in these specifications, or otherwise needed for a complete and fully operating facility.

B. Furnish and install all required in-place equipment, conduits, conductors, cables and any miscellaneous materials for the satisfactory interconnection and operation of all associated electrical systems.

1.02 RELATED WORK

A. This Section provides the basic Electrical Requirements which supplement the General Requirements of Division 1 and apply to all Sections of Division 26.

1.03 SUBMITTALS

A. As specified in Division 1. Submit to the Architect shop drawings, manufacturer’s data and certificates for equipment, materials and finish, and pertinent details for each system specified. Information to be submitted includes manufacturer’s descriptive literature of cataloged products, equipment, drawings, diagrams, performance and characteristic curves as applicable, test data and catalog cuts. Obtain written approval before procurement, fabrication, or delivery of the items to the job site. Partial submittals are not acceptable and will be returned without review. Furnish manufacturer’s name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable Federal, Industry and Technical Society Publication References, and years of satisfactory service of each item required to establish contact compliance. Photographs of existing installations and data submitted in lieu of catalog data are not acceptable and will be returned without approval.

B. Organize submittals for equipment and items related to each specification section together as a package.

C. Proposed substitutions of products will not be reviewed or approved prior to awarding of the Contract.

D. Substitutions shall be proven to the Architect or Engineer to be equal or superior to the specified product. Architect’s decision is final. The Contractor shall pay all costs incurred by the Architect and Engineer in reviewing and processing any proposed substitutions whether or not a proposed substitution is accepted.

E. If a proposed substitution is rejected, the contractor shall furnish the specified product at no increase in contract price.

F. If a proposed substitution is accepted, the contractor shall be completely responsible for all dimensional changes, electrical changes, or changes to other work which is a result of the substitution. The accepted substitution shall be made at no additional cost to the owner or design consultants.
1.04 QUALITY ASSURANCE

A. Codes: All electrical equipment and materials, including installation and testing, shall conform to the latest editions following applicable codes:

2. Occupational Safety and Health Act (OSHA) standards.
3. All applicable local codes, rules and regulations.
4. Electrical Contractor shall possess a C-10 license and all other licenses as may be required. Licenses shall be in effect at start of this contract and be maintained throughout the duration of this contract.

B. Variances: In instances where two or more codes are at variance, the most restrictive requirement shall apply.

C. Standards: Equipment shall conform to applicable standards of American National Standards Institute (ANSI), Electronics Industries Association (EIA), Institute of Electrical and Electronics Engineers (IEEE), and National Electrical Manufacturers Association (NEMA).

D. Underwriter Laboratories (UL) listing is required for all equipment and materials where such listing is offered by the Underwriters Laboratories. Provide service entrance labels for all equipment required by the NEC to have such labels.

E. The electrical contractor shall guarantee all work and materials installed under this contract for a period of one (1) year from date of acceptance by owner.

F. All work and materials covered by this specification shall be subject to inspection at any and all times by representatives of the owner. Work shall not be closed in or covered before inspection and approval by the owner or his representative. Any material found not conforming with these specifications shall, within 3 days after being notified by the owner, be removed from premises; if said material has been installed, entire expense of removing and replacing same, including any cutting and patching that may be necessary, shall be borne by the contractor.

1.05 DRAWINGS

A. Drawings: The electrical Drawings shall govern the general layout of the completed construction.

1. Locations of equipment, panels, pullboxes, conduits, stub-ups, ground connections are approximate unless dimensioned; verify locations with the Architect prior to installation.

2. Review the Drawings and Specification Divisions of other trades and perform the electrical work that will be required for those installations.

3. Should there be a need to deviate from the Electrical Drawings and Specifications, submit written details and reasons for all changes to the Architect for approval.

4. The general arrangement and location of existing conduits, piping, apparatus, etc., is approximate. The drawings and specifications are for the assistance and guidance of the contractor, exact locations, distances and elevations are governed by actual field conditions. Accuracy of data given herein and on the drawings is not guaranteed. Minor changes may be necessary to accommodate work. The contractor is responsible for verifying existing conditions. Should it be necessary to deviate from the design due to
interference with existing conditions or work in progress, claims for additional compensation shall be limited to those for work required by unforeseen conditions as determined by the Architect.

5. All drawings and divisions of these specifications shall be considered as whole. This contractor shall report any apparent discrepancies to the Architect prior to submitting bids.

6. The contractor shall be held responsible to have examined the site and compared it with the specifications and plans and to have satisfied himself as to the conditions under which the work is to be performed. He shall be held responsible for knowledge of all existing conditions whether or not accurately described. No subsequent allowance shall be made for any extra expense due to failure to make such examination.

1.06 CLOSEOUT SUBMITTALS

A. Manuals: Furnish manuals for equipment where manuals are specified in the equipment specifications or are specified in Division 1.

1.07 COORDINATION

A. Coordinate the electrical work with the other trades, code authorities, utilities and the Architect.

B. Provide and install all trenching, backfilling, conduit, pull boxes, splice boxes, etc. for all Utility Company services to the locations indicated on the Drawings. All materials and construction shall be in accordance with the requirements for all the Utility Companies. Prior to performing any work, the Electrical Contractor shall coordinate with the various Utility Companies to verify that all such work and materials shown on the Drawings are of sufficient sizes and correctly located to provide services on the site. The Electrical Contractor shall verify with all the Utility Companies that additional contractor furnished and installed work is not required. If additional work, materials, or changes are required by any of the Utility Companies, the Electrical Contractor shall advise the Architect of such changes and no further work shall then be performed until instructed to do so by the Architect.

C. Utility Company charges shall be paid by the Owner.

D. Contractor shall pay all inspection and other applicable fees and procure all permits necessary for the completion of this work.

D. Where connections must be made to existing installations, properly schedule all the required work, including the power shutdown periods.

E. When two trades join together in an area, make certain that no electrical work is omitted.

1.08 JOB CONDITIONS

A. Operations: Perform all work in compliance with Division 1

1. Keep the number and duration of power shutdown periods to a minimum.

2. Show all proposed shutdowns and their expected duration on the construction schedule. Schedule and carry out shutdowns so as to cause the least disruption to operation of the Owner’s facilities.
3. Carry out shutdown only after the schedule has been approved, in writing, by the owner. Submit power interruption schedule 15 days prior to date of interruption.

B. Construction Power: Unless otherwise noted in Division 1 of these specifications, contractor shall make all arrangements and provide all necessary facilities for temporary construction power from the Owner’s on site source. Energy costs shall be paid for by the Owner.

C. Storage: Provide adequate storage for all equipment and materials which will become part of the completed facility so that it is protected from weather, dust, water, or construction operations.

1.09 DAMAGED PRODUCTS

A. Notify the Architect in writing in the event that any equipment or material is damaged. Obtain approval from the Architect before making repairs to damaged products.

1.10 LOCATIONS

A. General: Use equipment, materials and wiring methods suitable for the types of locations in which they are located.

B. Dry Locations: All those indoor areas which do not fall within the definition below for Wet Locations and which are not otherwise designated on the Drawings.

C. Wet Locations: All locations exposed to the weather, whether under a roof or not, unless otherwise designated on the Drawings.

1.11 SAFETY AND INDEMNITY

A. The Contractor is solely and completely responsible for conditions of the job site including safety of all persons and property during performance of the work. This requirement will apply continually and not be limited to normal working hours. The contractor shall provide and maintain throughout the work site proper safeguards including, but not limited to, enclosures, barriers, warning signs, lights, etc. to prevent accidental injury to people or damage to property.

B. No act, service, drawing review or construction review by the Owner, the Engineer or their Consultants is intended to include reviews of the adequacy of the Contractors safety measures in or near the construction site.

C. The Contractor performing work under this Division of the Specifications shall hold harmless, indemnify, and defend the Owner, the Engineer, their consultants, and each of their officers, agents and employees from any and all liability claims, losses, or damage arising out of or alleged to arise from bodily injury, sickness, or death of a person or persons and for all damages arising out of injury to or destruction of property arising directly or indirectly out of or in connection with the performance of the work under this Division of the Specifications, and from the Contractor’s negligence in the performance of the work described in the construction contract documents, but not including liability that may be due to the sole negligence of the Owner, the Engineer, their Consultants or their officers, agents and employees.

D. The project work area does not contain asbestos materials. However, if a work area is encountered that does contain asbestos materials, the contractor is advised to coordinate with the owner and its asbestos abatement consultant all measures necessary to provide installation of conduit, and hangers. All asbestos containing materials related work shall conform to the directions given by the owner. Nothing herein shall be construed to create a liability for American Consulting Engineers regarding asbestos abatement measures.
1.12 ACCESS PANELS AND DOORS

A. The Contractor shall install access panels as required where floors, walls or ceilings must be penetrated for access to electrical, control, fire alarm or other specified electrical devices. The minimum size panel shall be 14” x 14” in usable opening. Where access by a service person is required, minimum usable opening shall be 18” x 24”.

B. All access doors installed lower than 7'-0” above finished floor and exposed to public access shall have keyed locks.

C. Where specific information or details relating to access panels differ from these specifications, shown on drawings and or details or on other Divisions of work, these requirements shall supersede these specifications.

D. Approved Manufacturers: Subject to compliance with requirements under Architectural Specifications, Milcor, Karp, Nystrom or Cesco.

1. Milcor Style K (plaster)
2. Milcor Style DW (gypsum board)
3. Milcor Style M (masonry)

PART 2 PRODUCTS

2.01 STANDARD OF QUALITY

A. Products that are specified by manufacturer, trade name or catalog number establish a standard of quality and do not prohibit the use of equal products of other manufacturers provided they are approved by the Architect prior to installation.

B. Material and Equipment: Provide materials and equipment that are new and are current products of manufacturers regularly engaged in the production of such products. The standard products shall have been in satisfactory commercial or industrial use for two years prior to bid opening. The two-year period includes use of equipment and materials of similar size under similar circumstances. For uniformity, only one manufacturer will be accepted for each type of product.

C. Service Support: Submit a certified list of qualified permanent service organizations including their addresses and qualification for support of the equipment. These service organizations shall be convenient to the equipment installation and able to render service to the equipment on a regular and emergency basis during the warranty period of the contract.

D. Manufacturer’s Recommendations: Where installation procedures are required to be in accordance with manufacturer’s recommendations, furnish printed copies of the recommendations prior to installation. Installation of the item shall not proceed until recommendations are received. Failure to furnish recommendation shall be cause for rejection of the equipment or material.

2.02 NAMEPLATES

A. For each piece of electrical equipment, provide a manufacturer’s nameplate showing his name, location, the pertinent ratings, the model designation, and shop order number.
B. Identify each piece of equipment and related controls with a rigid laminated engraved plastic nameplate. Unless otherwise noted, nameplates shall be melamine plastic 0.125 inch thick, white with black center core. Surface shall be matte finish. Corners shall be square. Accurately align lettering and engrave into the core. Minimum size of nameplates shall be 0.5 by 2.5 inches unless otherwise noted. Where not otherwise specified, lettering shall be a minimum of 0.25 inch high normal block style. Engrave nameplates with the inscriptions indicated on the Drawings and, if not so indicated, with the equipment name. Securely fasten nameplates in place using two stainless steel or brass screws.

C. Contractor to provide rigid laminated engraved plastic nameplate for all signal terminal cabinets, fire alarm terminal cans, electrical disconnect switches (fused or non-fused) and data/voice cabinets. Provide and secure as noted above.

2.03 FASTENERS

A. Fasteners for securing equipment to walls, floors and the like shall be either hot-dip galvanized after fabrication or stainless steel.

2.04 FINISH REQUIREMENTS

A. Equipment: Refer to each electrical equipment section of these Specifications for painting requirements of equipment enclosures. Repair any final paint finish which has been damaged or is otherwise unsatisfactory, to the satisfaction of the Architect.

B. Wiring System: In finished areas, paint all exposed conduits, boxes and fittings to match the color of the surface to which they are affixed.

PART 3 EXECUTION

3.01 WORKMANSHIP

A. Ensure that all equipment and materials fit properly in their installation.

B. Perform any required work to correct improperly fit installation at no additional expense to the owner.

C. All electrical equipment and materials shall be installed in a neat and workmanship manner in accordance with the NECA Standard of Installation Manual and Workmanship of the entire job shall be first class in every respect.

3.02 EQUIPMENT INSTALLATIONS

A. Provide the required inserts, bolts and anchors, and securely attach all equipment and materials to their supports.

B. Do all the cutting and patching necessary for the proper installation of work and repair any damage done.

C. Earthquake restraints: all electrical equipment, including conduits over 2 inches in diameter, shall be braced or anchored to resist a horizontal force acting in any direction as per Title 24, part 2, table 16a-o, part 3.

D. Structural work: All core drilling, bolt anchor insertion, or cutting of existing structural concrete shall be approved by a California registered structural consulting engineer prior to the execution of any construction. At all floor slabs and structural concrete walls to be drilled, cut or bolt anchors
inserted, the contractor shall find and mark all reinforcing in both faces located by means of x-ray, pach-ometer, or prof-ometer. Submit sketch showing location of rebar and proposed cuts, cores, or bolt anchor locations for approval.

3.03 FIELD TESTS

A. Test shall be in accordance with Acceptance testing specifications issued by the National Electrical Testing Association (NETA).

B. Perform equipment field tests and adjustments. Properly calibrate, adjust and operationally check all circuits and components, and demonstrate as ready for service. Make additional calibration and adjustments if it is determined later that the initial adjustments are not satisfactory for proper performance. Perform equipment field test for equipment where equipment field tests are specified in the equipment Specifications. Give sufficient notice to the Architect prior to any test so that the tests may witnessed.

C. Provide instruments, other equipment and material required for the tests. These shall be of the type designed for the type of tests to be performed. Test instrument shall be calibrated by a recognized testing laboratory within three months prior to performing tests.

D. Operational Tests: Operationally test all circuits to demonstrate that the circuits and equipment have been properly installed and adjusted and are ready for full-time service. Demonstrate the proper functioning of circuits in all modes of operation, including alarm conditions.

E. Re-testing will be required for all unsatisfactory tests after the equipment or system has been repaired. Re-test all related equipment and systems if required by the Architect. Repair and re-test equipment and systems which have been satisfactorily tested but later fail, until satisfactory performance is obtained.

F. Maintain records of each test and submit five copies to the Architect when testing is complete. All tests shall be witnessed by the Architect. These records shall include:
   1. Name of equipment tested.
   2. Date of report.
   3. Date of test.
   4. Description of test setup.
   5. Identification and rating of test equipment.
   6. Test results and data.
   7. Name of person performing test.
   8. Owner or Architect’s initials.

G. Items requiring testing shall be as noted in the additional electrical sections of these specifications.

3.04 CLEANING EQUIPMENT

A. Thoroughly clean all soiled surfaces of installed equipment and materials.
3.05 PAINTING OF EQUIPMENT

A. Factory Applied: Electrical equipment shall have factory applied painting system which shall, as a minimum, meet the requirements of NEMA ICS 6 corrosion-resistance test and the additional requirements specified in the technical section.

B. Field Applied: Paint electrical equipment as required to match finish of adjacent surfaces.

3.06 RECORDS

A. Maintain one copy of the contract Drawing Sheets on the site of the work for recording the "as built" condition. After completion of the work, the Contractor shall carefully mark the work as actually constructed, revising, deleting and adding to the Drawing Sheets as required. The following requirements shall be complied with:

1. Cable Size and Type: Provide the size and type of each cable installed on project.
2. Substructure: Where the location of all underground conduits, pull boxes, stub ups and etc. where are found to different than shown, carefully mark the correct location on the Drawings. Work shall be dimensioned from existing improvements.
3. Size of all conduit runs.
4. Routes of concealed conduit runs and conduit runs below grade.
5. Homerun points of all branch circuit.
6. Location of all switchgear, panels, MCC, lighting control panels, pullcans, etc.
7. Changes made as a result of all approved change orders, addendums, or field authorized revisions.
8. As Built: At the completion of the Work the Contractor shall review, certify, correct and turn over the marked-up Drawings to the Architect for his use in preparing "as built" plans.
9. As Built drawings for fire alarm, data, telephone, CATV/Video, intercom and clock shall also be recorded. Upon completion "As-built" documentation showing actual devices locations and devices identification as installed and labeled, including fire alarm, data, telephone, CATV/Video and int/clock wiring layout. "As-built" shall include; for example, fire alarm equipment location showing all monitor modules and end of line resistor locations. The contractor shall provide one set drawings documents and the other set in electronic CAD file representing actual as-buils. CAD files shall be AutoCAD 14 format. Obtaining CAD files from the Architect/District shall be charged with $150/sheet.
10. As built Drawings shall be delivered to the Architect within ten (10) days of completion of construction.

3.07 CLEAN UP

A. Upon completion of electrical work, remove all surplus materials, rubbish, and debris that accumulated during the construction work. Leave the entire area neat, clean, and acceptable to the Architect.
3.08 MECHANICAL AND PLUMBING ELECTRICAL WORK

A. The requirements for electrical power and/or devices for all mechanical and plumbing equipment supplied and/or installed under this Contract shall be coordinated and verified with the following:

1. Mechanical and Plumbing Drawings.
2. Mechanical and Plumbing sections of these Specifications.
3. Manufacturers of the Mechanical and Plumbing equipment supplied.

B. The coordination and verification shall include the voltage, ampacity, phase, location and type of disconnect, control, and connection required. Any changes that are required as a result of this coordination and verification shall be a part of this Contract.

C. The Electrical Contractor shall furnish and install the following for all mechanical and plumbing equipment:

1. Line voltage conduit and wiring.
2. Disconnect switches.

D. Automatic line voltage controls and magnetic starters unless otherwise noted, shall be furnished by the Mechanical and/or Plumbing Contractor and installed and connected by the Electrical Contractor. All line voltage control wiring installed by the Electrical Contractor shall be done per directions from the Mechanical and/or Plumbing Contractor.

E. All low voltage control wiring for Mechanical and Plumbing equipment shall be installed in conduit. Furnishing, installation and connection of all low voltage conduits, boxes, wiring and controls shall be by the Mechanical and/or Plumbing Contractor.

F. Manual motor starters, where required, shall have toggle type operators with pilot light and melting alloy type overload relays, SQUARE D COMPANY, Class 2510, Type FG-1P (surface) or Type FS-1P (flush) or ITE, WESTINGHOUSE or GENERAL ELECTRIC equal.

3.09 ACCESS DOORS

A. The Electrical Contractor shall furnish and install access doors wherever required whether shown or not for easy maintenance of electrical systems: As an example, fire alarm devices, controls, junction boxes, etc. Access doors shall provide for complete access to equipment for both removal and replacement of equipment.

END OF SECTION
SECTION 260519

LOW VOLTAGE WIRE AND CABLE

PART 1  GENERAL

1.01  DESCRIPTION OF WORK

A. The work of this Section consists of providing all wire and cable rated 600 volts or less, including splices and terminations, as shown on the Drawings and as described herein.

1.02  RELATED WORK

A. See the following Specification Section for work related to the work in this Section:

1. Section 260533 - Conduits, Raceways and Fittings.
2. Section 260534 - Junction and Pull Boxes.

1.03  SUBMITTALS

A. In accordance with Division 1.
B. Submit complete material list with the manufacturer’s specifications and published descriptive literature for all materials proposed for use.

1.04  QUALITY ASSURANCE

A. Field tests shall be performed as specified in paragraph 3.04 of this Section.

PART 2  PRODUCTS

2.01  CONDUCTORS

A. Conductors shall be copper, type THHN/THWN/MTW oil and gasoline resistant, 600 volt rated insulation. Minimum power and control wire size shall be No. 12 AWG unless otherwise noted.
B. Conductors shall be stranded except that sizes #10 and smaller for receptacle circuits shall be solid and of the sizes indicated.
C. Minimum power and control wire size shall be No. 12 AWG unless otherwise noted.
D. All conductors used on this Project shall be of the same type and conductor material

2.02  CABLES

A. All individual conductors shall be copper with type THHN/THWN, 600 volt rated insulation.
B. Insulation Marking - All insulated conductors shall be identified with printing colored to contrast with the insulation color.
C. Color Coding - As specified in paragraph 3.03.
D. Special Wiring - Where special wiring is proposed by an equipment manufacturer, submit the special wiring requirements to the Owner's Representative and, if approved, provide same. Special wire shall be the type required by the equipment manufacturer.

E. Other Wiring - Wire or cable not specifically shown on the Drawings or specified, but required, shall be of the type and size required for the application and as approved by the Owner's Representative.

F. Manufacturer - Acceptable manufacturers including Cablec, Southwire, or equal.

2.03 TERMINATIONS

A. Manufacturer - Terminals as manufactured by T&B, Burndy or equal.

B. Cable Termination for Copper - Crimp style two hole NEMA spade terminals designed and rated for copper cable.

C. Wire Terminations - Crimp on ring-tongue terminals, insulated sleeve, of proper size for the wire used.

D. End Seals - Heat shrink plastic caps of proper size for the wire on which used.

2.04 TAPE

A. Tape used for terminations and cable marking shall be compatible with the insulation and jacket of the cable and shall be of plastic material.

PART 3 EXECUTION

3.01 CABLE INSTALLATION

A. Clean Raceways - Clean all raceways prior to installation of cables as specified in Section 26 05 33 - Conduits Raceway and Fittings.

B. Cable Pulling - Exercise care in pulling wires and cables into conduit or wireways so as to avoid kinking, putting undue stress on the cables or otherwise abrading them. No grease will be permitted in pulling cables. Only soapstone, talc, or UL listed pulling compound will be permitted. The raceway construction shall be complete and protected from the weather before cable is pulled into it. Swab conduits before installing cables and exercise care in pulling, to avoid damage to conductors.

C. Bending Radius - Cable bending radius shall be per applicable code. Install feeder cables in one continuous length.

D. Equipment Grounding Conductors - Provide an equipment grounding conductor, whether or not it is shown on the Drawings, in all conduits or all raceways.

E. Panelboard Wiring - In panels, bundle incoming wire and cables which are No. 6 AWG and smaller, lace at intervals not greater than 6 inches, neatly spread into trees and connect to their respective terminals. Allow sufficient slack in cables for alterations in terminal connections. Perform lacing with plastic cable ties or linen lacing twine. Where plastic panel wiring duct is provided for cable runs, lacing is not necessary when the cable is properly installed in the duct.

F. Provide #10awg conductors for all 20 amp 120v branch circuits over 100 feet.
3.02 CABLE TERMINATIONS AND SPLICES

A. Splices - UL Listed wirenuts.

B. Terminations - Shall comply with the following:
   1. Make up and form cable and orient terminals to minimize cable strain and stress on device being terminated on.
   2. Burnish oxide from conductor prior to inserting in oxide breaking compound filled terminal.

3.03 CIRCUIT AND CONDUCTOR IDENTIFICATION

A. Color Coding - Provide color coding for all circuit conductors. Insulation color shall be white for neutrals and green for grounding conductors. Ungrounded conductor colors shall be as follows:

<table>
<thead>
<tr>
<th>VOLTAGE</th>
<th>208/120V</th>
<th>480/277V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase A</td>
<td>Black</td>
<td>Brown</td>
</tr>
<tr>
<td>Phase B</td>
<td>Red</td>
<td>Orange</td>
</tr>
<tr>
<td>Phase C</td>
<td>Blue</td>
<td>Yellow</td>
</tr>
<tr>
<td>Neutral</td>
<td>White</td>
<td>Grey</td>
</tr>
<tr>
<td>Ground</td>
<td>Green</td>
<td>Green</td>
</tr>
</tbody>
</table>

B. Color coding shall be in the conductor insulation for all conductors #10 AWG and smaller; for larger conductors, color shall be either in the insulation or in colored plastic tape applied at every location where the conductor is readily accessible.

C. Circuit Identification - All underground distribution and service circuits shall be provided with plastic identification tags in each secondary box and at each termination. Tags shall identify the source transformer of the circuit and the building number(s) serviced by the circuit.

3.04 FIELD TESTS

A. All systems shall test free from short circuits and grounds, shall be free from mechanical and electrical defects, and shall show an insulation resistance between phase conductors and ground of not less than the requirements of the CEC. All circuits shall be tested for proper neutral connections.

END OF SECTION
SECTION 260526

GROUNDING

PART 1       GENERAL

1.01  DESCRIPTION OF WORK

A. The work of this section consists of furnishing, installing, connection and testing of all grounding systems as specified herein and as shown on the Drawings.

1.02  RELATED WORK

A. See the following specification sections for work related to work in this section.
   1. Section 260510 - Electrical General Requirements.
   2. Section 260519 - Low Voltage Wire and Cable

1.03  SUBMITTALS: In accordance with Section 260510 Submittals.

   A. Submit manufacturer’s literature for review.

1.04  STANDARDS AND CODES

   A. American Society for Testing and Materials (ASTM) Publication:

   B. The latest editions following applicable codes:
      2. Occupational Safety and Health Act (OSHA) standards.
      3. All applicable local codes, rules and regulations.

1.05  QUALITY ASSURANCE

   A. Each and every concealed connection must be inspected by the Owner’s Representative before it is covered up by the Contractor.

PART 2       PRODUCTS

2.01  GENERAL

   A. The grounding system shall consist of the grounding conductors, ground bus, ground fittings and clamps, and bonding conductors as shown on the Drawings and as required by codes and local authorities.
2.02 SYSTEM COMPONENTS

A. Ground Rods: Ground rods shall be cone pointed copper clad Grade 40 HS steel rods conforming to ASTM B228. The welded copper encased steel rod shall have a conductivity of not less than 27% of pure copper. Rods shall be not less than 3/4-inch in diameter and ten feet long, unless otherwise indicated. Rods longer than ten feet shall be make up of ten foot units joined together with threaded couplings. The manufacturer's trademark shall be stamped near the top.

B. Ground Conductors: Buried conductors shall be medium-hard drawn bare copper; other conductors shall be soft drawn copper. Sizes over No. 6 AWG shall be stranded conforming to ASTM B8. In all conduit runs, a green insulated copper ground wire, sized to comply with codes, shall be installed.

C. Ground Connections: Exposed ground connections shall be high copper alloy bolted pressure types or exothermically welded type as noted. Buried connections shall be either exothermically welded type or approved compression types for connection of copper to copper or copper to steel, as required. Lug for attachment of cables to steel enclosures shall be of the binding post type with a 1/2-13NC stud. Each post shall accommodate cables from #4 AWG to #2/0 AWG.

D. Ground Rod Boxes: Boxes shall be nine-inch diameter precast concrete units with cast iron traffic covers. Units shall be 12 inches deep. Covers shall be embossed with the wording "Ground Rod".

E. Ground Bus: 2" x 1/4" x (length as specified on drawings) copper busbar. Provide isolation stand off bushings. Provide drilled and tapped 3/8" diameter holes on 2 foot centers. Provide "ALCU" lugs and bronze bolts. Connect busbar to main grounding system and bond to metallic domestic cold water pipe with #8 ground conductor.

PART 3 EXECUTION

3.01 INSTALLATION

A. Ground all equipment, including, but not limited to, panel boards, terminal cabinets and outlet boxes, for which a ground connection is required per the NEC, even though not specifically shown on the Drawings.

B. The ground pole of receptacles shall be connected to their outlet boxes by means of a copper ground wire connecting to a screw in the back of the box.

C. Provide a ground rod box for each ground rod so as to permit ready access for the connection and/or removal of any pressure connectors to facilitate testing.

D. Where ground rods must be driven to depths over ten feet, increase rod diameter used, sufficiently to prevent the rod from bending or being damaged.

E. Make embedded or buried ground connections, taps and splices with exothermically welded connections or approved compression type connectors.

F. Make connections of grounding conductors to equipment ground buses and enclosures using binding post type connectors.

G. Effectively bond structural steel for buildings to the grounding system, "UFER" ground.

H. Install a ground rod in each primary handhole. Connect the ground conductor installed for each primary duct bank to the ground rod in each handhole. Bond metal conduits to handhole ground rod.
3.02 TESTING

A. Conduct ground resistance tests using a ground resistance tester with a scale reading of 25 ohms maximum.

B. Test methods shall conform to IEEE Standard 81 using the three electrode method. Conduct test only after a period of not less than 48 hours of dry weather.

C. Take resistance readings for each ground rod individually and for each system as a whole without benefit of chemical treatment or other artificial means. Ground resistance readings shall not exceed 25 ohms. If readings are not to the Contracting Officer’s approval, provide lengthened or additional ground rods (maximum of two additional rods).

D. Furnish to the Owner’s Representative a test report with recorded data of each ground rod location and each system.

END OF SECTION
SECTION 260533

CONDUITS, RACEWAYS AND FITTINGS

PART 1   GENERAL

1.01 DESCRIPTION OF WORK

A. The work of this section consists of furnishing and installing conduits, raceways and fittings as shown on the Drawings and as described herein.

1.02 RELATED WORK

A. See the following specification sections for work related to the work in this section:
   1. Section 260535 - Underground Ducts.
   2. Section 260519 - Low Voltage Wire and Cable.
   3. Section 260534 - Junction and Pull Boxes.

1.03 SUBMITTALS

A. As specified in Division 1.
   1. Catalog Data: Provide manufacturer's descriptive literature.
   2. Single Submittal: A single complete submittal is required for all products covered by this Section.

PART 2   PRODUCTS

2.01 CONDUITS, RACEWAYS

A. Electrical Metallic Tubing (EMT) shall be hot-dip galvanized after fabrication. Couplings shall be compression or setscrew type.

B. Flexible Conduit: Flexible metal conduit shall be galvanized steel.

C. Galvanized Rigid Steel Conduit (GRS) shall be hot-dip galvanized after fabrication. Couplings shall be threaded type.

D. Rigid Non-metallic Conduit: Rigid non-metallic conduit shall be PVC Schedule 40 (PVC-40 or NEMA Type EPC-40) conduit approved for underground use and for use with 90 °C wires.

E. The use of “MC Cable shall not be permitted without written approval.

2.02 CONDUIT SUPPORTS

A. Supports for individual conduits shall be galvanized malleable iron one-hole type with conduit back spacer.

B. Supports for multiple conduits shall be hot-dipped galvanized Unistrut or Superstrut channels, or approved equal. All associated hardware shall be hot-dip galvanized.

C. Supports for EMT conduits shall be galvanized pressed steel single hole straps.

D. Clamp fasteners shall be by wedge anchors. Shot in anchors shall not be allowed.
2.03 FITTINGS

A. Provide threaded-type couplings and connectors for rigid steel conduits. Provide compression (watertight) steel type (die-cast zinc or malleable iron type fittings not allowed), or setscrew type for EMT. Provide threaded couplings and Meyers hubs for rigid steel conduit exposed to weather.

B. Fittings for flexible conduit shall be Appleton, Chicago, IL, Type ST, O-Z Gedney Series 4Q by General Signal Corp., Terryville, CT, T & B S300 series, or approved equal.

C. Fittings for use with rigid steel shall be galvanized steel or galvanized cast ferrous metal; access fittings shall have gasketed cast covers and be Crouse Hinds Condulets, Syracuse, NY, Appleton Unilets, Chicago, IL, or approved equal. Provide threaded-type couplings and connectors; setscrew type and compression-type are not acceptable.

D. Fittings for use with rigid non-metallic conduit shall be PVC and have solvent-weld-type conduit connections.

E. Union couplings for conduits shall be the Erickson type and shall be Appleton, Chicago, IL, Type EC, O-Z Gedney 3-piece Series 4 by General Signal Corp., Terryville, CT, or approved equal. Threadless coupling shall not be used.

F. Bushings
   1. Bushings shall be the insulated type.
   2. Bushings for rigid steel shall be insulated grounding type, O-Z Gedney Type HBLG, Appleton Type GIB, or approved equal.

G. Conduit Sealants
   1. Fire Retardant Types: Fire stop material shall be reusable, non-toxic, asbestos-free, expanding, putty type material with a 3-hour rating in accordance with UL Classification 35L4 or as specified on the Drawings.

PART 3 EXECUTION

3.01 CONDUIT, RACEWAY AND FITTING INSTALLATION

A. For exposed, exterior conduit runs provide rigid metal (GRS).

B. For conduit run underground, in concrete or masonry block walls and under concrete slabs, install minimum ¾” size nonmetallic (PVC) with PVC elbows. Where conduits transition from underground or under slab to above grade install wrapped rigid metal (GRS) elbows and risers.

C. For conduit runs concealed in steel or wood framed walls or in ceiling spaces or exposed in interior spaces above six feet over the finished floor, install EMT.

D. Flexible metal conduit shall be used only for the connection of recessed lighting fixtures and motor connections unless otherwise noted on the Drawings. Liquid-tight steel flexible conduit shall be used for motor connections.

E. The minimum size raceway shall be 3/4-inch unless indicated otherwise on the Drawings.

F. Installation shall comply with the CEC.

G. From pull point to pull point, the sum of the angles of all of the bends and offset shall not exceed 270 degrees.

H. Conduit Supports: Properly support all conduits as required by the NEC. Run all conduits concealed except where otherwise shown on the drawings.
   1. Exposed Conduits: Support exposed conduits within three feet of any equipment or device and at intervals not exceeding NEC requirements; wherever possible, group conduits together and support on common supports. Support exposed conduits fastened to
the surface of the concrete structure by one-hole clamps, or with channels. Use conduit spacers with one-hole clamps.

a. Conduits attached to walls or columns shall be as unobtrusive as possible and shall avoid windows. Run all exposed conduits parallel or at right angles to building lines.

b. Group exposed conduits together. Arrange such conduits uniformly and neatly.

2. Support all conduits within three feet of any junction box, coupling, bind or fixture.

3. Support conduit risers in shafts with Unistrut Superstrut, or approved equal, channels and straps.

H. Moisture Seals: Provide in accordance with NEC paragraphs 230-8 and 300-5(g).

I. Where PVC conduit transitions from underground to above grade, provide rigid steel 90's with risers. Rigid steel shall be half-lap wrapped with 20-mil tape and extend minimum 12” above grade.

J. Provide a nylon pull cord in each empty raceway.

K. Provide galvanized rigid steel factory fittings for galvanized rigid steel conduit.

L. Slope all underground raceways to provide drainage; for example, slope conduit from equipment located inside a building to the pull box or manhole located outside the building.

M. Conduits shall be blown out and swabbed prior to pulling wires.

END OF SECTION
PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. The work of this Section consists of providing all required labor, supervision, materials and equipment to satisfactorily complete all electrical installations shown on the drawings, included in these Specification, or otherwise needed for a complete and fully operating facility. The work shall include but not be limited to the following:

B. Furnish and install all required material, supports and miscellaneous material for the satisfactory interconnection of all associated electrical systems.

1.02 RELATED WORK

A. See the following specification sections for work related to the work of this section.

1. Section 260510 - General Electrical Requirements.

2. Section 260533 - Conduits, Raceway and Fittings.

3. Section 260519 - Low Voltage Wire and Cable.

1.03 STANDARDS AND CODES

A. Submit in accordance with the requirements of Section 26 05 10: General Electrical Requirements, the following items:

1. Pull boxes larger than 6" x 6" x 4".

PART 2 PRODUCTS

2.01 OUTLET BOXES, JUNCTION AND PULL BOXES

A. Standard Outlet Boxes: Galvanized, one-piece die formed or drawn steel, knock-out type of size and configuration best suited to the application indicated on the Drawings. Minimum box size shall be 4 inches square by 1-1/2 inches deep with mud rings as required.

B. Switch boxes: Minimum box size shall be 4 inches square by 1-1/2 inches deep with mud rings as required. Install multiple switches in standard gang boxes with raised device covers suitable for the application indicated.

C. Conduit bodies: Cadmium plated, cast iron alloy. Conduit bodies with threaded conduit hubs and neoprene gasketed, cast iron covers. Bodies shall be used to facilitate pulling of controls or to make changes in conduit direction only. Splices are not permitted in conduit bodies. Crouse-Hinds Form 8 Condulets, Appleton Form 35 Unilets or equal.

D. Sheet Metal Boxes: Use standard outlet or concrete ring boxes wherever possible; otherwise use a minimum 16 gauge galvanized sheet metal, NEMA I box sized to Code requirements with covers secured by cadmium plated machine screws located six inches on centers. Circle AW Products, Hoffman Engineering Company or equal.
E. Flush Mounted Pull boxes and Junction boxes: Provide overlapping covers with flush head cover retaining screws, prime coated.

PART 3 EXECUTION

3.01 OUTLET BOXES

A. General

1. All outlet boxes shall finish flush with building walls, ceilings and floors except in mechanical and electrical rooms above accessible ceiling or where exposed work is called for on the Drawings.

2. Install raised device covers (plaster rings) on all switch and receptacle outlet boxes installed in masonry or stud walls or in furred, suspended or exposed concrete ceilings. Covers shall be of a depth to suit the wall or ceiling finish.

3. Leave no unused openings in any box. Install close-up plugs as required to seal openings.

B. Box Layout

1. Outlet boxes shall be installed at the locations and elevations shown on the drawings or specified herein. Make adjustments to locations as required by structural conditions and to suit coordination requirements of other trades.

2. Locate switch outlet boxes on the latch side of doorways.

3. Outlet boxes shall not be installed back to back nor shall through-wall boxes be permitted.

4. For outlets mounted above counters, benches or backsplashes, coordinate location and mounting heights with built-in units. Adjust mounting height to agree with required location for equipment served.

C. Supports

1. Outlet boxes installed in metal stud walls shall be equipped with brackets designed for attaching directly to the studs or shall be mounted on specified box supports.

2. Fixture outlet boxes installed in suspended ceiling of gypsum board or lath and plaster construction shall be mounted to 16 gauge metal channel bars attached to main ceiling runners.

3. Fixture outlet boxes installed in suspended ceilings supporting acoustical tiles or panels shall be supported directly from the structure above where pendant mounted lighting fixture are to be installed on the box.

4. Fixture Boxes above tile ceilings having exposed suspension systems shall be supported directly from the structure above.

5. Outlet and/or junction boxes shall not be supported by grid or fixture hanger wires at any locations.
3.02 JUNCTION AND PULL BOXES

A. General

1. Install junction or pull boxes where required to limit bends in conduit runs to not more than 360 degrees or where pulling tension achieved would exceed the maximum allowable for the cable to be installed. Note that these boxes are not shown on the Drawings.

2. Locate pull boxes and junction boxes in concealed locations above removable ceilings or exposed in electrical rooms, utility rooms or storage areas.

3. Install raised covers (plaster rings) on boxes in stud walls or in furred, suspended or exposed concrete ceilings. Covers shall be of a depth to suit the wall or ceiling finish.

4. Leave no unused openings in any box. Install close-up plugs as required to seal openings.

5. Identify circuit numbers and panel on cover of junction box with black marker pen.

B. Box Layouts

1. Boxes above hung ceilings having concealed suspension systems shall be located adjacent to openings for removable recessed lighting fixtures.

C. Supports

1. Boxes installed in metal stud walls shall be equipped with brackets designed for attaching directly to the studs or shall be mounted on specified box supports.

2. Boxes installed in suspended ceilings of gypsum board or lath and plaster construction shall be mounted to 16 gauge metal channel bars attached to main ceiling runners.

3. Boxes installed in suspended ceilings supporting acoustical tiles or panels shall be supported directly from the structure above.

4. Boxes mounted above suspended acoustical tile ceilings having exposed suspension systems shall be supported directly from the structure above.

END OF SECTION
PART 1  GENERAL

1.01  DESCRIPTION OF WORK
A. The work of this section consists of providing all labor, supervision, tools, materials, and performing all work necessary to furnish and install pre-cast concrete vaults, and pull boxes with necessary excavation.

1.02  RELATED WORK
A. See the following specification sections for work related to the work of this section.
   1. 02200 Excavation and Backfill.
   2. 03010 Formwork.
   3. 03020 Reinforcing Steel.
   4. 03040 Portland Cement Concrete.
   5. 260543 Underground Ducts.

1.03  STANDARDS AND CODES
A. Work and material shall be in compliance with and according to the requirements of the latest revision of the following standards and codes.
   2. California Electrical Code (CEC).
      a. A 185 - Welded Steel Wire Fabric for Concrete Reinforcement.
      b. A 615 - Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.
      c. C 33 - Concrete Aggregates.
      d. C 478 - Pre-cast Reinforced Concrete Vault Sections, Specification for.

1.04  SUBMITTALS

1.05  AS SPECIFIED IN DIVISION 1 AND SECTION 26 05 10.
A. Catalog Data: Provide manufacturer’s descriptive literature.
B. Single Submittal: A single complete submittal is required for all products covered by this Section.

PART 2  PRODUCTS

2.01  MATERIALS AND EQUIPMENT
A. General Requirements:
Concrete vaults and pull boxes for electrical power, controls and other communication circuits shall consist of pre-cast reinforced concrete boxes, extensions' bases, and covers as specified herein and as indicated on the Drawings. Pre-cast units shall be the product of a manufacturer regularly engaged in the manufacture of pre-cast vaults and pull boxes. Acceptable manufacturers are Christy, Utility Vault, Brooks, Associated Concrete or equal.

B. Construction
1. Pre-cast concrete vaults and pull boxes for electrical power distribution and communication circuits with associated risers and tops shall conform to ASTM C478 and ACI 318. Vaults and pull boxes shall be the type noted on the Drawings and shall be constructed in accordance with the applicable details as shown. Tops, walls and bottoms shall consist of reinforced concrete. Walls and bottom shall be of monolithic concrete construction. Duct entrances and windows shall be located near the corners of structures to facilitate cable racking. Provide all necessary lugs, rabbets, and brackets. Set pulling-in irons and other built-in items in place prior to pouring concrete. A pulling-in iron shall be installed in the wall opposite each duct entrance. All steel other than "rebar" shall be hot dipped galvanized after fabrication.

C. Cable Racks
1. Vaults shall be provided with galvanized cable racks, including rack arms and insulators, and shall be adequate to accommodate the indicated cables; porcelain insulators shall be provided for electrical vaults only.

D. Covers
1. The word "ELECTRICAL" shall be cast in the top face of all electrical power vault and cable boxes.
2. The words "FIRE ALARM" shall be cast in the top face of all fire alarm vault and cable boxes.
3. The word "SIGNAL" shall be cast in the top face of all telecom, intercom, CATV, data, EMS, security and/or clock vault and cable boxes.

E. Sumps
1. Where indicated on the drawings, drain sumps shall be provided.

F. Concrete
1. Aggregates used in the concrete mix, either coarse or fine, excluding light weight aggregates, shall conform to ASTM C 33. Aggregates shall be properly graded and free of deleterious substances to produce a homogeneous concrete mix when blended with cement.

G. Cement
1. The cement shall be Type II low alkali Portland cement and shall meet the requirement of ASTM C 150.

H. Compressive Strength
1. Sufficient cement content shall be used per batch to produce a minimum compressive strength of 3,000 psi at 28 days.

I. Reinforcing Steel
1. Welded wire mesh for street lighting boxes shall conform to ASTM A 185.
2. Reinforcing bars for primary and secondary electrical vaults and pull boxes, and communication vaults and pull boxes shall be intermediate grade billet steel conforming to ASTM A 615.

J. Ladders
   1. Ladders for vaults shall be sized as required, stationary galvanized steel.

PART 3 EXECUTION

3.01 INSTALLATION

A. Pre-cast vaults and pull boxes shall be installed approximately where indicated on the Drawings. The exact location of each vault or pull box shall be determined after careful consideration has been given to the location of other utilities, grading, and paving. All vaults, cable boxes and secondary pull boxes shall be installed with a minimum of 6-inch thick crushed rock or sand bedding.

B. Paved areas
   1. Vaults and pull boxes located in areas to be paved shall be installed such that the top of the cover shall be flush with the finished surface of the paving.

C. Unpaved Areas
   1. In unpaved areas, the top of vaults and pull box covers shall be approximately 2 inches above finished grade.

D. Joint Seals
   1. Section joints of pre-cast vaults and pull boxes shall be sealed with compound as recommended by the manufacturer.

E. Trenching, Backfilling, and Compaction
   1. Trenching, backfilling and compaction shall be as specified in Section 02200 - Excavation and Backfill.

F. Grounding
   1. Ground rods an associated copper ground loop shall be installed in all vaults. Ground loop shall be properly connected to the cable shielding, at each cable joint or splice by means of a minimum number 4 AWG or equivalent braided tinned copper wire. Ground rods shall be protected with a double wrapping of pressure-sensitive plastic tape for a distance of two inches above and six inches below concrete penetrations. Ground wires shall be neatly and firmly attached to vault cable support racks.

END OF SECTION
PART 1  GENERAL

1.01  DESCRIPTION OF WORK

A. The work of this Section consists of providing panelboards and circuit breakers as shown on the Drawings and as described herein.

1.02  RELATED WORK

A. See the following specification sections for work related to the work in this Section.

1. Section 260510 - General Electrical Requirements
2. Section 260526 - Grounding
3. Section 260519 - Line Voltage Wire and Cable
4. Section 262816 - Circuit Breakers

1.03  SUBMITTALS

A. Shop Drawings - As specified in Division 1 and Section 260510. For each panelboard and distribution panels furnished under this Contract, submit manufacturer’s name, catalog data, and the following information:

1. Panelboard / distribution panel type.
2. Main bus and terminal connection sizes.
3. Location of line connections.
4. Cabinet dimension.
5. Gutter space.
7. Finish data.
8. Voltage rating.
9. Breaker manufacturer, types, trip rating, and interrupting ratings.
10. When information is available on the Drawings, show breaker circuit numbers and locations along with trip ratings on a panelboard layout.

B. Single Submittal - A single complete submittal is required for all products covered by this Section.

C. Closeout Submittals: Submit operation and maintenance data for panelboards and circuit breakers including nameplate data, parts lists, factory and field-test reports, recommended maintenance procedures and typewritten as-built panel schedules. Submit in accordance with Division 1.

1.04  WARRANTY

A. Manufacturer shall warrant specified equipment free from defects in materials and workmanship for the lesser of one (1) year from the date of installation or eighteen (18) months from the date of purchase.

PART 2  PRODUCTS

2.01  PANELBOARDS
A. General: Lighting and Receptacle Panelboards shall be the automatic circuit breaker type. The number and arrangement of circuits, trip ratings, spares and blank spaces for future circuit breakers shall be as shown on the Drawings or, if not shown, 42 circuits. All circuit breakers shall be quick-make, quick-break, thermal-magnetic bolt-on type, with 1, 2 or 3 poles as shown, each with a single operating handle. Tandem or piggyback breakers shall not be used.

B. Nameplates
   1. Each panelboard shall have a field mounted identifying, rigid, plastic nameplate giving the panel identification as shown on the Drawings. Nameplates shall be laminated with black characters minimum 3/16" high on a white laminated background. Nameplates shall be attached with screws.
   2. Each panelboard shall have a manufacturer’s nameplate showing the voltage, bus rating, number of phases, frequency and number of wires.

C. Construction
   1. Door and trim shall be finished to match color of surrounding wall. Box shall be hot-dip galvanized, field finished to match the front.
   2. Panelboards and enclosures shall conform to requirements of all relevant codes. Panelboards shall be suitable for use as service equipment.
   3. Panelboards shall be furnished with door-in-door or hinged trim fronts with key latch, on inner door and a typed directory card and holder. Panelboard circuits shall be arranged with odd numbers on the left and even numbers on the right. Provide weatherproof, NEMA type 3R enclosures for outdoor installation.

D. Busbars: Panelboard busbars shall be phase sequence type suitable for bolt-on circuit breakers. All busbars shall be copper. Panelboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 67.
   1. Busbars shall be braced for the indicated short circuit level scheduled.
   2. Busbars shall be installed completely throughout the panel for installation of both required and future breakers. Schedules indicate spaces for future breakers.
   3. Busbars shall be designed so circuit breakers may be changed without machining, drilling or tapping.
   4. Separate isolated Neutral and Ground busbars shall be provided. If called for on panel schedules, Neutral busbar may be oversized. Ground busbar shall be identified with green stripe and fully bonded to enclosure.

E. Circuit Breakers: Circuit breakers shall be the molded case type with trip and interrupting ratings as shown on the Drawings.

F. Series ratings shall not be allowed unless specifically noted on drawings.

G. Typed Circuit Directories: All panelboards shall have typed directories identifying all circuits installed behind plastic cover provided by the panelboard manufacturer.

H. Manufacturer
   1. Panelboards shall be Square D, Siemens or approved equal.

2.02 DISTRIBUTION PANELS

A. General: Distribution panels shall be the automatic circuit breaker type. The number and arrangement of circuits, trip ratings, spares and blank spaces for future circuit breakers shall be as shown on the Drawings. All circuit breakers shall be quick-make, quick-break, thermal-magnetic bolt-on type, with 1, 2 or 3 poles a shown, each with a single operating handle. Tandem or piggyback breakers shall not be used.
B. Nameplates
   1. Each distribution board shall have a field mounted identifying, rigid, plastic nameplate giving the panel identification as shown on the Drawings. Nameplates shall be laminated with black characters minimum 3/16” high on a white laminated background. Nameplates shall be attached with screws.
   2. Each distribution panel shall have a manufacturer’s nameplate showing the voltage, bus rating, number of phases, frequency and number of wires.

C. Construction
   1. Door and trim shall be finished to match color of surrounding wall. Box shall be hot-dip galvanized, field finished to match the front.
   2. Distribution panels and enclosures shall conform to requirements of all relevant codes. Distribution panels shall be suitable for use as service.
   3. Distribution panels shall have a front door with key latch and a typed directory card and permanently attached holder. Adhesive backed holders are not acceptable. Distribution panel’s circuits shall be arranged with odd numbers on the left and even numbers on the right. Provide weatherproof, NEMA type 3R enclosures for outdoor installation.

D. Busbars: Distribution panel’s busbars shall be phase sequence type suitable for bolt-on circuit breakers. All busbars shall be copper. Panelboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 67.
   1. Busbars shall be braced for the indicated short circuit level scheduled.
   2. Busbars shall be installed completely throughout the panel for installation of both required and future breakers. Schedules indicate spaces for future breakers.
   3. Busbars shall be designed so circuit breakers may be changed without machining, drilling or tapping.
   4. Separate isolated Neutral and Ground busbars shall be provided. If called for on panel schedules, Neutral busbar may be oversized. Ground busbar shall be identified with green stripe and fully bonded to enclosure.

E. Circuit Breakers: Circuit breakers shall be the molded case type with trip and interrupting ratings as shown on the Drawings.

F. Series rating shall not be allowed unless specifically noted on drawings.

G. Manufacturer
   1. Distribution panels shall be Square D, Siemens or approved equal.

PART 3  EXECUTION

3.01 INSTALLATION: Panelboards and Distribution Panels shall be installed where indicated on the Drawings, and in accordance with the manufacturer’s instructions.

3.02 INSTALLATION
   A. Panelboards and Distribution Panels shall be installed with the top of the box 6’-6” above the floor. Panelboards and Distribution Panels shall be plumb within 1/8-inch. The highest breaker-operating handle shall not be higher than 72 inches above the floor.
   B. Floor mounted Panelboards and Distribution Panels shall be installed on a concrete house keeping slab. The concrete slab shall be a minimum of 4” above finished floor, with minimum of 6” extension beyond equipment. The concrete slab shall have a ½” chamfer. See Division 3 for concrete work requirements.
3.03 FIELD TESTS

A. Insulation Resistance Tests: Perform insulation resistance tests on circuits with #2 AWG and larger conductors to be energized with a line-to-neutral voltage of 120 volts or more. Make these tests after all equipment has been connected, except that equipment, which may be damaged by the test voltage, shall not be connected. Test the insulation with a 500Vdc insulation resistance tester with a scale reading 100 megohms. The insulation resistance shall be 2 megohms or more. Submit results for review.

B. Grounding: Grounding shall conform to Section 26 05 26.

C. Continuity: Panelboard and Distribution Panel circuits shall be tested for continuity prior to energizing. Continuity tests shall be conducted using a dc device with a bell or buzzer.

END OF SECTION
SECTION 262726
DEVICES WIRING

PART 1  GENERAL
1.01  DESCRIPTION OF WORK
A.  The work of this section consists of:
1.  Furnishing, installing, and connecting all duplex receptacles complete with wall plates and/or covers, as shown on the Drawings.
2.  Furnishing, installing and connecting all single pole and three-way switches complete with wall plates and or handle operators, as shown on the Drawings.

1.02  RELATED WORK
A.  See the following specification sections for work related to the work of this section:
1.  Section 260533 - Conduits, Raceways and Fittings.
2.  Section 260519 - Low Voltage Wire and Cable.
3.  Section 260534 - Junction and Pull Boxes.

1.03  SUBMITTALS:  As specified in Division 1.
A.  Submit manufacturers published descriptive literature properly marked to identify the items to be supplied.
B.  A single complete submittal is required for all products covered by this Section.

PART 2  PRODUCTS
2.01  RECEPTACLES
A.  General - Receptacles shall be heavy duty, high abuse, grounding type.
B.  Duplex Receptacles
1.  Receptacles shall be specification grade, rated 20 ampere, two-pole, 3-wire, 120 volt, NEMA 5-20 configuration, self-grounding with screw terminals.  Color shall be ivory or as selected by the Architect.
2.  Devices shall have a nylon composition face, back and side wired.
3.  Manufacturer: Leviton #5362 Series, Hubbell #5362-I Series.
C.  GFCI Receptacles
1.  Device shall be Smart Lock with lockout action, rated 20 ampere, 2-pole, 3-wire, 120 volt, conforming to NEMA 5-20 configuration.  Face shall be nylon composition.  Unit shall have an LED type green indicator light, test and reset push buttons.  Color shall be ivory unless otherwise noted.
2.  GFCI component shall meet UL 2003 Class A standards with a tripping time of 1/40 second at 5 milliamperes current unbalance.  Operating range shall extend from -31°F to 158°F.  Unit shall have transient voltage protection and shall have a diagnostic indication for miswiring.
3.  Manufacturer: Leviton #8898-I Series.
D.  GFCI Blank Face Devices
1. Device shall be Smart Lock with lockout action, rated 20 ampere, 2-pole, 3-wire, 120 volt, blank face, dead front. Face shall be nylon composition. Unit shall have a test and reset push buttons. Color shall be ivory unless otherwise noted.

2. GFCI component shall meet UL 2003 Class A standards with a tripping time of 1/40 second at 5 milliamperes current unbalance. Operating range shall extend from -31°F to 158°F. Unit shall have transient voltage protection and shall have a diagnostic indication for miswiring.

3. Manufacturer: Leviton #8590-I Series.

E. Surge Suppression Receptacles

1. Device shall be rated 20 ampere, 2-pole, 3-wire, 120 volt. Face shall be nylon composition. Unit shall have an LED type "Power-on" indication light and damage-alert audible alarm. Color shall be ivory unless otherwise noted.

2. Surge suppression protection shall be listed to UL standard 1449 and shall instantly absorb a transient surge of 6,000 volts minimum. A minimum of four (4) Metal Oxide Varistors shall be utilized to absorb transients.

3. Manufacturer: Leviton #8380-I Series, Hubbell #HBL8362S Series.

2.02 SWITCHES

A. Switches shall be rated 20 amperes to 120/277 volts ac. Units shall be flush mounted, self-grounding, quiet operating toggle devices. Handle color shall be ivory or as selected by the Architect.

1. Manufacturer: Leviton #1221-2I Series, Hubbell #HBL1221 Series.

B. Timed switches: Shall be as designed by Paragon Electric Company # ET2000f, Watt Stopper TS-100 or Leviton # 6215M rated for the voltage specified on drawings. Time out shall be adjustable from 5 minutes up to 12 hours. Unit shall be provided with warning alarm.

C. Motion Sensor shall be dual technology as designed by Watt Stopper DT series. Use protective wire covers in restrooms, multi-use, cafeteria, etc.

2.03 PLATES

A. General - Plates shall be of the style and color to match the wiring devices, and of the required number of gangs. Plates shall conform to NEMA WD 1, UL 514 and FS W-P-455A. Plates on finished walls shall be non-metallic or stainless steel. Plates on unfinished walls and on fittings shall be of zinc plated steel or case metal and shall have rounded corners and beveled edges.

B. Non-Metallic: Plates shall be plain with beveled edges and shall be nylon or reinforced fiberglass.

C. Stainless Steel: Plates shall be .040 inches thick with beveled edges and shall be manufactured from No. 430 alloy having a brushed or satin finish.

D. Cast Metal: Plates shall be cast or malleable iron covers with gaskets so as to be moisture resistant or weatherproof.

E. Blank Plates: Cover plates for future telephone outlets shall match adjacent device wall plates in appearance and construction.

PART 3 EXECUTION

3.01 INSTALLATION OF WIRING DEVICES

A. Interior Locations: In finished walls, install each device in a flush mounted box with washers as required to bring the device mounting strap level with the surface of the finished wall. On unfinished walls, surface mount boxes level and plumb.
B. Mounting Heights: Measure locations of wall outlets from the finished floor to the center of the outlet box. Adjust boxes so that the front edge of the box shall not be farther back from the finished wall plane than 1/4-inch. Adjust boxes so that they do not project beyond the finished wall. Height above finished floor to center of device unless otherwise noted on Drawings shall be as follows:

1. Receptacles 18 Inches above finished floor
2. Toggle Switches 48 Inches above finished floor

C. Receptacles

1. Ground each receptacle using a grounding conductor, not a yoke or screw contact.
2. Install receptacles with connections spliced to the branch circuit wiring in such a way that removal of the receptacle will not disrupt neutral continuity and branch circuit power will not be lost to other receptacles in the same circuit.

3.02 INSTALLATION OF WALL PLATES

A. General - Plates shall match the style of the device and shall be plumb within 1/16-inch of the vertical or horizontal.

B. Interior Locations, Finished Walls: Install non-metallic plates so that all four edges are in continuous contact with the finished wall surfaces. Plaster filling will not be permitted. Do not use oversized plates or sectional plates.

C. Interior Locations, Unfinished Walls: Install stainless steel or cast metal cover plates.

D. Exterior Locations: Install cast metal plates with gaskets on wiring devices in such a manner as to provide a rain tight weatherproof installation. Cover type shall match box type.

E. Future Locations: Install blanking cover plates on all unused outlets.

F. All receptacles shall be labeled with panel and circuit number. Contractor shall provide 3/8" clear label tape on each wall plate with 1/4" black machine lettering.

3.03 TESTS

A. Receptacles

1. After installation of receptacles, energize circuits and test each receptacle to detect lack of ground continuity, reversed polarity, and open neutral condition.

END OF SECTION
SECTION 262816

CIRCUIT BREAKERS

PART 1  GENERAL

1.01 DESCRIPTION OF WORK

A. The work of this Section consists of providing circuit breakers as shown on the Drawings and as described herein.

1.02 RELATED WORK: See the following Specification Sections for work related to the work in this Section.

A. Section 260510 - General Electrical Requirements

1.03 SUBMITTALS

A. Shop Drawings - Submittals shall be in accordance with Division 1. For each circuit breaker furnished under this Contract, submit manufacturer’s name, catalog data, and the following information:

1. Terminal connection sizes.

2. Voltage rating.

3. Breaker manufacturer, types, trip ratings and interrupting ratings.

B. Single Submittal - A single complete submittal is required for all products covered by this Section.

C. Closeout Submittals: Submit in accordance with Division 1 and Section 260510 operation and maintenance data for circuit breakers including nameplate data, parts lists, manufacturer’s circuit breaker timer, current, coordination curves, factory and field test reports and recommended maintenance procedures.

1.04 WARRANTY

A. Manufacturer shall warrant specified equipment free from defects in materials and workmanship for the lesser of one (1) year from the date of installation of eighteen (18) months from the date of purchase.

PART 2  PRODUCTS

2.01 CIRCUIT BREAKER: Each circuit breaker shall consist of the following:

A. A molded case breaker with an over center toggle-type mechanism, providing quick-make, quick-break action. Each circuit breaker shall have a permanent trip unit containing individual thermal and magnetic trip elements in each pole. Circuit breakers shall have variable magnetic trip elements which are set by a single adjustment to assure uniform tripping characteristics in each pole.

B. Breaker shall be calibrated for operation in an ambient temperature of 40°C.
C. Each circuit breaker shall have trip indication by handle position and shall be trip-free.

D. Three pole breakers shall be common trip.

E. The circuit breakers shall be constructed to accommodate the supply connection at either end of the circuit breaker. Circuit breaker shall be suitable for mounting and operation in any position.

F. Breakers shall be rated as shown on Drawings.

G. Series rating of circuit breakers shall not be allowed unless specifically noted on drawings.

H. Breakers shall be UL listed. Circuit breakers shall have removable lugs.

I. Lugs shall be UL listed for copper and aluminum conductors.

J. Breakers shall be UL listed for installation of mechanical screw type lugs.

K. Circuit breakers serving HACR rated loads shall be HACR type. Circuit breakers serving other motor loads shall be motor rated.

L. Breakers indicated as "current limiting " (CL), shall be of the non-fused type; Square D I-Limiter, Cutler Hammer Limit-R, or ITE Sentron only.

PART 3 EXECUTION

3.01 MOUNTING

A. The highest breaker operating handle shall not be higher than 72 inches above the floor.

END OF SECTION
PART 1    GENERAL

1.01 DESCRIPTION OF WORK

A. The work of this section consists of providing a lighting system complete, including fixtures, lamps, hangers, reflectors, glassware, lenses, auxiliary equipment, ballasts and sockets.

1.02 RELATED WORK

A. See the following specification sections for work related to the work of this section:

1. 260510 General Electrical Requirements.
2. 260533 Conduit, Raceway and Fittings.
3. 260519 Low Voltage Wire and Cable.
4. 260534 Junction and Pull Boxes.

1.03 SUBMITTALS: In accordance with Division 1.

A. Submit descriptive data, photometric curves for each fixture configuration proposed.

B. Submit shop drawings showing proposed methods for mounting lighting fixtures.

C. Seismic Requirements: Submit:

1. Sketch or description of the anchorage system.

D. Submit Operation and Maintenance Data per Division 1.

1.04 WARRANTY: High Intensity Discharge lamps which fail within the first year after final acceptance shall be replaced by the Contractor with the warranty clause of the General Provisions.

PART 2    PRODUCTS

2.01 FIXTURES

A. Fixtures shall be of the types, wattage’s and voltages shown on the Drawings and be UL classified and labeled for the intended use.

B. Substitutions will not be considered unless the photometric distribution curve indicates the proposed fixture is equal to or exceeds the specified luminaire.

C. Luminaire wire, and the current carrying capacity thereof shall be in accordance with the CEC.
D. Luminaires and lighting equipment shall be delivered to the project site complete, with suspension accessories, aircraft cable, stems, canopies, hickeys, castings, sockets, holders, ballasts, diffusers, frames, and related items, including support and braces.

2.02 BALLASTS

A. Ballasts shall be of the types shown on the drawings. Ballasts shall be CBM certified and bear the UL label. Magnetic ballasts shall be the high power factor type. Electronic ballasts shall be suitable for lamps specified by Advance, Magnatek/Universal, Triad or approved equal. Electronic ballast shall be CBM certified and have 15% total harmonic distortion or less.

B. All ballasts for fixtures installed outdoors shall provide reliable starting of lamps at 0°F at 90% of the nominal line voltage.

C. Ballasts producing excessive noise (above 36 dB) or vibration will be rejected and shall be replaced at no expense to the Owner.

2.03 LAMPS

A. Lamps shall be new at the time of acceptance and shall be General Electric, Osram /Sylvania, Phillips, or approved equal.

B. Unless otherwise noted on the drawings, lamps shall be T8, 3500°K, and 85 CRI minimum.

PART 3 EXECUTION

3.01 INSTALLATION

A. General

1. All fixtures and luminaires shall be clean and lamps shall be operable at the time of acceptance.

2. Install luminaires in accordance with manufacturer’s instructions, complete with lamps, ready for operation as indicated.

3. Align, mount, and level the luminaires uniformly.

4. Avoid interference with and provide clearance for equipment. Where an indicated position conflicts with equipment locations, change the location of the luminaire by the minimum distance necessary.

B. Mounting and Supports

1. Mounting heights shall be as shown on the Drawings. Unless otherwise shown, mounting height shall be measured to the centerline of the outlet box for wall mounted fixtures and to the bottom of the fixture for suspended fixtures and to the bottom of the fixture for all other types.

2. Luminaire supports shall be anchored to structural members.

3. Pendant luminaires shall be provided with ball aligners to assure a plumb installation and shall have a minimum 25 degree clean swing from horizontal in all directions. Sway bracing shall be installed as required to limit the movement of the fixture. Fixtures shall be allowed to sway a maximum of 45° without striking any object.

4. Fixture supports shall be designed to resist earthquake forces of seismic zone 4.
5. Refer to fixture mounting details on drawings for installation requirements.

C. Pendant Fixture Mounting: Provide flexible fixture hangers unless otherwise noted on Drawings.
PART 1 GENERAL

1.01 DESCRIPTION OF WORK

A. The work to be performed under this Section consists of providing all wire, cable, wireless access points and data switches used for the data network and CCTV broadband distribution system including terminations as shown on the Drawings and as described herein. Systems included are Category 6 data station distribution, CCTV cat-6 cables, aerohive wireless network systems and Planet data switches. The intention of the data system is to provide a category 6 network that is capable of running at gigabit Ethernet speeds. The cabling, the terminations, switches and the jacks used must meet these standards.

B. Furnishing, installing, and connecting all data and CCTV outlets, complete with wall plates and/or covers, as shown on the Drawings or within this section.

C. Furnishing, installing, and connecting all data and CCTV equipment as specified within this section. Equipment includes but may not be limited to floor racks, wall equipment cabinets, wire management and fiber and category 6 patch panels.

D. Furnishing, installing and connecting Aerohive wireless networking equipment as specified within this section. Equipment includes but may not be limited to Access Points, WLAN controllers and POE injectors.

E. Furnishing, installing and connecting Planet Data Switches.

F. At the completion of the project the system shall be fully tested and certified by the contractor. A fully functional data system shall be provided at the conclusion of the project.

G. Final documentation submittal shall be provided in both hard and electronic copy.

1.02 RELATED WORK

A. See the following specification sections for work related to the work of this section:

1. 260510 General Electrical Requirements.

2. 260533 Conduits, Raceways and Fittings.

1.03 STANDARDS AND CODES

A. Work and materials shall be in compliance with and according to the requirements of the latest revision of the following Standards and Codes:

B. National Electrical Manufacturers Association (NEMA):

C. WC 5-1973 (R1985), Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

E. National Fire Protection Association (NFPA), National Electrical Code (NEC) - Latest Revision.

F. California Electrical Code (CEC).

G. Underwriters Laboratories (UL):
   1. 44-83 (R1988), Rubber-Insulated Wires and Cable.

H. 510-1986, Insulating Tape.

I. EIA/TIA-568, EIA/TIA TSB-36 and TSB-40

1.04 SUBMITTALS

A. In accordance with Section 260510.
   1. Catalog Data: Provide manufacturer’s descriptive literature.
      a. Single Submittal: A single complete submittal is required for all products covered by this Section.
      b. Upon completion “As-built” documentation showing actual devices locations and devices identification as installed and labeled, including Patch Panels and Data outlets.
      c. Elevations of all equipment racks, indicating patch panels, wire managers, wireless and data switches, etc. Submittal should indicate the number of rack spaces occupied and adequate space for all equipment.

1.05 QUALIFICATIONS

A. The Contractor shall be from an established and locally run business, which has been operating and installing the specified products for a minimum of five years.

B. The Contractor shall be factory certified for installation of the product specified. Proof of certification shall be included in the submittal.

C. The contractor for this work shall have completed at least three- (3) similar size and complexity project experience. The contractor shall provide at least 50% of their technicians, having been trained by the manufacture, to perform all copper and fiber cable terminations.

D. The contractor shall be able to extend the manufacturer’s warranties for this project directly to the end-user.

E. The contractor shall show satisfactory evidence, upon request, that he maintains a fully equipped service organization capable of furnishing adequate inspection and service to the system. The contractor shall maintain at his facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.

F. Planet Network Equipment Installer Qualifications:
1. The Contractor shall have a minimum of one Planet Certified Expert on staff to advise on the project. The contractor shall submit the qualifications and certifications for review and approval.

G. Aerohive Wireless Equipment Installer Qualifications:

1. The contractor shall have a minimum of one Aerohive certified installer on staff.

1.06 QUALITY ASSURANCE

A. The data cabling system shall carry the manufacturer’s performance warranty for each cable link as defined by TIA/EIA-568A for a period of 15 years from the date of registration by the manufacture and extended directly to the school district. All active components shall extend their normal manufacture’s warranty.

B. The contractor shall provide a one-year warranty of the installed systems against defects in material and workmanship. All labor and materials shall be provided at no expense to the owner during normal working hours. The warranty period shall begin on the date of acceptance by the owner/engineer.

C. The contractor shall, at the owner’s request, make available a service contract offering continuing factory authorized service of this system after the initial warranty period.

D. The system manufacturer shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of the system.

E. Field tests shall be performed as specified within this specification.

F. No splices will be permitted in feeder or drop cables. If splices are required, the Contractor must designate desired location on system maps and obtain owners approval prior to any cable pulling on that run.

G. Where specific make and models of equipment have been specified, the words “or equal” are understood to appear after the item specified. If a bidder proposes to offer a substitution item, it is bidders responsibility, to prove that such an item is an equal and will meet the intent and requirements to the specifications. A detailed explanation as well as literature or other documentation shall be provided. In all cases the final decision as to acceptability of an alternate item will be made by the Owner. Unless otherwise noted, it is assumed that all equipment offered is exactly as specified.

H. All Planet equipment specified in this section shall be new, unused equipment of current vintage and software version so that ongoing support can be assured.

I. All Planet Equipment specified in this section shall be procured only through authorized channels as defined by Planet Systems.

J. All Planet Equipment specified in this section shall be provided with the standard Planet warranty.

PART 2 PRODUCTS

2.01 COPPER CONDUCTORS

A. Category 6 – Data station cables shall be Category 6, 4 Pair UTP 24 AWG solid bare copper in a PVC jacket. The 4-pair non-plenum Cable is a high-speed, high performance, 100-ohm cable. It is capable of carrying high bit-rate signaling for extended distances in building distribution systems.
The cable shall exceed the EIA/TIA-568A Commercial Building Wiring Standard for Category 6 cables. All cable used on this project shall be of the same type and conductor material. All cables are to be terminated to the appropriate RJ45 station jack or patch panel. All cables shall be numbered and labeled. Category 6 cables shall be as manufactured by Belden, Berk-Tek, Commscope or Lucent.

B. Cable shall be routed in conduit where concealed or above accessible T-bar ceiling through “J” hooks from outlet to patch panel.

2.02 FIBER CONDUCTORS

A. Fiber Optic – Multimode Fiber Optic cables (50/125µm) shall be 12 strands, outside plant rated, loose tube, gel filled. Terminate all multimode fiber optic cables using approved “LC” connectors. All terminated fiber optic cables will be installed into fiber patch panels. Twelve-strand fiber cable shall be Berk-Tek GigaLite Fiber Optic # OPD012-G83510/25 or Corning Altos All Dielectric Cables #012-KW4-14150A20. One 12 strand, multimode fiber optic cables with proper “SC” termination, service loops and installation in fiber management units at both ends is required between each IDF and the MDF. Fiber Optic cables installed underground inside conduit shall have the DryBlock water blocking tape.

B. Cables shall be installed in conduit between each IDF and the MDF fiber patch panels. Minimum bend shall not be less than 7.5 inches or fifteen times the cable diameter.

C. A service loop of at least 10 feet is to be coiled into every Christie box and labeled for all cables passing through a pull can. A service loop of 30 feet shall be provided at each termination end of the cable run. The service loop shall be left in a neat workmanship manner, secured appropriately with all bend radius specifications observed.

D. All Multimode fibers are to be field terminated to LC style connectors and connected to the Fiber patch panel.

2.03 DATA OUTLETS

A. Data outlets shall be modular RJ45 Jack and shall be U.L. listed meet FCC Part 68 requirements and fully comply with NEC Article 800. Data outlets shall comply with TIA-568B electrical, mechanical and transmission requirements. All outlets shall comply with Category 6 rating. Outlet color shall be black and shall be keyed style. Manufacturer: Panduit Giga-Channel Mini Jack Series. See drawings for cover plate type.

2.04 CCTV OUTLETS

A. Cat-6 cable from each CCTV outlet shall be homerun to nearest IDF.

2.05 PLATES

A. General - Plates shall be of the style and color to match the wiring devices, and of the required number of gangs. Plates shall conform with NEMA WD 1, UL 514 and FS W-P-455A. Telephone wall plates on finished walls shall be stainless steel. Television wall plates shall be Panduit and accommodate Panduit Mini-Com connectors.

2.06 PATCH PANELS

A. Fiber Optic Patch panels shall be made to accept Fiber Optic cables. IDF Fiber Patch panel shall be Panduit FMD24STMP with FAP6WSC inserts to terminate all incoming fiber and FAPB blank insert to cover unused opening. MDF Fiber Patch Panel shall be Panduit FMTJW48 with
appropriate FAP6WSC inserts. Provide (1) one 24 ports fiber patch panel at each IDF. Provide (2) two 48 ports fiber patch panel at the MDF.

B. Giga-channel modular patch panel shall be 48 port, Panduit Model No. CPP48WBL. Patch panels shall mount to standard EIA 19” racks. At each IDF and the MDF provide proper quantity of Giga-channel patch panels with appropriate giga-channel mini-jacks to terminate all incoming data and station cables and 10% open connectors.

C. A horizontal wire manager as specified above shall follow each patch panel.

2.07 PATCH CHORDS

A. Installer will provide patch cables for the MDF and IDFs, both CAT 6 and fiber as called for a complete system and as called for in the plans. Installer will determine cable lengths after layout of the distribution racks. One patch cable shall be provided for each data drop provided.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Examine the areas to receive the work and the conditions under which the work would be performed. Contractor shall remedy conditions detrimental to the proper and the timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.02 METHODS AND PROCEDURES

A. Examine and compare the Network Equipment Systems Drawings and Specifications with the drawing and specifications of other trades. Report any discrepancies between them to the Owner/Engineer, and obtain from them written instructions for changes necessary in the work. At time of bid, the most stringent requirements shall be included in the bid.

B. Install and coordinate the Network Equipment Systems in cooperation with other trades installing interrelated work. Before installation, make proper provisions to avoid interference’s in a manner accepted by the Owner/Engineer. Any repairs or changes made necessary in the Contract Work, caused by his neglect, shall be made by him at his own expense.

C. The contractor shall maintain a current copy of this Specification and associated Network Equipment Systems Drawings at the job site at all times.

D. The Contractor shall maintain a complete file of Shop Drawings and other submissions at the job site at all times. Shop Drawings and all other submissions shall be made available to the appropriate representative at their request.

E. The Contractor shall follow manufacturers’ instructions for installing components and adjusting all equipment. Submit two (2) copies of such instructions to the Engineer before installing any equipment. Provide a copy of such instructions at the equipment during any work on the equipment. Where no instructions are included with the equipment, follow accepted industry practices and professional workmanlike installation standards.

F. Perform all tests required by local authorities in addition to tests specified herein.

G. Keep all items protected before and after installation, with dust and waterproof barrier materials as necessary. The Contractor shall be responsible to ensure the integrity of the protective measures throughout the life of the project.
H. The Contractor shall protect all telecommunications and network equipment from damages, at all times during the construction. Do not install equipment in the server room until the other trades have completed their work in the areas so that the equipment will not be moved or damaged.

I. Ensure that safe ingress and egress, from all work areas, are maintained during movement and installation of materials.

J. Clean up and remove all debris generated by installation activities. Keep the telecommunications areas free of debris at all times.

K. Deliver to Owner two sets of all special tools and software specifically needed for proper operation, adjustment and maintenance of cable and cable termination hardware installed under this contract.

L. Upon project completion, provide as-built drawings, RF Coverage maps and documentation as defined herein.

3.03 CABLE INSTALLATION

A. Clean Raceways - Clean all raceways prior to installation of cables as specified in Section 16110 - Conduits Raceway and Fittings.

B. All “J” hooks are to be placed with a maximum distance of 4 feet between hooks. Cable will be attached to hooks in such a way such as not to affect any electrical property of the cable.

C. Cable Pulling - Exercise care in pulling wires and cables into conduit or raceways so as to avoid kinking, putting undue stress on the cables or otherwise abrading them. No grease will be permitted in pulling cables. Only soapstone, talc, or UL listed pulling compound will be permitted. The raceway construction shall be complete and protected from the weather before cable is pulled into it. Swab conduits before installing cables and exercise care in pulling, to avoid damage to conductors.

D. Bending Radius - Cable bending radius shall be per applicable code and manufacturer recommendations. Install feeder cables in one continuous length.

E. All low voltage system conduit stub out and nipples shall have end bushing.

F. Examine areas and conditions under which LAN system is to be installed. Notify contractor in writing of conditions detrimental to proper completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable for installation.

G. All backbone cable will be run through clean conduit with appropriately placed junction boxes.

H. All fiber backbones will be connected to patch points. All CCTV drop and backbone cables will be connected to specified equipment including splitters to make a complete functioning system.

I. All data station cabling can be run in J-Hooks above accessible ceiling or in conduit in non-accessible space then through raceway running to their respective station outlet unless otherwise specified.

J. All cabling can be run in J-Hooks above accessible ceiling or in conduit in non-accessible space.
3.04 INSTALLATION OF WIRING DEVICES

A. Mounting Heights: Measure locations of wall outlets from the finished floor to the center of the outlet box. Adjust boxes so that the front edge of the box shall not be farther back from the finished wall plane than 1/4-inch. Adjust boxes so that they do not project beyond the finished wall.

B. IDF equipment cabinets are to be mounted on 3/4" fire treated backboard at an exact location to be specified by the district. The general IDF locations are shown in the drawings.

C. All cables are to be terminated to panels installed as part of this section.

D. All patch points, CCTV outputs, station outlets are to be labeled to district specifications.

3.05 IDENTIFICATION

A. Provided labels on all equipment (including AP’s and Antennas) installed under this work. Labels should be machine-generated labels with a unique identifier.

B. Hand lettered label stock will not be accepted for final installation. Hand lettered stock is only acceptable for use with temporary labeling required during construction phases.

C. If at any time during the project, the label becomes illegible or removed, the Contractor shall immediately replace it with a duplicate preprinted label.

D. All cable IDs shall be both physically and visually accessible upon completion of the project.

3.06 TESTING

A. Test all station cables for continuity, polarity and pairing on all pairs.

B. All data and telephone cat-6 cables are to be tested for compliance with the latest 1000Tx network standard and EIA/TIA 568B performance parameters for 100base Tx Ethernet using a hand held network scanner. Network analyzer is to be a Fluke DSP 4000 / 6000 or Penta scanner. The tester used must meet the standards of the manufacture for the cabling and termination connectors used. Hardcopy and softcopy results are to be provided for all jacks tested. Softcopy results to be provided on a Windows XP compatible disk.

C. All multi-mode fiber optic strands are to be tested bi-directionally at both 850nm and 1300nm. Tests are to be performed using a power meter and light source or an OTDR to measure attenuation from coupler-to-coupler at the distribution panels. No strand is to exhibit more than 3.75 dB/km at 850nm, 1.5 dB/km at 1300nm. Fiber optic cables shall be tested prior to installation or the manufacture certification.

D. Any cables that fail to meet the stated test requirements are to be repaired/replaced by the contractor prior to acceptance by the School District.

E. All CCTV station outlets will produce a signal of +12 dBmV, ±4 dB at 55 MHz. Output level linearity must be +0/-10dB from 55 MHz to 750 MHz.

F. Testing of network equipment shall consist of successfully connecting to the equipment with the management software provided from the manufacturer, changing the standard default settings in the equipment and saving a base configuration. All ports must be active and no trouble lights are to be illuminated.

END OF SECTION
SECTION 316300
DRILLED CONCRETE PIERS

PART 1  GENERAL
1.01  SUMMARY OF WORK
   A. Drilled concrete piers suitable for structural support of designated site improvements.

1.02  RELATED SECTIONS
   A. Section 323113 - Earthwork.
   B. Section 032000 - Concrete Reinforcement.
   C. Section 033000 - Cast-in-Place Concrete.

1.03  QUALITY ASSURANCE
   A. Geotechnical engineer shall be contacted 48 hours prior to all pier drilling operations. All provisions contained within the Geotechnical Investigation shall be observed.
   B. Comply with governing codes and regulations.

PART 2  PRODUCTS
2.01  MATERIALS
   A. Concrete - Section 033000.
   B. Reinforcement - Section 032000.

PART 3  EXECUTION
3.01  INSTALLATION
   A. Construct drilled holes for concrete piers only after earthwork operations in immediate area are completed.
   B. Concrete filling for cast in place concrete piers shall be as specified in section 03 30 00 titled "CAST-IN-PLACE CONCRETE". The concrete filling for cast in place concrete piles shall be dense and homogeneous. Concrete placed in drilled holes shall be placed against undisturbed material. Concrete shall be vibrated in the upper 15 feet of the pier.
   C. The contractor is to notify the project Geotechnical Engineer four working days prior to commencement of drilling operations.
   D. All holes for concrete piers cast in drilled holes shall be, at a minimum, drilled to the diameters shown on the plan and to the depths shown on the plans and may be increased as determined by the project geotechnical engineer.
   E. All holes shall be examined for straightness and any hole showing an out of plumb tolerance in excess of 2% of the total hole depth shall be rejected. If the tolerances noted herein are exceeded, the contractor shall furnish and pay for any corrective design and construction that may be required. Suitable casings shall be furnished and placed when necessary to control water or to prevent caving of the hole.
   F. All loose material existing at the bottom of the hole after drilling operations have been completed shall be removed before placing reinforcing steel or concrete in the hole. Surface water shall not be permitted to enter the hole and all water which may have infiltrated into the hole shall be removed prior to placing concrete therein.
   G. Casing, if used in drilling operations, shall be removed from the hole as concrete is placed therein. The bottom of the casing shall be maintained not more than five feet nor less than one foot below the top of the concrete during withdrawal and placing operations. Separation of the concrete by hammering or otherwise vibrating the casing during withdrawal operations shall be avoided.

END OF SECTION
Via Email

May 9, 2016
Job No. 252.200

Mr. Corbin Schneider
Verde Design, Inc.
2455 The Alameda, Suite 200
Santa Clara, California 95050

Subject: Geotechnical Investigation
Morgan Hill Downtown Park Project
Morgan Hill, California

Dear Mr. Schneider:

**INTRODUCTION**

This report presents the results of our geotechnical investigation for the Morgan Hill Downtown Park Project in Morgan Hill, California. The approximate location of the project site is shown on the Vicinity Map, Plate 1.

We understand that the project covers three primary park areas: Depot Street Park, West Little Llagas Creek Park and Hill Top Trail. Based on the June 23, 2015 Concept Plan and our discussions with you, the proposed improvements at the three park areas may include the following:

**Depot Street Park**

- Public restroom
- Walls or fences adjacent to the Caltrain rail corridor
- Playground equipment
- Shade structures
- Bridge with crawl through space below (apparently a playground equipment)
- Artificial turf
- Concrete boardwalk
- Paved sidewalk

**West Little Llagas Creek Park**

- New vehicular bridge at W. 3rd Street
- New pedestrian bridge at the northwestern portion of the park
- Public restroom
- Parking and accessible parking
- New stabilized decomposed granite walking path or colored concrete
- Modify W. 3rd Street to allow one lane with single direction for vehicular access
Hill Top Trail

- Class 1 trail to go all the way to south side of the hill
- Add erosion control mat and planting to all exposed slopes
- Extend sidewalk up Del Monte Avenue (northern segment) from W. 2nd Street to W. 3rd Street
- Hillside restoration and erosion control (5 areas shown on June 23, 2015 Concept Plan)
- Railroad tie-style climbing stairs
- Vehicle maintenance access to tower mechanical
- Minimum 10 feet wide granite or asphalt path – pedestrian and bike access
- Extend sidewalk connection up Del Monte Avenue (southern segment)
- New sidewalk connection to W. 3rd Street
- Single slide and stairs
- 5 feet wide compacted decomposed granite pathway
- Two-part slide and stairs
- Restroom

Moderate site grading and underground utilities are anticipated. Relatively low site retaining walls may be required.

PURPOSE AND SCOPE OF SERVICES

The purpose of this investigation was to evaluate the Morgan Hill Downtown Park Project with respect to the site soil, bedrock and groundwater conditions, and to provide geotechnical recommendations for the design and construction of the project. The scope of our services included a review of reports and maps of the area in our files, field exploration, laboratory testing, engineering analyses and preparation of this report. Slope stability study of the Hill Top Trail site is beyond the scope of this geotechnical investigation.

FIELD EXPLORATION AND LABORATORY TESTING

Our field exploration was performed on April 11, 2016, and consisted of drilling twelve borings (B-1 through B-12) at the approximate locations shown on the Site Plan, Plate 2. Borings B-1 through B-11 were drilled to depths ranging from about 4 to 26½ feet below the existing ground surface using a truck-mounted drill rig. Boring B-12, which was located at the hillside area, was drilled using a hand auger to a depth of about 3½ feet below the existing ground surface.

Materials encountered in each boring were visually classified in the field and a log was recorded. The boring logs showing soil and bedrock description, and blow counts are presented on Plates 3 through 17. A Key to Boring Log Symbols is included on Plate 18. The boreholes were backfilled with neat cement grout (for Borings B-1 through B-3) and soil cuttings (for Borings B-4 through B-12) after the completion of drilling and sampling.

Parikh Consultants, Inc. previously performed a geotechnical investigation for the Depot Street Beautification Project and presented the results in their November 2, 2005 report. It is our understanding that two of their borings (C-4 and C-5) were drilled at Depot Street between E. 3rd Street and E. 5th Street to a depth of about 5 feet. The subsurface information and data from the 2005 Parikh report were reviewed as part of this investigation. Relevant boring logs (Borings C-4 and C-5) from the 2005 Parikh report are included in Appendix A.
Atterberg limits tests were performed on selected samples obtained from our borings and the test results are presented below. Based on our review of the 2005 Parikh report, Atterberg limits tests were performed on a soil sample obtained from Boring C-4 and their test results are included below.

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>Soil Description</th>
<th>Liquid Limit (LL)</th>
<th>Plasticity Index (PI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-3 at 5 to 5½ feet</td>
<td>Brown Sandy Clay</td>
<td>43</td>
<td>25</td>
</tr>
<tr>
<td>B-5 at 0 to 1½ feet</td>
<td>Dark Brown Sandy Clay with Gravel</td>
<td>42</td>
<td>20</td>
</tr>
<tr>
<td>B-9 at 0 to 1½ feet</td>
<td>Dark Brown Sandy Clay</td>
<td>34</td>
<td>13</td>
</tr>
<tr>
<td>C-4 at 2 to 3 feet (Parikh, 2005)</td>
<td>Reddish Brown Lean Clay with Trace Sand</td>
<td>30</td>
<td>14</td>
</tr>
</tbody>
</table>

**SEISMICITY AND FAULTING**

The site is situated in the Coast Range geomorphic province of California which is seismically dominated by the presence of the active San Andreas Fault system. The San Andreas Fault system is the general boundary between the northward moving Pacific Plate and the southward moving North American Plate. In the San Francisco Bay Area, relative plate movement is distributed across a complex system of generally strike-slip, right-lateral, parallel, and sub-parallel faults.

The site is not located within a State of California Earthquake Fault Zone for active faults. The nearest active fault is the Calaveras fault, located about 4½ miles to the northeast. Other active faults in the vicinity of the site include the San Andreas fault located about 10 miles to the southwest, the Monte Vista - Shannon fault about 11½ miles to the northwest, the Zayante-Vergeles fault about 13½ miles to the southwest, the Quien Sabe fault about 21 miles to the southeast, the Ortigalita fault about 23 miles to the northeast, the Hayward fault about 25 miles to the north-northwest, the Greenville fault about 26½ miles to the north, the Monterey Bay – Tularcitos fault about 29 miles to the southwest, the Rinconada fault about 31½ miles to the southeast, the San Gregorio fault about 33 miles to the southwest, the Great Valley fault about 33 miles to the northeast and the Mount Diablo Thrust fault about 42½ miles to the north.

**SITE CONDITIONS**

**SURFACE CONDITIONS**

**DEPOT STREET PARK**

The Depot Street Park is planned to occupy a portion of an existing parking lot located on the northeast side of Depot Street, just south of E. 3rd Street. The rectangular-shaped site encompasses about 23,000 square feet of land. The existing ground surface is relatively flat and covered with asphalt concrete. The existing Caltrain rail corridor is located along to the northeast side of the site.

**WEST LITTLE LLAGAS CREEK PARK**

The West Little Llagas Creek Park will be constructed on the northwest side of W. 3rd Street. The irregular-shaped site encompasses about 38,700 square feet of land. At present, the site is vacant and generally covered with sparse growth of short grass and scattered mature trees.

West Little Llagas Creek generally runs in an easterly direction along the north side of the site. Based on the topographic survey information provided to us, the existing elevations of the site generally
range from approximately 351 feet at the southern corner of the site to approximately 344 feet at the creek bank. At the two new bridge sites, the creek is approximately 25 feet wide and 5½ feet deep.

Based on the June 23, 2015 Concept Plan, we understand that this park area also includes the 3rd Street Pocket Park on the southeast side of W. 3rd Street and north of the creek. The 3rd Street Pocket Park site is roughly triangular-shaped and encompasses about 3,250 square feet of land. At present, the site is vacant and fenced off with a chain-link fence. The ground surface is generally flat and unpaved. The existing elevations generally range from approximately 341 feet at the eastern corner of the site to approximately 344½ feet on the northwest side adjacent to W. 3rd Street.

HILL TOP TRAIL

The Hill Top Trail will connect W. 3rd Street to W. 5th Street at Del Monte Avenue. Based on the topography available from the 1980 U.S. Geological Survey (USGS) quadrangle map, the Hill Top Trail site is located at the northeastern end of Nob Hill. At present, there is a gated access road (approximately 10 feet wide and asphalt concrete paved) that ascends from the intersection of W. 3rd Street and Del Monte Avenue to the top of the hill, where the City’s Nob Hill Reservoir (an above-ground water tank) is located.

The hillsides above and below the access road are mostly covered with grass and mature trees, and inclined at a gradient varying from approximately 1½ horizontal to 1 vertical (1½ H:1V) to 2½H:1V. Weathered and fractured bedrock is exposed at several locations on the uphill side of the access road.

During our site visit in April 2016, signs of shallow spalling and reveling of the weathered and fractured bedrock were noted, with detritus (soil and rock debris) deposited at the uphill edge of the access road. As noted in the “Landslides Hazards” section below, Pacific Geotechnical Engineering (PGE) previously performed an engineering geologic and geotechnical assessment for the portion of the slope between the access road and W. 3rd Street, and presented the results in their March 4, 2010 report. We understand that PGE also noted shallow spalling and reveling of the weathered and fractured bedrock at the portion of the slope between the access road and W. 3rd Street.

SUBSURFACE CONDITIONS

At the new vehicular bridge site, Borings B-1 and B-2 generally encountered alluvial soils consisting of about 8 to 8½ feet of very stiff sandy clay with gravel over dense to very dense gravelly sand with clay, very stiff sandy clay and very stiff gravelly clay to the maximum depth explored, about 26½ feet below the existing ground surface.

At the new pedestrian bridge site, Boring B-3 also encountered alluvial soils consisting of about 8 feet of very stiff sandy clay with gravel over dense to very dense gravelly sand with clay and very stiff sandy clay to the maximum depth explored, about 26½ feet below the existing ground surface.

Groundwater was encountered in Borings B-1 and B-2 at a depth of about 9 feet, and in Boring B-3 at a depth of about 17 feet below the existing ground surface. Based on groundwater map from the California Geological Survey’s Seismic Hazard Zone Report 096 for Morgan Hill 7.5-Minute Quadrangle (CGS, 2004), the historically-high groundwater at the two new bridge sites is estimated to be within 5 feet below the existing ground surface. It should be anticipated that the actual groundwater level may fluctuate depending on factors such as seasonal rainfall, time of the year, water level in the creek and local irrigation.
At W. 3rd Street and Del Monte Avenue, Borings B-4 and B-5 generally encountered stiff sandy clay with gravel and very dense clayey sand to the maximum depth explored, about 4½ feet below the existing ground surface. In Boring B-4, highly weathered, friable greenstone was encountered at a depth of about 4 feet below the existing ground surface.

Adjacent to the existing access road from the intersection of W. 3rd Street and Del Monte Avenue to the water tank, Borings B-6 through B-11 generally encountered stiff sandy clay to the maximum depth explored, about 5 feet below the existing ground surface. Highly weathered, friable greenstone was encountered in Borings B-6 and B-7 at depths of about 4 feet and 1 foot, respectively, below the existing ground surface.

At the hillside area (near the proposed overlook stop), Boring B-12 generally encountered about 1 foot of medium stiff sandy clay over dense to very dense clayey sand. Boring B-12 was drilled using a hand auger and refusal was encountered at a depth of about 3½ feet below the existing ground surface, which was the maximum depth explored.

Groundwater was not encountered in Borings B-4 through B-12. It should be anticipated that the actual groundwater level may fluctuate depending on factors such as seasonal rainfall, time of the year and local irrigation.

Based on our review of the 2005 Parikh report, the previous borings (C-4 and C-5) drilled at Depot Street between E. 3rd Street and E. 5th Street generally encountered reddish brown lean clay with trace sand. Groundwater was not encountered in their borings.

The above is a general description of soil, bedrock and groundwater conditions encountered at the site. For a more detailed description of the soil, bedrock and groundwater conditions encountered, please see our boring logs included on Plates 3 through 17 and the previous boring logs (Parikh 2005) included in Appendix A.

**CONCLUSIONS AND RECOMMENDATIONS**

**GENERAL**

We conclude that, from a geotechnical engineering standpoint, the Morgan Hill Downtown Park Project can generally be constructed as planned, provided that the conclusions and recommendations contained in this report are incorporated into the design and construction of the project.

**EXPANSIVE SOILS**

As indicated by the results of Atterberg limits tests presented in the “Field Exploration and Laboratory Testing” Section, the on-site soils generally have low to moderate expansion potential and the greenstone generally has low expansion potential. Typically, expansive soils are sensitive to moisture changes. To reduce the potential impacts of swelling and shrinkage of the expansive soils to the proposed improvements, special measures should be performed. We anticipated that the special measures would include the following:

1. Conditioning the expansive soils to higher moisture content during site preparation and grading.

2. Conditioning the subgrade soils in the concrete flatwork areas to higher moisture content immediately prior to the placement of aggregate base.
3. Providing surface drainage away from structure foundations.

BEDROCK RIPPABILITY

As noted above, greenstone bedrock was encountered in Borings B-4, B-6 and B-7 at depths of about 4, 3 and 1 feet, respectively, below the existing ground surface. At the time of this report, no grading plans are available to indicate the depths of proposed cuts and utility trenches. Based on the bedrock conditions encountered in Borings B-4, B-6 and B-7 that were drilled using a truck-mounted drill auger rig to depths of about 4 to 4½ feet, it appears that it would generally be feasible to rip most of the shallow bedrock materials with heavy-duty grading equipment. However, it is possible that the bedrock at some locations, especially at greater depths, could be very difficult to excavate. Bedrock rippability may become a construction issue if significant re-grading of site and/or deep trenching is planned. When the grading plans are available, additional field exploration including test pit excavations may be required to further investigate the bedrock rippability.

SITE PREPARATION AND GRADING

Our general site preparation and grading recommendations are as follows:

1. The areas to be graded should be cleared of debris, significant surface vegetation and obstructions including abandoned underground pipes, foundations and concrete slabs. Stripping should be stockpiled and may be reused in landscaping areas.

2. The root system of the removed trees should be removed. The removal of the tree roots could disturb up to about 18 to 30 inches of the soils. If these disturbed soils are not being removed by design cuts, the disturbed soils should be over-excavated and replaced with engineered fill.

3. If zones of soft or saturated soils are encountered during excavation and compaction, deeper excavations may be required to expose firm soils. This should be determined in the field by the project geotechnical engineer.

4. In areas where engineered fill is planned, the subgrade should be scarified to a depth of about 12 inches, moisture conditioned to at least 4 percent above optimum moisture content; and re-compacted to at least 90 percent relative compaction.

Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density determined by ASTM D1557 compaction test procedure. Optimum moisture is the water content (percentage by dry weight) corresponding to the maximum dry density.

5. The on-site soils are generally suitable for engineered fill provided they are clean of debris, significant vegetation, rock greater than 4 inches in largest dimension and other deleterious matter. Import fill material should contain no deleterious matter and rock greater than 4 inches in largest dimension, and have low expansion potential (Plasticity Index less than 15). All fill materials (on-site soils and import fill material) should be subject to the evaluation by this office prior to their use. We suggest that the import fill material be checked for toxic or hazardous materials prior to importing.
6. All fill and backfill should be placed in thin lifts (normally 6 to 8 inches depending on the compaction equipment), properly moisture conditioned to at least 4 percent above optimum moisture content and compacted to at least 90 percent relative compaction.

7. Observations and soil density tests should be carried out during grading and backfill operations to assist the contractor in obtaining the required degree of compaction and proper moisture content. Where the compaction is outside the range required, additional compactive effort should be made and adjustment of moisture content until the specified compaction and moisture conditioning is achieved.

8. The project geotechnical engineer should be notified at least 48 hours prior to any grading and backfill operations. The procedure and methods of grading may then be discussed between the contractor and the project geotechnical engineer.

CUT AND FILL SLOPES

Cut and fill slopes may be required for the project. In general, cut and fill slopes should be constructed at gradients no steeper than 3H:1V. For cut and fill slopes that are 10 feet or less in height, the slopes can be constructed at gradients no steeper than 2H:1V.

The stability of fill slopes depends on proper keyways, benching, fill compaction and slope gradients. Where fill slopes abut against existing slopes, horizontal benches should be excavated back into firm material during slope construction. In general, fill slopes should be constructed with a minimum 10 feet wide bench key at the bottom. The bench key should be excavated at least 2 feet into competent material at the toe and be sloped back at least 5 percent.

For fill slopes that are more than 7 feet in height, subdrains should be installed along the upslope side of the bench key. Subdrains should consist of 4-inch diameter perforated PVC pipes (SDR 35) with perforation facing down and a wedge of Class 2 Permeable Material, as defined in Section 68-2.02F(3) of Caltrans Standard Specifications (2015). The perforated pipes should be placed near the bottom and upslope edge of the bench key, and be surrounded and underlain by at least 6 cubic feet/foot of Permeable Material. Subdrains should discharge via a solid pipe to the nearby storm drain system or suitable outlet.

EROSION PROTECTION

The graded slopes (cut and fill slopes) should be protected from erosion, especially during the first winter season after grading. We recommend that fast growing vegetation be planted prior to the first winter to reduce erosion. The landscaping plan may limit the type of vegetation planted to species not necessarily best suited for erosion protection. Consideration should be given to use of erosion control mats to protect slopes during the first winter if the landscaping planting will not provide adequate protection.

As mentioned in the “Site Conditions” section, shallow spalling and reveling of the weathered and fractured bedrock were noted at some locations on the slopes above and below the access road to the water tank. Erosion protection such as revegetation of the slopes and/or the use of erosion control mats should be considered in those areas. Also, surface drainage is one of the key factors in erosion protection. With this in mind, the designers need to consider ways of preventing water from flowing over the slopes.
SITE RETAINING WALLS

Relatively low site retaining walls may be required for the project. It is our opinion that cast-in-place concrete or masonry block retaining walls can be supported on footing foundations founded on compacted engineered fill or firm on-site soils. We recommend that the following geotechnical criteria be incorporated in the design of these retaining walls:

<table>
<thead>
<tr>
<th>Active Equivalent Fluid Pressure</th>
<th>45 pcf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Backfill</td>
<td>55 pcf</td>
</tr>
<tr>
<td>Sloped Backfill</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traffic Load</th>
<th>Where applicable, the addition of traffic surcharge load equivalent to 2 feet of soils over the road surface can be considered.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable Bearing Capacity (may be increased by one-third for seismic and/or wind loads)</td>
<td>2,500 psf</td>
</tr>
<tr>
<td>Passive Equivalent Fluid Pressure (neglect the upper 1 foot if the ground surface is not confined by slabs or pavement and upper 3 feet for sloping ground)</td>
<td>300 pcf</td>
</tr>
<tr>
<td>Base Friction Coefficient</td>
<td>0.3</td>
</tr>
<tr>
<td>Minimum Footing Depth (below the lowest adjacent grade)</td>
<td>18 inches</td>
</tr>
<tr>
<td>Minimum Footing Width</td>
<td>18 inches</td>
</tr>
</tbody>
</table>

The above recommended lateral pressures are based on drained condition and backfill, and do not include any surcharges (other than traffic loads shown above). Therefore, the designer should include the appropriate surcharge loads to the retaining wall design.

To reduce hydrostatic pressure build-up, the retaining walls should be provided with permanent backdrains. The backdrain should consist of a blanket of Class 2 Permeable Material and a 4-inch diameter perforated PVC pipe (SDR 35). The permeable material blanket should be at least 12 inches thick and should be placed from the base of the retaining wall to about 1 foot below the finished grade behind the retaining wall. Alternatively, a geo-composite drain, such as Miradrain 6200 or approved equivalent, may be used in lieu of the Class 2 Permeable Material blanket. The perforated pipe should be placed near the bottom of the wall to carry collected water to a suitable gravity discharge. Backdrains are not required for retaining walls of 2 feet or less in height.

If modular block retaining wall is used for the site retaining walls, we recommend that the following additional geotechnical criteria be incorporated in the retaining wall design:

<table>
<thead>
<tr>
<th>Reinforced Fill</th>
<th>125 pcf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Weight</td>
<td>32 degrees</td>
</tr>
<tr>
<td>Friction Angle</td>
<td>0 psf</td>
</tr>
<tr>
<td>Cohesion</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retained Fill</th>
<th>125 pcf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Weight</td>
<td>32 degrees</td>
</tr>
<tr>
<td>Friction Angle</td>
<td>0 psf</td>
</tr>
<tr>
<td>Cohesion</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Foundation Materials</th>
<th>125 pcf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Weight</td>
<td>32 degrees</td>
</tr>
<tr>
<td>Friction Angle</td>
<td>0 psf</td>
</tr>
<tr>
<td>Cohesion</td>
<td></td>
</tr>
</tbody>
</table>

4400 Market Street, Oakland, CA 94608; Cell: (925) 639-3836; Email: paulslai11@gmail.com

John 3:16
If geo-grid reinforced retaining wall more than 6 feet high is required, the permeable material blanket should be placed behind the geo-grid and in conformance with the general retaining wall backdrain recommendations above.

It should be noted that 2013 CBC requires that seismic lateral earth pressures be considered for retaining walls supporting more than 6 feet of backfill height. If site retaining walls with more than 6 feet of backfill height are required at this site, we should be consulted to determine the seismic lateral earth pressures.

**NEW VEHICULAR AND PEDESTRIAN BRIDGES**

**SEISMIC DESIGN CRITERIA**

Based on the methodology and procedures outlined in Caltrans Seismic Design Criteria (SDC) Version 1.7, dated April 2013 and using the Caltrans ARS Online program (version 2.3.07, March 2016), we have developed an acceleration response spectrum (ARS) for the new vehicular bridge at W. 3rd Street. The recommended acceleration response spectrum is presented on Plate 19. At the discretion of the project structural engineer, this recommended acceleration response spectrum may also be used for the new pedestrian bridge at the northwestern portion of West Little Llagas Creek Park.

**BRIDGE FOUNDATIONS**

In order to reduce the potential adverse effects of creek scour undermining the two new bridges, we suggest that the bridge foundations be located at least 10 feet away from the top of the creek bank. If the abutments will be located away from the creek (during high water flows), scour would not be an issue for the bridge foundations. Otherwise, a hydraulic evaluation (which is outside our expertise) may be needed to estimate the scour zone. If that is the case, those foundations must extend below the potential scour zone and be designed to safely support the design loads even if the upper soils are lost to scour.

It is our opinion that, not to exclude other pile types, both the new vehicular bridge and the new pedestrian bridge can be supported on cast-in-drilled-hole (CIDH) piles. The CIDH piles should be designed using the geotechnical engineering criteria below:

<table>
<thead>
<tr>
<th>Allowable Skin Friction (may be increased by 1/3 for seismic and/or wind loads)</th>
<th>600 psf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive Equivalent Fluid Pressure (neglect the upper 3 feet in calculating the passive resistance)</td>
<td>300 pcf</td>
</tr>
<tr>
<td>Minimum Pier Diameter</td>
<td>24 inches*</td>
</tr>
<tr>
<td>Minimum Pier Depth (below the creek bed)</td>
<td></td>
</tr>
<tr>
<td>Vehicular Bridge</td>
<td>15 feet*</td>
</tr>
<tr>
<td>Pedestrian Bridge</td>
<td>10 feet*</td>
</tr>
<tr>
<td>Minimum Pier Center-to-Center Spacing</td>
<td>3 pier diameters</td>
</tr>
</tbody>
</table>

* Please note that when groundwater is anticipated, CIDH piles must be at least 24 inches in diameter and designed to accommodate the construction techniques associated with drilled shafts in wet holes in accordance with Caltrans Memo to Designers 3-1, June 2014.

* The required pier depth should be determined by the project structural engineer based on design structural loads.
The drilled piers will also provide uplift resistance against wind and/or seismic loads. In general, the uplift resistance may be taken as one-half of the downward capacity.

Provided that the drilled piers are designed according to the recommendations presented above and properly constructed with no significant defects, the total and differential settlements of the CIDH piles are estimated to be on the order of ½ and ¼ inch, respectively.

In general, CIDH piles should be constructed in accordance with the guidelines given in Section 49-3 “Cast-in-Place Concrete Piling” of the Caltrans Standard Specifications (2015). The Contractor should anticipate to encounter groundwater in the drilled shaft holes and to make provisions, as appropriate, to construct CIDH piles under such conditions. Due to the presence of sandy/gravelly soils and shallow groundwater at the site, the use of temporary casing and/or slurry construction should be anticipated.

The CIDH piles should be drilled and poured on the same day. The drilled shaft holes should not be left open overnight or through the weekend. If water is encountered during drilling, the water should be removed prior to concrete placement. Alternatively, the concrete may be placed using tremie method.

The structural loads for the two new bridges are not available at the time of this report. If the two new bridges will be designed per Caltrans’ Load and Resistance Factor Design (LRFD) requirements, we can provide complete foundation recommendations in the Pile Data Table per Caltrans Memo to Designers 3-1 (June 2014), when the structural loads and foundation design information are available from the project structural engineer.

GEOTECHNICAL INPUT PARAMETERS FOR LATERAL PILE (LPILE) ANALYSIS

If the project structural engineer will perform LPILE analysis for the two new bridges, we can provide our recommended geotechnical input parameters for LPILE analysis (including p-multipliers for group effects) in collaboration with the project structural engineer.

ABUTMENT AND WING WALLS

The abutments and wing walls should be designed as retaining walls. We recommend that the lateral earth pressures contained in the “Site Retaining Walls” section above be incorporated in the abutment and wing wall design. An average soil pressure of 5.5 ksf may be used to calculate the ultimate passive capacity of the abutment wall, wing wall or soil shear key under seismic condition. This soil pressure is based on a 5½-foot high wall and would be reduced linearly in proportion to the wall height of less than 5½ feet.

Permanent drainage should be installed at the abutments and wing walls to prevent buildup of hydrostatic pressure. The drains should consist of a 12-inch wide blanket of Class 2 Permeable Material conforming to Section 68-2.02F(3) of the Caltrans Standard Specifications (2015), with suitable gravity discharge via weep holes or pipe. The permeable material should be placed from near the base of the walls to 1 foot below the top of the walls.

STRUCTURE BACKFILL

The abutment and wing walls should be backfilled with “Structure Backfill” conforming to Section 19-3.02C of the Caltrans Standard Specifications (2015). The abutment and wing wall backfill should
be moisture conditioned to above the optimum moisture content and compacted to at least 95 percent relative compaction per ASTM D-1557.

Heavy compaction equipment should not be used within 18 inches of the back of the walls and where used, it should be used in such a manner to avoid overstressing or deflecting the walls. The walls should be properly braced during backfilling if heavy compaction equipment will be used directly behind the wall or possibility for excessive lateral pressure surcharge due to compaction is anticipated.

**APPROACH SLABS FOR NEW VEHICULAR BRIDGE**

To maintain the post-earthquake function of the new vehicular bridge, we recommend that approach slabs be installed at the abutments. The approach slabs will also accommodate possible differential fill settlement at the abutment walls.

The aggregate base underneath the approach slab should have a minimum thickness of 12 inches. The aggregate base should consist of Class 2 aggregate base conforming to the requirements in Section 26-1.02B of the Caltrans Standard Specifications (2015).

**PUBLIC RESTROOM BUILDINGS**

From a geotechnical engineering standpoint, the new public restroom buildings can be supported on a conventional rebar reinforced slab foundation founded on compacted engineered fill or firm on-site soils. We recommend that the following criteria be incorporated in the design of the new public restroom building foundations.

<table>
<thead>
<tr>
<th>Allowable Bearing Capacity (may be increased by 1/3 for seismic and/or wind load)</th>
<th>1,500 psf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive Equivalent Fluid Pressure (neglect the upper 1 foot if the ground surface is not confined by pavement or slab)</td>
<td>300 pcf</td>
</tr>
<tr>
<td>Base Friction Coefficient</td>
<td>0.3</td>
</tr>
<tr>
<td>Modulus of Vertical Subgrade Reaction</td>
<td>28 psi/in</td>
</tr>
<tr>
<td>Minimum Interior Span</td>
<td>12 feet</td>
</tr>
<tr>
<td>Minimum Perimeter Cantilever</td>
<td>3 feet</td>
</tr>
<tr>
<td>Minimum Slab Thickness</td>
<td>8 inches</td>
</tr>
</tbody>
</table>

During utility trench excavation and backfilling, previously compacted subgrade soils may be disturbed. These soils should be uniformly moisture conditioned and re-compacted according to the requirements outlined in the “Site Preparation and Grading” section.

Where moisture vapor through the slab would be objectionable, the use of a vapor barrier and capillary moisture break should be considered by the designer of the slab and floor covering. The slab designer should determine the thicknesses of the slab, vapor barrier, rock cushion and sand cushion.

**FOUNDATION PERIMETER DRAINAGE**

In general, grading around the new public restroom buildings should be performed to provide a positive drainage away from the building foundations. The rainwater collected on the roof should be piped away from the buildings to prevent water from perching adjacent to the foundations.
FOUNDATIONS FOR SLIDES

It is our opinion that, not to exclude other pile types, the proposed slides can be supported on drilled cast-in-place concrete piers. The drilled piers should be designed using the geotechnical engineering criteria below:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable Skin Friction (may be increased by 1/3 for seismic and/or wind loads)</td>
<td>500 psf</td>
</tr>
<tr>
<td>Passive Equivalent Fluid Pressure (neglect the upper 1 foot if the ground surface is not confined by slabs or pavement and upper 3 feet for sloping ground condition)</td>
<td>300 pcf</td>
</tr>
<tr>
<td>Minimum Pier Diameter</td>
<td>18 inches</td>
</tr>
<tr>
<td>Minimum Pier Depth</td>
<td>10 feet*</td>
</tr>
<tr>
<td>Minimum Pier Center to Center Spacing</td>
<td>3 pier diameters</td>
</tr>
</tbody>
</table>

*The required pier depth should be determined by the project structural engineer based on design structural loads.*

The drilled piers will also provide uplift resistance against wind and/or seismic loads. In general, the uplift resistance may be taken as one-half of the downward capacity.

Provided that the drilled piers are designed according to the recommendations presented above and properly constructed with no significant defects, the total and differential settlements of the drilled piers are estimated to be on the order of ½ and ¼ inch, respectively.

The piers should be drilled and poured on the same day. The pier holes should not be left open overnight or through the weekend. When water is encountered during drilling, the water should be removed prior to concrete placement. Alternatively, the concrete may be placed using tremie method.

SOUND WALLS, SHADE STRUCTURES AND OTHER POLE-TYPE STRUCTURES

Sound walls (if installed at Depot Street Park), shade structures and other “lightly loaded” pole-type structures (such as fence posts, light poles and sign posts) can generally be supported by drilled cast-in-place concrete piers. We recommend that the following geotechnical criteria be incorporated in the drilled pier foundation design:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable Skin Friction (may be increased by 1/3 for seismic and/or wind loads)</td>
<td>450 psf</td>
</tr>
<tr>
<td>Passive Equivalent Fluid Pressure (neglect the upper 1 foot if the ground surface is not confined by slabs or pavement and upper 3 feet for sloping ground condition)</td>
<td>300 pcf</td>
</tr>
<tr>
<td>Minimum Pier Diameter</td>
<td>12 inches</td>
</tr>
<tr>
<td>Minimum Pier Depth Sound Walls and Shade Structures</td>
<td>5 feet*</td>
</tr>
<tr>
<td>Fence Posts, Light Posts and Sign Posts</td>
<td>3 feet*</td>
</tr>
<tr>
<td>Minimum Pier Center to Center Spacing</td>
<td>3 pier diameters</td>
</tr>
</tbody>
</table>

*The required pier depth should be determined by the project structural engineer based on design structural loads.*

EXTERIOR CONCRETE FLATWORK

Exterior concrete flatwork (such as concrete boardwalks, sidewalks, stairs and other hardscape features) can be placed directly on the compacted subgrade. Where subgrade materials have been disturbed, they should be moisture conditioned to at least 4 percent above optimum moisture content
and re-compacted to at least 90 percent relative compaction. For more uniform support, 4 inches of aggregate base can be used beneath the exterior concrete flatwork.

Where concrete flatwork abuts or is planned inside landscaping areas, the abutting edge(s) of the concrete flatwork should be turned down to reduce the risk of having irrigation water flooding the aggregate base beneath the concrete flatwork. A turn-down edge, at least 3 inches into the subgrade and about 6 inches wide, should be provided. Construction joints in these elements should be considered by the designer to allow for some shrinkage and movement of concrete resulting from soil movements.

**ARTIFICIAL TURF AT DEPOT STREET PARK**

The subgrade for the artificial turf at Depot Street Park should be scarified to a depth of about 12 inches; moisture conditioned to at least 4 percent above optimum moisture content; and re-compacted to at least 90 percent relative compaction. It is our understanding that good drainage is important to the performance of artificial turf. Since the on-site soils will likely have relatively low infiltration rate, the installation of subdrains below the artificial turf should be considered. The subdrains should be at least 12 inches wide and 12 inches deep, and consist of a 4-inch diameter perforated PVC pipe (SDR 35) surrounded by Class 2 permeable material per Section 68-2.02F(3), Caltrans Standard Specifications (2015).

**ROOT BARRIER**

Where trees are planned next to the existing or new pavement, concrete walkways or other hardscape features, root barrier should be considered between the tree and the adjacent improvement to be protected. The root barrier should be designed and installed following the recommendations of landscape architect.

**UTILITY TRENCH EXCAVATION AND BACKFILL**

All excavations should conform to applicable State and Federal industrial safety requirements. Where trench excavations are more than 5 feet deep, they should be sloped and/or shored. Temporary walls should be sloped no steeper than 1H:1V. Flatter trench slopes may be required if seepage is encountered during construction or if exposed subsurface conditions differ from those encountered by the borings.

Material quality, placement procedures, and compaction requirements for utility bedding and shading material should meet the City of Morgan Hill and/or other applicable agencies requirements. Utility trench backfill above the shading materials may consist of on-site soils provided they are free of rubble, rock fragments over 4 inches in largest dimension, rubbish, vegetation, and deleterious material. Backfill materials should be placed in lifts not exceeding 8 inches in loose thickness, moisture conditioned and compacted to requirements outlined in the “Site Preparation and Grading” section.

**PRELIMINARY PAVEMENT SECTIONS**

Preliminary pavement analyses are based on a design resistance (R)-value of 10, the Caltrans “Design Method for Flexible Pavement,” and traffic indices (T.I.s) which are indications of load frequency and intensity. We have assumed that the assigned T.I.s include provisions for heavy truck traffic related to construction activities. We recommend the following preliminary pavement sections:
Since the on-site material properties may vary, we recommend that soil samples be obtained from the rough roadway subgrade after site grading and underground utility installation. R-value tests should be performed on these samples. Final pavement section recommendations should be made on the basis of these test results.

Prior to subgrade preparation, all utility trench backfill should be properly placed and compacted. The uppermost 9 inches of all pavement subgrade soils should be moisture conditioned to above optimum moisture content and re-compacted to at least 95 percent relative compaction per ASTM D-1557 to provide a smooth, unyielding surface. The re-compacted subgrade soils should be maintained in a moist and compacted condition until covered with the complete pavement section.

The Class 2 aggregate base should be placed in thin lifts in a manner to prevent segregation; uniformly moisture conditioned to near optimum moisture content; and compacted to at least 95 percent relative compaction to provide a smooth, unyielding surface.

Where drop inlets or other surface drainage structures are to be installed, slots or weep holes should be provided to allow free drainage of the contiguous base course materials.

**CLASS 1 BIKE PATHS**

The pavement for Class 1 bike paths may consist of 2½ inches of asphalt concrete over at least 7 inches of Class 2 aggregate base. The pavement subgrade and aggregate base for Class 1 bike paths should be constructed in the same manner as outlined in the “Preliminary Pavement Sections” section.

**DECOMPOSED GRANITE PATHWAYS**

We recommend that a minimum 9 inches of Class 2 aggregate base be placed beneath decomposed granite pathways. The upper 9 inches of subgrade should be moisture conditioned to at least 4 percent above optimum moisture content and recompacted to at least 90 percent relative compaction. The aggregate base should be placed in thin lifts in a manner to prevent segregation, uniformly moisture conditioned to near optimum moisture content, and compacted to at least 95 percent relative compaction to provide a smooth, unyielding surface.
SEISMIC HAZARDS

SURFACE FAULT RUPTURE

The site is not located within a State of California designated Earthquake Fault Zone for active faults (Davis, 1982). We did not encounter any evidence of active fault crossing or trending toward the site. Therefore, the risk of surface fault rupture at the site is judged very low.

GROUND SHAKING

Due to the proximity of the site to the Calaveras fault and other active faults in the area, it is likely that the site will experience strong ground shaking from at least one moderate to severe earthquake during the life span of the project. Ground shaking is a hazard that cannot be eliminated but can be partially mitigated through proper attention to seismic structural design and observance of good construction practices. According to the 2013 California Building Code (CBC), the following seismic parameters should be used in the structural design of the proposed structures:

<table>
<thead>
<tr>
<th><strong>Depot Street Park</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Latitude</td>
<td>37.1287 degrees</td>
</tr>
<tr>
<td>Site Longitude</td>
<td>-121.6500 degrees</td>
</tr>
<tr>
<td>Site Class</td>
<td>D</td>
</tr>
<tr>
<td>Mapped Spectral Acceleration for Short Periods, $S_s$</td>
<td>1.515g</td>
</tr>
<tr>
<td>Mapped Spectral Acceleration for 1-Second Period, $S_1$</td>
<td>0.600g</td>
</tr>
<tr>
<td>Acceleration Parameter, $S_{MS}$ (adjusted for Site Class D)</td>
<td>1.515g</td>
</tr>
<tr>
<td>Acceleration Parameter, $S_{M1}$ (adjusted for Site Class D)</td>
<td>0.900g</td>
</tr>
<tr>
<td>Design Acceleration Parameter, $S_{D0}$</td>
<td>1.010g</td>
</tr>
<tr>
<td>Design Acceleration Parameter, $S_{D1}$</td>
<td>0.600g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>West Little Llagas Creek Park</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Latitude</td>
<td>37.1276 degrees</td>
</tr>
<tr>
<td>Site Longitude</td>
<td>-121.6532 degrees</td>
</tr>
<tr>
<td>Site Class</td>
<td>D</td>
</tr>
<tr>
<td>Mapped Spectral Acceleration for Short Periods, $S_s$</td>
<td>1.509g</td>
</tr>
<tr>
<td>Mapped Spectral Acceleration for 1-Second Period, $S_1$</td>
<td>0.600g</td>
</tr>
<tr>
<td>Acceleration Parameter, $S_{MS}$ (adjusted for Site Class D)</td>
<td>1.509g</td>
</tr>
<tr>
<td>Acceleration Parameter, $S_{M1}$ (adjusted for Site Class D)</td>
<td>0.900g</td>
</tr>
<tr>
<td>Design Acceleration Parameter, $S_{D0}$</td>
<td>1.006g</td>
</tr>
<tr>
<td>Design Acceleration Parameter, $S_{D1}$</td>
<td>0.600g</td>
</tr>
</tbody>
</table>
It is our opinion that the structural integrity of the proposed structures is a primary factor in determining possible seismic damage and that the level of seismic damage would be only nominally influenced by the foundation system selected. We recommend that, at a minimum, the proposed structures be designed in conformance with the current edition of CBC.

At the discretion of the project structural engineer, the new vehicular bridge at W. 3rd Street and the new pedestrian bridge at the northwestern portion of West Little Llagas Creek Park may be designed in accordance with Caltrans Seismic Design Criteria as discussed in the “New Vehicular and Pedestrian Bridges” section.

LIQUEFACTION AND GROUND SUBSIDENCE

Liquefaction is the temporary transformation of saturated, loose to medium dense granular soils (including clean sand, silty sand and sandy silt below groundwater) into a viscous liquid during strong ground shaking from a major earthquake. The site is not located within a State of California designated Seismic Hazard Zone for liquefaction. There is no evidence of historic ground failure due to liquefaction on the site, nor did we encounter significant earth materials that might be susceptible to liquefaction. The gravelly sand with clay as encountered in Borings B-1 through B-3 at the two new bridge sites was generally dense to very dense. Therefore, the risk of liquefaction at the site is considered to be low.

Ground subsidence can occur as the result of densification or “shakedown” when dry, loose cohesionless soils are subjected to high amplitude seismic waves. In general, significant deposits of loose sandy soils do not exist at the site; therefore, seismic induced ground subsidence is not considered a geologic hazard on the site.

LANDSLIDE HAZARDS

The slope area at the Hill Top Trail site is located within the State of California Seismic Hazard Zone for earthquake-induced landslides; the Depot Street Park and the West Little Llagas Creek Park sites are not. We have reviewed the California Geological Survey (CGS) “Landslide Inventory Map of the Morgan Hill Quadrangle, Santa Clara County, California, dated December 2006” available at their website. According to this map, no past occurrence of landslide was identified within the Hill Top Trail site.
Pacific Geotechnical Engineering (PGE) previously performed an engineering geologic and geotechnical assessment at the slopes northeast of the City’s Nob Hill Reservoir (below the water tank access road and above the single-family residence at 60 W. 3rd Street) and presented the results in their March 4, 2010 report. In their report, PGE noted the presence of relatively shallow (near surface) slope instability at the hillside above a bulkhead (composed of 4”x4” wood posts with 2”x12” wood lagging) located along the upslope side of the residence and an existing cut slope above a parking loop apparently used by the resident. PGE did not observe evidence of large scale landsliding at the site and concluded that soil creep and small-scale raveling and spalling of the fractured and weathered bedrock was apparently the primary processes of slope movement at the site. At the end the report, PGE commented that landsliding in greenstone terrain is relatively uncommon and they judged it unlikely to occur at the site.

SOIL CORROSIVITY

Based on our review of the 2005 Parikh report, a corrosion investigation for the Depot Street Beautification Project was performed in accordance with the provisions of California Test Method 643 and the test results are included in Appendix B. In the 2005 Parikh report, they concluded that the subsoils were not considered to be corrosive and that Standard Type II Modified cement could be used for the concrete substructures (at Depot Street).

ADDITIONAL SOIL ENGINEERING SERVICES

Prior to construction, our firm should be provided the opportunity to review the plans and specifications to determine if the recommendations of this report have been implemented in those documents.

To a degree, the performance of the proposed project is dependent on the procedures and quality of the construction. Therefore, we should provide observations of the contractor's procedures and the exposed soil and bedrock conditions, and field and laboratory testing during site preparation and grading, placement and compaction of fill, underground utility installation, exterior concrete flatwork construction, foundations, retaining wall and pavement construction. These observations will allow us to check the contractor's work for conformance with the intent of our recommendations and to observe any unanticipated subsurface conditions that could require modification of our recommendations. In addition, we would appreciate the opportunity to meet with the contractors prior to the start of site grading, underground utility installation, exterior concrete flatwork construction, foundation and pavement construction to discuss the procedures and methods of construction. This can facilitate the performance of the construction operation and minimize possible misunderstanding and construction delays.

LIMITATIONS

The conclusions and recommendations of this report are based upon the information provided to us regarding the proposed project, subsurface conditions encountered at the boring locations and professional judgment. This study has been conducted in accordance with current professional geotechnical engineering standards; no other warranty is expressed or implied.

The locations of the borings were determined by pacing from the existing surface features and should be considered approximate only. Site conditions described in the text are those existed at the time of our field exploration in April 2016, and are not necessarily representative of such conditions at other locations and times.
In the event that changes in nature, design and location of the proposed project are planned, or if it is found during construction that subsurface conditions differ from those described on the boring logs, then the conclusions and recommendations in this report shall be considered invalid, unless the changes are reviewed, and the conclusions and recommendations are modified or approved in writing.

Respectfully submitted,

LAI & ASSOCIATES

Steve K. Tsang
Principal Engineer
GE 2162

SKT/MORGAN HILL DOWNTOWN PARKS REPORT

Attachments:  Plate 1 – Vicinity map
               Plate 2 – Site Plan
               Plates 3 through 17 - Boring Logs
               Plate 18 – Key to Boring Log Symbols
               Plate 19 – Recommended Acceleration Response Spectrum
               Appendix A – Previous Boring Logs (Parikh Consultants 2005)
               Appendix B – Corrosivity Test Results (Parikh Consultants 2005)

Copies:  Addressee (1)
VICINITY MAP
MORGAN HILL DOWNTOWN PARKS
WEST 3RD STREET AND DEL MONTE AVENUE
MORGAN HILL, CALIFORNIA
FOR
VERDE DESIGN, INC.

BASE: PORTIONS OF U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES, MORGAN HILL AND MT. MADONNA, CALIFORNIA AT A SCALE OF 1:24,000.
### LOG OF BORING

**Project No.:** 252.200  
**Client:** Verde Design, Inc.  
**Date Drilled:** 4-11-16

**Project Name:** Morgan Hill Downtown Parks  
**Drilling Method:** Hollow-stem Auger  
**Elevation:** 344-1/2 feet

#### SAMPLER TYPE:

<table>
<thead>
<tr>
<th>Sampler Type</th>
<th>Drive Weight (LBS.)</th>
<th>Height of Fall (IN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
<td>30</td>
</tr>
<tr>
<td>2.5” I.D. Split Barrel</td>
<td>140</td>
<td>30</td>
</tr>
</tbody>
</table>

#### MATERIAL DESCRIPTION AND REMARKS

<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>USCS Classification</th>
<th>Sample Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
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<td>CL</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>37</td>
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<td>SW-SC</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>28</td>
<td></td>
<td>CL</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>30</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**SURFACE CONDITIONS:** Asphalt Concrete Pavement

- 4 inches asphalt concrete over 2 inches aggregate base
- CL SANDY CLAY with GRAVEL, brown, moist, very stiff
- SW-SC GRAVELLY SAND with CLAY, brown, saturated, dense
- CL SANDY CLAY, tan-brown, saturated, very stiff
# Log of Boring

**Project No.:** 252.200  
**Project Name:** Morgan Hill Downtown Parks  
**Client:** Verde Design, Inc.  
**Date Drilled:** 4-11-16  
**Drilling Method:** Hollow-stem Auger  
**Elevation:** 344-1/2 feet

## Sampler Type

<table>
<thead>
<tr>
<th>Sampler Type</th>
<th>Drive Weight (LBS.)</th>
<th>Height of Fall (IN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
<td>30</td>
</tr>
<tr>
<td>2.5” I.D. Split Barrel</td>
<td>140</td>
<td>30</td>
</tr>
</tbody>
</table>

## Material Description and Remarks

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<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>28</td>
<td>20</td>
<td></td>
<td>SW-SC</td>
<td>GRAVELLY SAND with CLAY, brown, saturated, dense</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>26</td>
<td>25</td>
<td></td>
<td>CL</td>
<td>SANDY CLAY, tan-brown, saturated, very stiff</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>CL</td>
<td>GRAVELLY CLAY, brown, saturated, very stiff</td>
</tr>
</tbody>
</table>

Boring terminated at 26-1/2 feet  
Groundwater encountered at 9 feet
<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
<th>MATERIAL DESCRIPTION AND REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>58</td>
<td>0</td>
<td>CL</td>
<td>SANDY CLAY</td>
<td>3 inches asphalt concrete</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>23</td>
<td>10</td>
<td>3</td>
<td>GROUNDN calloc</td>
<td>SANDY CLAY with GRAVEL, brown, moist, very stiff</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>46</td>
<td>15</td>
<td>SW-SC</td>
<td>GRAVELLY SAND</td>
<td>GRAVELLY SAND with CLAY, brown, saturated, dense</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>50/6&quot;</td>
<td>20</td>
<td></td>
<td></td>
<td>very dense below 20 feet</td>
</tr>
</tbody>
</table>

MATERIAL DESCRIPTION AND REMARKS:

- **SURFACE CONDITIONS:** Asphalt Concrete Pavement
- **CL**
  - SANDY CLAY with GRAVEL, brown, moist, very stiff
- **SW-SC**
  - GRAVELLY SAND with CLAY, brown, saturated, dense

**LOG OF BORING**

**PLATE 5**

---

**Project No.:** 252.200

**Client:** Verde Design, Inc.

**Date Drilled:** 4-11-16

**Project Name:** Morgan Hill Downtown Parks

**Drilling Method:** Hollow-stem Auger

**Elevation:** 344-1/2 feet
<table>
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<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
<th>MATERIAL DESCRIPTION AND REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SW-SC</td>
<td>GRAVELLY SAND with CLAY, brown, saturated, very dense</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50/6&quot;</td>
<td>20</td>
<td></td>
<td></td>
<td>Boring terminated at 26 feet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Groundwater encountered at 9 feet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>91/10&quot;</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### LOG OF BORING

**Project No.:** 252.200  
**Client:** Verde Design, Inc.  
**Date Drilled:** 4-11-16  
**Project Name:** Morgan Hill  
**Downtown Parks**  
**Drilling Method:** Hollow-stem Auger  
**Elevation:** 345 feet  

#### SAMPLER TYPE:

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<th>Sampler Type</th>
<th>Drive Weight (LBS.)</th>
<th>Height of Fall (IN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
<td>30</td>
</tr>
<tr>
<td>2.5” I.D. Split Barrel</td>
<td>140</td>
<td>30</td>
</tr>
</tbody>
</table>

#### MATERIAL DESCRIPTION AND REMARKS

<table>
<thead>
<tr>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>USCS Classification</th>
<th>Surface Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>CL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>SANDY CLAY</td>
<td>SANDY CLAY with GRAVEL, brown, moist, very stiff</td>
</tr>
<tr>
<td>10</td>
<td>SW-SC</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>GRAVELLY SAND</td>
<td>GRAVELLY SAND with CLAY, brown, moist, dense</td>
</tr>
<tr>
<td>15</td>
<td>CL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>SANDY CLAY</td>
<td>SANDY CLAY, tan-brown, moist, very stiff</td>
</tr>
</tbody>
</table>

**Log of Boring**

- **Lai & Associates**
- **Standard Penetration Test**
- **CL**
  - SANDY CLAY with GRAVEL, brown, moist, very stiff
- **SW-SC**
  - GRAVELLY SAND with CLAY, brown, moist, dense
- **CL**
  - SANDY CLAY, tan-brown, moist, very stiff
<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (pcf)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
<th>MATERIAL DESCRIPTION AND REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td></td>
<td>20</td>
<td></td>
<td>CL</td>
<td>SANDY CLAY, tan-brown, moist, very stiff</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>30</td>
<td></td>
<td>SW-SC</td>
<td>GRAVELLY SAND with CLAY, brown, saturated, very dense</td>
<td></td>
</tr>
</tbody>
</table>

Boring terminated at 26-1/2 feet
Groundwater encountered at 17 feet
### MATERIAL DESCRIPTION AND REMARKS

<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>24</td>
<td>0</td>
<td></td>
<td>CL</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>83/11&quot;</td>
<td></td>
<td></td>
<td>SANDY CLAY with GRAVEL, brown, moist, stiff</td>
</tr>
</tbody>
</table>

**SURFACE CONDITIONS:** Grass

**GREENSTONE, light brown, highly weathered, friable**

Boring terminated at 4-1/2 feet
No groundwater encountered
**Project No.:** 252.200  
**Client:** Verde Design, Inc.  
**Date Drilled:** 4-11-16

**Project Name:** Morgan Hill  
**Drilling Method:** Hollow-stem Auger  
**Elevation:** 368-1/2 feet

### SAMPLER TYPE:
- Standard Penetration Test

<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
<th>MATERIAL DESCRIPTION AND REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>8</td>
<td>0</td>
<td></td>
<td>CL</td>
<td>SURFACE CONDITIONS: Grass</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>69</td>
<td></td>
<td></td>
<td>SC</td>
<td>CLAYEY SAND, brown, moist, very dense</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Boring terminated at 4-1/2 feet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No groundwater encountered</td>
</tr>
</tbody>
</table>

**Log of Boring**

- **Project Name:** Morgan Hill Downtown Parks
- **Drilling Method:** Hollow-stem Auger
- **Elevation:** 368-1/2 feet
- **Client:** Verde Design, Inc.
- **Date Drilled:** 4-11-16

**Log of Boring Details**

- **Sample Type:** Standard Penetration Test
- **Drive Weight (LBS.):** 140
- **Height of Fall (IN.):** 30

**Material Description and Remarks**

- **Surface Conditions:** Grass
- **Classification:** CL, SANDY CLAY with GRAVEL, dark brown, moist, stiff
- **Classification:** SC, CLAYEY SAND, brown, moist, very dense

**Additional Details**

- **Log of Boring**
- **Client:** Verde Design, Inc.
- **Date Drilled:** 4-11-16

**Remarks**

- Boring terminated at 4-1/2 feet
- No groundwater encountered
**Project No.:** 252.200  
**Client:** Verde Design, Inc.  
**Date Drilled:** 4-11-16  
**Project Name:** Morgan Hill Downtown Parks  
**Drilling Method:** Hollow-stem Auger  
**Elevation:** 405 feet

### SAMPLER TYPE:

<table>
<thead>
<tr>
<th>Drive Weight (LBS.)</th>
<th>Height of Fall (IN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
</tr>
</tbody>
</table>

### MATERIAL DESCRIPTION AND REMARKS

**SURFACE CONDITIONS:** Asphalt Concrete Pavement

- 2 inches asphalt concrete

**SANDY CLAY,** reddish brown, moist, stiff

- **GREENSTONE,** light brown, highly weathered, friable

Boring terminated at 4 feet  
No groundwater encountered
**LOG OF BORING**

**Project No.:** 252.200  
**Client:** Verde Design, Inc.  
**Date Drilled:** 4-11-16

**Project Name:** Morgan Hill Downtown Parks  
**Drilling Method:** Hollow-stem Auger  
**Elevation:** 418-1/2 feet

### SAMPLER TYPE:

<table>
<thead>
<tr>
<th>SAMPLE TYPE</th>
<th>DRIVE WEIGHT (LBS.)</th>
<th>HEIGHT OF FALL (IN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
<td>30</td>
</tr>
</tbody>
</table>

### MATERIAL DESCRIPTION AND REMARKS

<table>
<thead>
<tr>
<th>Depth (feet)</th>
<th>Mois ture Content (%)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-</td>
<td>44</td>
<td>-</td>
<td>-</td>
<td>CL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SANDY CLAY, brown, moist, stiff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GREENSTONE, light brown, highly weathered, friable</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Boring terminated at 4-1/2 feet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No groundwater encountered</td>
</tr>
</tbody>
</table>

**SURFACE CONDITIONS:** Bare soil

**Notes:**

- Boring terminated at 4-1/2 feet
- No groundwater encountered
# Log of Boring

**Project No.**: 252.200  
**Client**: Verde Design, Inc.  
**Date Drilled**: 4-11-16

**Project Name**: Morgan Hill Downtown Parks  
**Drilling Method**: Hollow-stem Auger  
**Elevation**: 440-1/2 feet

<table>
<thead>
<tr>
<th>Sampler Type</th>
<th>Drive Weight (Lbs)</th>
<th>Height of Fall (In)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
<td>30</td>
</tr>
</tbody>
</table>

### Material Description and Remarks

**SURFACE CONDITIONS**: Bare soil

- **CL** SANDY CLAY, brown, moist, stiff
- **CL** SANDY CLAY with small GRAVEL, dark brown, moist, stiff

Boring terminated at 5 feet  
No groundwater encountered
### Project Details

**Project No.:** 252.200  
**Client:** Verde Design, Inc.  
**Project Name:** Morgan Hill Downtown Parks  
**Drilling Method:** Hollow-stem Auger  
**Date Drilled:** 4-11-16  
**Elevation:** 454 feet

### Sampler Type

<table>
<thead>
<tr>
<th>SAMPLER TYPE:</th>
<th>DRIVE WEIGHT (LBS.)</th>
<th>HEIGHT OF FALL (IN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
<td>30</td>
</tr>
</tbody>
</table>

### Material Description and Remarks

<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (pcf)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-</td>
<td>22</td>
<td>0</td>
<td>-</td>
<td>CL</td>
<td>SURFACE CONDITIONS: Bare soil</td>
</tr>
</tbody>
</table>
| 22                   | -                     | 29                                 | 5           | -             | SANDY CLAY, dark brown, moist, stiff | Boring terminated at 5 feet  
|                      |                       |                                    |             |               | No groundwater encountered |
### LOG OF BORING

**Project No.:** 252.200  
**Client:** Verde Design, Inc.  
**Date Drilled:** 4-11-16

**Project Name:** Morgan Hill  
**Drilling Method:** Hollow-stem Auger  
**Elevation:** 466-1/2 feet

#### SAMPLER TYPE:

<table>
<thead>
<tr>
<th>Sampler Type</th>
<th>Drive Weight (LBS)</th>
<th>Height of Fall (IN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
<td>30</td>
</tr>
</tbody>
</table>

#### MATERIAL DESCRIPTION AND REMARKS

<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>USCS Classification</th>
<th>Surface Conditions</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>16</td>
<td>0</td>
<td>CL</td>
<td>SANDY CLAY with some small GRAVEL, brown, moist, stiff</td>
<td>Surface Conditions: Bare soil</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>23</td>
<td>-</td>
<td>-</td>
<td>Boring terminated at 5 feet</td>
<td>No groundwater encountered</td>
</tr>
</tbody>
</table>

**PLATE 15**

**Project Name:** Morgan Hill  
**Downtown Parks**  

**SAMPLER TYPE:** Standard Penetration Test

**DRIVE WEIGHT (LBS):** 140

**HEIGHT OF FALL (IN):** 30

**Surface Conditions:** Bare soil

**Remarks:** Boring terminated at 5 feet. No groundwater encountered.
### Project Information
- **Project No.:** 252.200
- **Client:** Verde Design, Inc.
- **Date Drilled:** 4-11-16
- **Project Name:** Morgan Hill Downtown Parks
- **Drilling Method:** Hollow-stem Auger
- **Elevation:** 480 feet

### Log of Boring

<table>
<thead>
<tr>
<th>Sampler Type</th>
<th>Drive Weight (LBS.)</th>
<th>Height of Fall (IN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Penetration Test</td>
<td>140</td>
<td>30</td>
</tr>
</tbody>
</table>

### Material Description and Remarks

<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (PCF)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
<th>Surface Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>9</td>
<td>0</td>
<td></td>
<td>CL</td>
<td>Bare soil</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>21</td>
<td>5</td>
<td></td>
<td>SANDY CLAY</td>
<td>brown, moist, stiff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Boring terminated at 5 feet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No groundwater encountered</td>
</tr>
</tbody>
</table>

**Project Name:** Morgan Hill Downtown Parks

**Drilling Method:** Hollow-stem Auger

**Elevation:** 480 feet

**Project No.:** 252.200

**Client:** Verde Design, Inc.

**Date Drilled:** 4-11-16

**Client:** Verde Design, Inc.
**LOG OF BORING**

**Project No.:** 252.200  
**Client:** Verde Design, Inc.  
**Date Drilled:** 4-11-16

**Project Name:** Morgan Hill Downtown Parks  
**Drilling Method:** Hand auger  
**Elevation:** 428-1/2 feet

<table>
<thead>
<tr>
<th>SAMPLER TYPE:</th>
<th>DRIVE WEIGHT (LBS.)</th>
<th>HEIGHT OF FALL (IN.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MATERIAL DESCRIPTION AND REMARKS**

<table>
<thead>
<tr>
<th>Moisture Content (%)</th>
<th>Dry Unit Weight (pcf)</th>
<th>Penetration Resistance (blows/foot)</th>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>USCS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SURFACE CONDITIONS: Grassy slope</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>CL</td>
<td>SANDY CLAY, brown, moist, medium stiff</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td>SC</td>
<td>CLAYEY SAND, brown, moist, dense to very dense</td>
</tr>
</tbody>
</table>

**Surface Conditions:**
- Grassy slope
- Boring terminated at 3-1/2 feet (refusal)
- No groundwater encountered
### Major Divisions

<table>
<thead>
<tr>
<th>Classification Symbol</th>
<th>Typical Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW</td>
<td>Well Graded Gravels, Gravel/Sand Mixtures</td>
</tr>
<tr>
<td>GP</td>
<td>Poorly Graded Gravels, Gravel/Sand Mixtures</td>
</tr>
<tr>
<td>GM</td>
<td>Silty Gravels, Poorly Graded Gravel/Sand/Silt Mixtures</td>
</tr>
<tr>
<td>GC</td>
<td>Clayey Gravels, Poorly Graded Gravel/Sand/Clay Mixtures</td>
</tr>
<tr>
<td>SW</td>
<td>Well Graded Sands, Gravelly Sands</td>
</tr>
<tr>
<td>SP</td>
<td>Poorly Graded Sands, Gravelly Sands</td>
</tr>
<tr>
<td>SM</td>
<td>Silty Sands, Poorly Graded Sand/Silt Mixtures</td>
</tr>
<tr>
<td>SC</td>
<td>Clayey Sands, Poorly Graded Sand/Clay Mixtures</td>
</tr>
<tr>
<td>ML</td>
<td>Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine sands, or Clayey Silts with slight plasticity</td>
</tr>
<tr>
<td>CL</td>
<td>Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays</td>
</tr>
<tr>
<td>OL</td>
<td>Organic Clays and Organic Silty Clays of Low Plasticity</td>
</tr>
<tr>
<td>MH</td>
<td>Inorganic Silts, Micaceous or Diatomaceous Fine Sands or Silty Soils, Elastic Silts</td>
</tr>
<tr>
<td>CH</td>
<td>Inorganic Clays of High Plasticity, Fat Clays</td>
</tr>
<tr>
<td>OH</td>
<td>Organic Clays of Medium to High Plasticity, Organic Silts</td>
</tr>
</tbody>
</table>

### Highly Organic Soils

<table>
<thead>
<tr>
<th>Classification Symbol</th>
<th>Typical Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt</td>
<td>Peat and Other Highly Organic Silts</td>
</tr>
</tbody>
</table>

### Key to Boring Log Symbols

- **Bulk Sample**
- **2.5-inch I.D. Split Barrel Sample**
- **2.8-inch I.D. Shelby Tube Sample**
- **No Sample recovered**
- **Standard Penetration Test interval**
- **Well-defined stratum change**
- **Gradual stratum change**
- **Interpreted stratum change**
- **Apparent ground water level measured at date noted; seasonal weather conditions, site topography, etc., may cause fluctuations in water level indicated on boring logs**
- **Stabilized ground water level measured at date noted**

Note: Soils described as dry, moist, and wet are estimated to be dry of optimum, near optimum, and more wet than optimum moisture content, respectively. Saturated soils are estimated to be within areas of free groundwater.
RECOMMENDED ACCELERATION RESPONSE SPECTRUM
MORGAN HILL DOWNTOWN PARKS
WEST 3RD STREET AND DEL MONTE AVENUE
MORGAN HILL, CALIFORNIA
FOR VERDE DESIGN, INC.
APPENDIX A

Previous Boring Logs
(Parikh 2005)
**Boring Location, Elevation & Date Drilled:**
See attached Site Plan; Elev. approx. 344.1 ft.; drilled on 9-26-05

<table>
<thead>
<tr>
<th>Sample Type &amp; No.</th>
<th>Dry Density (pcf)</th>
<th>Water Content (%)</th>
<th>Blows Per Foot</th>
<th>Compress. Strength (tsf)</th>
<th>Depth (ft)</th>
<th>Soil Graph &amp; U.S.C.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BULK-C4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>CL</td>
</tr>
</tbody>
</table>

Asphalt Concrete - 4 inches thick

**Sampling Method:**
Bulk sampling from the cuttings

**Drilling Method:**
8-inch dia. Solid Stem Auger
SSA- Jeep Mounted

**CL**
LEAN CLAY (CL), reddish brown, moist, trace sand

LL = 30,
Pl = 14

End of Boring at 5 feet. Groundwater was not encountered

---

**LOG OF BORING**

**DEPOT STREE BEAUTIFICATION PROJECT**
MORGAN HILL, CALIFORNIA

Date: NOV-2005
Job No.: 205138.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.
Boring Location, Elevation & Date Drilled:
See attached Site Plan; Elev. approx. 341.7 ft.; drilled on 9-28-05

<table>
<thead>
<tr>
<th>Sample Type &amp; No.</th>
<th>Dry Density (pcf)</th>
<th>Water Content (%)</th>
<th>Blows Per Foot</th>
<th>Compress. Strength (tsf)</th>
<th>Depth (ft)</th>
<th>Soil Graph &amp; U.S.C.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BULK-CS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>CL</td>
</tr>
</tbody>
</table>

Sampling Method:
Bulk sampling from the cuttings

Drilling Method:
8-inch dia. Solid Stem Auger
SSA- Jeep Mounted

Asphalt Concrete - 3.5 inches thick
Aggregate Base - 8 inches thick, gray

LEAN CLAY (CL), reddish brown, moist, trace sand

End of Boring at 5 feet. Groundwater was not encountered

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

DEPOT STREE BEAUTIFICATION PROJECT
MORGAN HILL, CALIFORNIA

Date: NOV-2005
Job No.: 205138.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-6
APPENDIX B

Corrosivity Test Results
(Parikh 2005)
To: Prav Dayah  
Parikh Consultants, Inc.  
356 S. Milpitas Blvd.  
Milpitas, Ca 95035

From: Gene Oliphant, Ph.D.  \ Randy Horney  
General Manager  \ Lab Manager

The reported analysis was requested for the following location:  
Location : 205138.10/DEPOT STAT  Site ID : C-4.  
Thank you for your business.

* For future reference to this analysis please use SUN # 46187-91422.

------------------------------------------------------------------
EVALUATION FOR SOIL CORROSION

Soil pH  6.40
Minimum Resistivity  3.75 ohm-cm (x1000)
Chloride  10.1 ppm  00.00101  %
Sulfate  25.2 ppm  00.00252  %

METHODS
pH and Min.Resistivity CA DOT Test #643  
Sulfate CA DOT Test #417, Chloride CA DOT Test #422
Mr. Corbin Schneider  
Verde Design, Inc.  
2455 The Alameda, Suite 200  
Santa Clara, California 95050

Subject: Supplemental Geotechnical Recommendations  
Minimum Horizontal Distances from CIDH Piles of Two Bridges to Creek Side Slopes  
Morgan Hill Downtown Park Project  
Morgan Hill, California

Dear Mr. Schneider:

This letter presents our supplemental geotechnical recommendations on the minimum horizontal distance from the cast-in-drilled-hole (CIDH) pile to the creek side slope for the new bridges of the Morgan Hill Downtown Park project in Morgan Hill, California. Our recommended minimum horizontal distances (measured from the “top” and “front face” of the CIDH pile) are as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicular Bridge</td>
<td>8 feet</td>
</tr>
<tr>
<td>Pedestrian Bridge</td>
<td>6 feet</td>
</tr>
</tbody>
</table>

The recommendations contained herein are professional opinions derived in accordance with the currently accepted standards of soil engineering practices; no other warranty is expressed or implied. We trust this letter provides the information you require at this time. If you have any questions, please do not hesitate to call us.

Respectfully submitted,

LAI & ASSOCIATES

Steve K. Tsang  
Principal Engineer  
GE 2162

4400 Market Street, Oakland, CA 94608; Cell: (925) 639-3836; Email: paulslail1@gmail.com

John 3:16
Via Email

August 25, 2016
Job No. 252.200

Mr. Corbin Schneider
Verde Design, Inc.
2455 The Alameda, Suite 200
Santa Clara, California 95050

Subject: Alternative Pavement Sections
Morgan Hill Downtown Park Project
Morgan Hill, California

Dear Mr. Schneider:

This letter presents our supplemental geotechnical recommendations on the alternative pavement sections (based on a minimum asphalt concrete thickness of 4 inches) for the Morgan Hill Downtown Park project in Morgan Hill, California. Our recommended alternative pavement sections are as follows:

<table>
<thead>
<tr>
<th>Traffic Index (T.I.)</th>
<th>Thickness (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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The recommendations contained herein are professional opinions derived in accordance with the currently accepted standards of soil engineering practices; no other warranty is expressed or implied. We trust this letter provides the information you require at this time. If you have any questions, please do not hesitate to call us.

Respectfully submitted,

LAI & ASSOCIATES

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