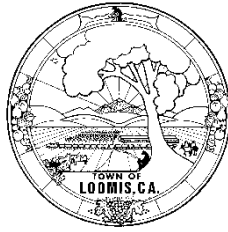


**TOWN OF LOOMIS  
PLACER COUNTY, CALIFORNIA**



# **CONTRACT BOOK**

## ***Hunter Oaks Landscape Improvements Project***

May 2023

NOTICE INVITING BIDS  
PROPOSAL FORMS  
AGREEMENT  
GENERAL PROVISIONS  
SPECIAL PROVISIONS  
TECHNICAL SPECIFICATIONS  
PLAN SHEETS

Contact:  
Merrill Buck, Town Engineer  
3665 Taylor Road  
Loomis, CA 95650  
townengineer@loomis.ca.gov  
(916) 824-1518

**BID OPENING: June 13, 2023 (Tuesday) at 10:00am**

Deliver Bids To: Town Offices - Town Clerk's Office  
3665 Taylor Road  
Loomis, CA 95650

If you choose to mail your Bid Proposal, both the outside and inside envelope should be clearly marked as: **HUNTER OAKS LANDSCAPE IMPROVEMENTS PROJECT**

# Hunter Oaks Landscape Improvements Project

## DESIGN CERTIFICATION

The Plans and Technical Specifications contained herein have been prepared by, or under the responsible charge of, the following registered person(s):

Prepared by:

Dylan C. Buterbaugh

4/26/2023

DYLAN BUTERBAUGH,  
Licensed Landscape Architect No. 6380  
AEON Landscape Architecture, Inc.  
P.O. Box 5231  
Vacaville, CA 95696

Date



Approved for Construction by:

Merrill L. Buck

4/26/23

MERRILL BUCK, P.E. No. 55365  
Town Engineer, Town of Loomis  
3665 Taylor Road  
Loomis, CA 95650

Date



# Hunter Oaks Landscape Improvements Project

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# TOWN OF LOOMIS

## **NOTICE INVITING BIDS**

### Hunter Oaks Landscape Improvements Project

#### **INSTRUCTION FOR SUBMITTING BIDS**

The Town of Loomis is soliciting bids from qualified Contractors to complete the project described herein.

1. **Qualifications:** Contractor shall possess either a valid Class A (General Engineering) or Class C-27 (Landscaping Contractor), California Contractor's License at the time the contract is awarded.
2. **Project Description:** Work generally includes clearing and grubbing of existing landscaping and irrigation system and replanting approximately 7,000 square feet of new landscaping with new irrigation system along street frontages, and within landscape pockets associated with a future rockery wall, within the Hunter Oaks Lane Subdivision, in Loomis, CA along with other incidentals and minor related work.
3. **Cost Estimate and Duration:** The estimated cost for the work is roughly \$100,000. The project duration is 40 working days. The Town anticipates awarding the contract shortly after the bid opening with a notice to proceed in June 2023.
4. **Bid Package:** Plans and specifications are available free of charge. A copy can be obtained from the Town's plan hosting site, CIP List <https://ciplist.com/plans/?Loomis/city/11681> or by emailing a request to the Town Engineer at the email address below.
5. **Pre-Bid Meeting:** A pre-bid meeting has not been scheduled, nor is one anticipated, since all of the work is within the public right-of-way and is readily available for bidders to visit and review.
6. **Staff Contact/Questions:**

Town of Loomis  
Attn: Merrill Buck, Town Engineer  
3665 Taylor Road, Loomis, CA 95650  
(916) 824-1518  
[townengineer@loomis.ca.gov](mailto:townengineer@loomis.ca.gov)
7. **Prevailing Wage:** As a "Public Works" project and pursuant to Section 1773 of the Labor Code, the general prevailing wage rates for Placer County shall apply to this contract.
8. **Reply Format:** All forms in the "Bid Proposal" Section shall be completed and returned to the Town Clerk at the Loomis Town Hall, 3665 Taylor Road, Loomis, California, by the bid's due date. Bids are required for the entire work described herein.
9. **Bids Due:** **10:00 a.m., Tuesday, June 13, 2023**
10. **Bidder's Security:** Bids must be accompanied by a proposal guarantee amounting to ten percent (10%) of the total bid as described in the specifications. Said guarantee shall be forfeited to the Town in case the bidder depositing the same does not, within seven calendar days after written notice that the contract has been awarded to him (1) enter into a contract with the Town and (2) furnish Performance and Payment Bonds and the required Insurance, as described in the specifications.
11. **Bid Award:** The bid will be awarded to the lowest responsive and responsible bidder at the discretion of the Town Council. The Town reserves the right to reject any and all bids, or to waive any errors, discrepancies or irregularities.
12. **Firm Prices:** All bid prices will be held firm for a minimum of sixty (60) calendar days after the due date for submitting bids.

**THE FOLLOWING DOCUMENTS MAKE UP  
THE BID PROPOSAL AND ARE TO BE SUBMITTED  
AS PART OF THE BID**

## **BID PROPOSAL**

### Hunter Oaks Landscape Improvements Project

Bid To: Town of Loomis  
3665 Taylor Road  
Loomis, CA 95650

Bid From:

Bidder's Company Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Business Street Address: \_\_\_\_\_

Town, State, Zip Code: \_\_\_\_\_

Phone No.: (        ) \_\_\_\_\_

E-mail: \_\_\_\_\_

Contractor's License Class: \_\_\_\_\_ No.: \_\_\_\_\_

Contractor's License Expiration Date: \_\_\_\_\_

DIR Registration Number: \_\_\_\_\_

I, as bidder, declare that I have satisfied myself as to the actual conditions and requirements of the proposed work by careful examination of the location and by examination of the contract documents. The failure or omission to examine any location, equipment, form, instrument or document shall in no way relieve the bidder from any obligation in respect to this bid.

I hereby certify that this bid is genuine and I have not in any manner sought by collusion to secure for myself an advantage over any other bidder.

I agree that if this proposal is accepted, I will contract with the Town of Loomis in the form of the agreement proposed, will provide all bonds and insurance certificates as required under the agreement and will furnish all equipment, materials and perform all labor required to complete the work in accordance with the contract documents for the prices set forth in the Bid Schedule.

I have carefully checked all of the calculations in the Bid Schedule and understand that the Town shall not be responsible for any errors or omissions on my part in making up this bid.

I agree that this bid may not be withdrawn for a period of sixty (60) calendar days from the date of the bid opening and that the Town reserves the right to reject any or all bids or waive any irregularity or informality in the bids received.

## BID PROPOSAL

### Hunter Oaks Landscape Improvements Project

#### **BID SCHEDULE**

Bids are to be submitted for the entire work. All applicable taxes, patent rights or royalties, freight, permit fees and other costs deemed incidental to the work shall be included in the prices quoted. All blanks for unit price and extension shall be completed. Any discrepancy between the unit price and the extended price or total bid shall be resolved by using the unit price.

Item No.	Item Description	Estimated Quantity	Unit	Unit Price	Item Total
1	Mobilization and General Conditions	1	LS	\$	\$
2	Site Clearing	1	LS	\$	\$
3	Tree and Plant Protection Fencing	1	LS	\$	\$
4	Erosion Control Cobble (4"-6" Noiyo)	2	CY	\$	\$
5	Freestanding Block Wall (approx. 15 LF)	1	LS	\$	\$
6	12" Retaining Wall at Backflow Preventer (approx. 7 LF)	1	LS	\$	\$
7	Monument Sign Upgrades	1	LS	\$	\$
8	6-Foot Metal Bench with Center Armrest	1	EA	\$	\$
9	2"x4" Redwood Header	40	LF	\$	\$
10	Irrigation System	1	LS	\$	\$
11	Soil Amendment and Preparation (F)	6,500	SF	\$	\$
12	24" Box Tree	3	EA	\$	\$
13	5 Gallon Shrub	17	EA	\$	\$
14	2 Gallon Shrub	12	EA	\$	\$
15	1 Gallon Shrub	384	EA	\$	\$
16	Chipped Bark Mulch (3" Layer)	60	CY	\$	\$
17	90 Day Plant Establishment	1	LS	\$	\$

(F) – Final Pay Item (per Standard Specifications Section 9-1.02C)

**Total Base Bid Amount: \$ \_\_\_\_\_**

#### **Notes:**

1. The Contract will be compared and awarded on the basis of the Base Bid Amount.
2. All items on the Base Bid Schedule must be bid. Partial bids will not be accepted.
3. The Town reserves the right to reject all bids for any reason whatsoever.

### **DESIGNATION OF SUBCONTRACTORS**

The Contractor shall perform work equaling at least 30 percent of the value of the original total bid with the Contractor's own employees and equipment.

In accordance with the Subletting and Subcontracting Fair Practices Act, Public Contract Code sections 4100 *et seq.* (the "Subcontracting Act"), the Bidder hereby certifies and submits, as required by law, the following concerning subcontractors:

1. The portion of the work, which will be done by each such subcontractor; and
2. The name, address and license number of each subcontractor who will perform work or labor, fabricate a portion of the work or improvement according to detailed drawings in the project plans, or render service to the Contractor in or about the construction of the work in an amount in excess of one-half of one percent (0.5%) of the Contractor's total bid.

<u>Portion of Work to be Performed by Subcontractor</u>		<u>Subcontractor Name, Address and License Number</u> (Subcontractor's License No. Required under AB 44)	<u>Registered with DIR?</u> ✓ check if yes
1.			
2.			
3.			
4.			
5.			
6.			

(For additional Subcontractors, attach copies of this sheet as necessary)

### ✓ **DEPARTMENT OF INDUSTRIAL RELATIONS REGISTRATION REQUIREMENT**

In accordance with Labor Code Section 1725.5, all contractors and subcontractors listed on a public works bid proposal must be registered with the DIR.



**STATEMENTS, QUESTIONNAIRE AND NON-COLLUSION AFFIDAVIT**

The following Statements, Questionnaire and Non-Collusion Affidavit are being made a part of this Proposal. By signing the signature portion of the Proposal, the contractor certifies that under penalty of perjury, the responses are true. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

**PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT**

In accordance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder

Has \_\_\_\_ Has Not \_\_\_\_ **(Bidder to check one)**

been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

**PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE**

In accordance with public Contract Code Section 10162, the bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or safety regulation?

YES \_\_\_\_ NO \_\_\_\_ **(Bidder to check one)**

If the answer is yes, explain the circumstances in the space below:

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## **PUBLIC CONTRACT SECTION 10232 STATEMENT**

In accordance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final un-appealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

## **EQUAL OPPORTUNITY EMPLOYER STATEMENT**

We participate in the Affirmative Action Program of the Town of Loomis and accept the following operating policy as an equal opportunity employer:

"It is the policy of this company to assure that applicants are employed and that employees are treated during employment without regard to their race, religious creed, color, sex, age, national origin or ancestry. Such action shall include, but not be limited to, employment upgrading, demotion or traNSFer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship, pre-apprenticeship training and on-the-job training."

## **PUBLIC CONTRACT CODE SECTION 7106 TITLE 23, UNITED STATE CODE, SECTION 112 NON-COLLUSION AFFIDAVIT**

In accordance with Title 23, United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that 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 any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that 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, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

### **BIDDER'S QUALIFICATIONS**

The following statements as to the financial qualifications and experience of the Bidder are submitted as a part of this Bid and the Bidder guarantees the truthfulness and accuracy of the information. Pursuant to Public Contract Code 10165, financial statements and experience questionnaires are not public records and are not open to public inspection.

#### **Financial Data**

Reference is hereby made to the following bank or banks as to the financial responsibility of the bidder.

NAME OF BANK

ADDRESS

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#### **Experience Data**

The Bidder has been engaged in the contracting business, under the present business name for \_\_\_\_\_ years. Experience in work of a nature similar to that covered in this Bid extends over a period of \_\_\_\_\_ years.

The Bidder as a Contractor has never failed to satisfactorily complete a contract awarded to him, except as follows: (Name all exceptions and reasons therefore):

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#### **Bidder's Personnel**

The following is a list of key personnel including an listing of the person's knowledge, ability or trade along with a brief description of their experience. If Bidder is awarded the Contract, it is understood that the work will be directed and actively supervised by one of these persons.

List of Personnel

Knowledge/Skills

Experience

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### **BIDDER'S REFERENCE**

List three (3) major projects which the Bidder has performed comparable work within the last three (3) years. Provide a contact person and description of the project, or other such information that will demonstrate the ability to vigorously prosecute the work. Attachments containing the information requested below may also be provided, in lieu of using this form.

1.

PROJECT NAME	LOCATION	YEAR COMPLETED
AGENCY CONTACT PERSON	TELEPHONE NO.	FINAL CONSTRUCTION COST
BRIEF DESCRIPTION OF THE WORK AND/OR MANNER OF EXECUTION		

2.

PROJECT NAME	LOCATION	YEAR COMPLETED
AGENCY CONTACT PERSON	TELEPHONE NO.	FINAL CONSTRUCTION COST
BRIEF DESCRIPTION OF THE WORK AND/OR MANNER OF EXECUTION		

3.

PROJECT NAME	LOCATION	YEAR COMPLETED
AGENCY CONTACT PERSON	TELEPHONE NO.	FINAL CONSTRUCTION COST
BRIEF DESCRIPTION OF THE WORK AND/OR MANNER OF EXECUTION		

## **SIGNATURE PAGES**

The terms and conditions of the final Construction Agreement, when executed, shall control and supersede anything herein to the contrary or inconsistent with such contract.

The bidder states that he has inspected the site of the propose work in order to satisfy himself, by personal examination, or by such other means as he prefers, of the location of the proposed work and as to the actual conditions of and at the work site. The bidder hereby offers to furnish all labor, materials, equipment, transportation, and services necessary to complete the work on this project in accordance with the Contract Documents and to complete all requirements of the Contract Documents for the sums quoted in this Bid.

### Addenda:

(if any) bidder has received and examined all addenda issued during the bid period and agrees that all addenda shall be made a part of the Contract Documents. The bidder acknowledges receipt and incorporation of all impacts resulting from all addenda issued by **signing and submitting with the bid proposal the signature page from each addendum.**

### Bidder's Guarantee:

In accordance with Public Contract Code Section 20170, accompanying this Bid is \_\_\_\_\_ (insert the word "Cash", "Cashier's Check", "Certified Check" or "Bidder's Bond" as the case may be) made payable to the Town of Loomis in the amount of \_\_\_\_\_ (\$\_\_\_\_\_) equal to at least ten percent (10%) of the total amount of this bid. This amount is given as a guarantee that, in case the undersigned defaults in executing a contract and/or furnishing the necessary bonds after contract award, the said guarantee and the money payable thereon shall become and remain the property of the Town as liquidated damages.

### Company Profile:

The names of all persons interested in the foregoing bid as principals are as follows:  
(Note: If the bidder is a corporation, state the legal name of the corporation and the names of the president, secretary, treasurer and manager thereof. If the bidder is a partnership, state the true name of the firm and the names of all individual partners composing the firm. If the bidder is an individual, state the first and last name in full).

Firm Name: \_\_\_\_\_

Business Address: \_\_\_\_\_

Names and Titles of Company Officers:

- |    |       |       |
|----|-------|-------|
| 1. | _____ | _____ |
| 2. | _____ | _____ |
| 3. | _____ | _____ |
| 4. | _____ | _____ |

Statements, Questionnaire and Non-Collusion Affidavit:

The Statements, Questionnaire and Non-Collusion Affidavit included in this proposal are to be made a part of the Proposal. By signing the signature portion below, the contractor certifies that under penalty of perjury, the responses are true. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

Proposal Execution:

IN WITNESS WHEREOF, the undersigned, as bidder, represent and warrant that they have the right, power, legal capacity, and authority to enter into and execute this document on behalf of the Bidder, and have executed this document by setting hereto their names, titles, and signatures. The representations made herein, including but not limited to the above contractor's license, expiration date and name of bidder, are true and correct, shall be complied with and are made under penalty of perjury.

**IF SOLE OWNER**, sign here:

I sign as sole owner of the business named above: \_\_\_\_\_

Social Security Number: \_\_\_\_\_

Employer Identification Number: \_\_\_\_\_

**IF PARTNERSHIP**, sign here:

The undersigned certify that we are partners in the business named above and that we sign this proposal with full authority to do so. (one or more partners sign)

By \_\_\_\_\_ (Title) \_\_\_\_\_

By \_\_\_\_\_ (Title) \_\_\_\_\_

Federal Tax Identification No. (FEIN): \_\_\_\_\_

State Tax Identification No.: \_\_\_\_\_

**IF CORPORATION**, execute here:

The undersigned certify that they sign this proposal with full and proper authorization to do so.

Corporate name \_\_\_\_\_

By \_\_\_\_\_ (Title) \_\_\_\_\_

By \_\_\_\_\_ (Title) \_\_\_\_\_

Incorporated under the laws of the State of \_\_\_\_\_

Federal Tax Identification No. (EIN): \_\_\_\_\_

State Tax Identification No.: \_\_\_\_\_

## **BID GUARANTEE**

To Accompany Contract Proposal

KNOW ALL PERSONS BY THESE PRESENTS:

That we, the undersigned \_\_\_\_\_, as principal and

\_\_\_\_\_, as surety, are held and firmly bound unto the Town of Loomis as OWNER in the penal sum of TEN PERCENT (10%) of the total amount of the bid of the principal, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to OWNER a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the **Hunter Oaks Landscape Improvements Project**.

NOW, THEREFORE

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BIDS including all required bonds for faithful performance and labor and material, as well as all required evidence of insurance) then this obligation shall be void, otherwise the same shall remain in force and effect.

In the event the Town brings suit upon this Bond, surety shall pay reasonable attorney's fees and costs incurred by the Town in such suit.

The Surety, for value received, stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the Town of Loomis may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, this day and year first set forth.

By: \_\_\_\_\_ (L.S.)  
(Principal)

(Seal)

By: \_\_\_\_\_  
(Surety)

(Surety)

(Seal)

Subscribed and sworn to before me, a Notary Public in and for the State of California, County of \_\_\_\_\_

\_\_\_\_\_, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Signature of Notary Public:\_\_\_\_\_ (Seal)

My Commission expires \_\_\_\_\_, 20\_\_\_\_

**IMPORTANT:** Surety companies executing BONDS must be authorized to transact Surety insurance in the State of California. If Contractor is Partnership, all partners should execute BOND.

**THIS ENDS THE DOCUMENTS THAT MAKE UP  
THE BID PROPOSAL**

**THE FOLLOWING DOCUMENTS ARE TO BE  
PROVIDED BY THE SUCCESSFUL BIDDER  
FOLLOWING THE AWARD OF CONTRACT**

- ***CONTRACT***
- ***FAITHFUL PERFORMANCE BOND***
- ***LABOR AND MATERIALS BOND***
- ***CERTIFICATE OF INSURANCE***
- ***WORKER'S COMPENSATION INSURANCE CERTIFICATE***
- ***CONTRACTOR'S 1-YEAR GUARANTEE***



## **CONTRACT**

At Loomis, California , this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the TOWN OF LOOMIS, a municipal corporation, in Placer County, State of California, hereinafter called "TOWN" and \_\_\_\_\_ herein called "CONTRACTOR" hereby agrees:

1. That into this contract, as though fully set out herein, are incorporated the Notice Inviting Bids, Proposal Forms, General Provisions, Special Provisions, Technical Specifications, Plans, and addenda, if any, and such other writing set forth in that document entitled Contract Book for the **Hunter Oaks Landscape Improvements Project** dated May 2023.
2. That CONTRACTOR shall perform and be bound by all of the terms and conditions of this contract as above expanded, and in strict conformity therewith shall perform and complete in good and workmanlike manner the **Hunter Oaks Landscape Improvements Project**, in accordance with plans and specifications on file in the office of the Town Engineer of the Town of Loomis.
3. That for such performances TOWN shall pay to CONTRACTOR the prices set forth in the accepted bid proposal, as shown within the Contract Book, at the time and in the manner set forth in the Contract Book. CONTRACTOR shall receive total compensation in an amount not to exceed \$\_\_\_\_\_ based upon satisfactory completion, as measured by the bid items, in the quantities of actual work performed, and paid at the bid item unit prices. CONTRACTOR shall accept such payment in full satisfaction of all claims incident to such performances.
4. That in no case shall any department, Council, or officer in the TOWN be liable for any portion of the contract price nor shall TOWN or any department, Council or officer thereof be liable for any of the work performed by said CONTRACTOR under this contract.
5. That, in accordance with the provisions of Section 1296 of the Code of Civil Procedure of the State of California, in any arbitration, whether agreed to or required by law to resolve a dispute relating to this contract, the arbitrator's award shall be supported by law and substantial evidence.
6. That, CONTRACTOR is aware of the provisions of Section 3700 of the Labor Code 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 that CONTRACTOR will comply with such provisions before commencing the performance of the work of this contract.
7. CONTRACTOR shall assume the defense of, and indemnify and hold harmless TOWN, its officers, employees, and agents, and each and every one of them, from and against all actions, damages, claims, losses or expenses of every type and description to which they may be subjected or put, by reason of, resulting from the performance of the work, provided that such action, damage, claim, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to, or destruction of property, whether upon or off the work, including the loss of use thereof, and is caused in whole or in part by any negligent act or omission of the Contractor, subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, whether or not it is caused in part by a party indemnified hereunder.

### **Approved as to Form:**

By: \_\_\_\_\_  
Town Attorney, Town of Loomis

By: \_\_\_\_\_  
Town Manager, Town of Loomis

### **Approved as to Sufficiency:**

By: \_\_\_\_\_  
Town Engineer, Town of Loomis

By: \_\_\_\_\_  
Contractor

## **FAITHFUL PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, that \_\_\_\_\_, as Principal, and \_\_\_\_\_, a corporation authorized to do business in the State of California and organized and existing under and by virtue of the laws of the State of \_\_\_\_\_ as Surety, are held and firmly bound unto the Town of Loomis, a municipal corporation of the County of Placer, the State of California, in the sum of \$\_\_\_\_\_ for the faithful performance of a certain contract hereinafter referred to, to be paid to the Town of Loomis for the payment of which well and truly to be made, the said Principal and the said Surety hereby bind themselves and, all and singularly, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

Signed by us and dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

WHEREAS, the said Principal has entered into the annexed contract with the Town of Loomis to perform and complete, in strict conformity herewith and in a good and workmanlike manner the **Hunter Oaks Landscape Improvements Project**, in accordance with maps, plans and specifications on file in the office of the Town Engineer of the Town of Loomis.

NOW, THEREFORE, the conditions of the above and foregoing obligations are such that:

If the said Principal shall faithfully perform the said contract, then the above obligation with respect to the faithful performance of said contract shall be void; otherwise to remain in full force and effect.

And that said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

If case suit is brought upon this bond by the Town of Loomis, a reasonable attorney's fee, to be fixed by the court, shall be paid by Principal and Surety.

IN WITNESS WHEREOF, the said Principal and Surety have executed this instrument the day and year first hereinabove written.

### **Approved as to Form:**

By: \_\_\_\_\_  
Town Attorney

By: \_\_\_\_\_  
Principal (Contractor)

### **Approved:**

By: \_\_\_\_\_  
Town Manager

By: \_\_\_\_\_  
Surety

## **LABOR AND MATERIALS BOND**

KNOW ALL MEN BY THESE PRESENTS, that \_\_\_\_\_, as Principal, and \_\_\_\_\_, a corporation authorized to do business in the State of California and organized and existing under and by virtue of the laws of the State of \_\_\_\_\_ as Surety, are held and firmly bound unto the Town of Loomis, a municipal corporation of the County of Placer, the State of California, in the sum of \$\_\_\_\_\_ for the benefit of laborers and material hereinafter designed to be paid to the Town of Loomis for the payment of which well and truly to be made, and said Principal and the said Surety hereby bind themselves and, all and singularly, their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

Signed by us and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

WHEREAS, the said Principal has entered into the annexed contract with the Town of Loomis to perform and complete, in strict conformity therewith in a good and workmanlike manner the **Hunter Oaks Landscape Improvements Project**, in accordance with maps, plans and specifications on file in the office of the Town Engineer of the Town of Loomis.

NOW THEREFORE, the conditions of the above and foregoing obligations are such that: If said principal or his or her subcontractors, their heirs, executors, administrators, successors and assigns shall fail to pay for any materials, provisions, provender or other supplies or teams used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind or for amounts due under the Unemployment Insurance Act with respect to such work or labor, then said Surety will pay the same in or to an amount not exceeding the amount hereinabove specified to be for the benefit of laborers and material, and also will pay, in case suit is brought upon this bond, such reasonable attorney's fee as shall be fixed by the Court, awarded and taxed as provided by law.

This bond, to the extent of the obligation herewith with respect to laborers and material, shall inure to the benefit of any and all persons, companies and corporations entitled to file claims under Division 3, Part 4, Title 15 of the Civil Code of the State of California, so as to give a right of action to them or their assigns in any suit brought upon this bond. And that said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligations on the bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or the specifications. In case suit is brought upon this bond by the Town of Loomis, a reasonable attorney's fee, to be fixed by the Court, shall be paid by Principal and Surety.

IN WITNESS WHEREOF, the said Principal and Surety have executed this instrument the day and year first hereinabove written.

### **Approved as to Form:**

By: \_\_\_\_\_  
Town Attorney

### **Approved:**

By: \_\_\_\_\_  
Town Manager

By: \_\_\_\_\_  
Principal (Contractor)

By: \_\_\_\_\_  
Surety

**TOWN OF LOOMIS CERTIFICATE OF INSURANCE**  
**General and Automobile Liability**

The undersigned insurance company hereby certifies to the Town of Loomis, California that it has issued a policy of insurance bearing Policy No. \_\_\_\_\_ to \_\_\_\_\_ in connection with a certain as work of improvement generally described as the **Hunter Oaks Landscape Improvements Project**, being a certain general and automobile liability policy which names the Town of Loomis, its officers and employees as additional insured, and which insures said Town, officers and said work of improvement, including but not limited to, coverage for all work performed by, for or on behalf of \_\_\_\_\_.

Said policy of insurance provides coverage in the following minimum amounts and for the following periods:

COVERAGE	POLICY NO.	POLICY PERIOD	MINIMUM LIMITS OF LIABILITY
1) Bodily Injury			\$1,000,000 each person \$1,000,000 each occurrence
2) Property Damage			\$1,000,000 each person \$1,000,000 each occurrence

**This policy provides:** (1) primary coverage for additional insured parties; if said additional insured have other insurance against loss covered by this policy, the other insurance shall be excess insurance only; (2) that said additional insured parties are not precluded from claim under this policy against other insured parties; and (3) each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits, except after thirty (30) days prior written notice by certified mail, returned receipt requested, has been given to the Town Clerk.

\_\_\_\_\_  
Insurance Company Address of Signatory:

\_\_\_\_\_  
Authorized Signature (sign)

\_\_\_\_\_  
Authorized Signature (type)

**VERIFICATION**

I declare under the penalty of perjury that I am authorized to sign this Certificate on behalf of the above-named insurer. Executed at \_\_\_\_\_, California, on the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.\*

\_\_\_\_\_  
Authorized Signatory (sign)

\_\_\_\_\_  
(type name)

SUBSCRIBED AND SWORN TO BEFORE ME, a  
Notary Public, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(sign)

\_\_\_\_\_  
(type name)

\*If this certificate is executed outside of California, it must be sworn to before a Notary Public.

FORM APPROVED: \_\_\_\_\_, 20\_\_\_\_ by \_\_\_\_\_  
TOWN OF LOOMIS

**TOWN OF LOOMIS**  
**WORKER'S COMPENSATION INSURANCE CERTIFICATE**

The undersigned insurance company hereby certifies to the Town of Loomis, California, that it is an admitted Worker's Compensation Insurer and that it has issued a policy of Worker's Compensation Insurance, bearing policy number \_\_\_\_\_ to \_\_\_\_\_. Said policy is a valid policy of Worker's Compensation insurance issued in a form approved by the California Insurance Commissioner and is now in full force and effect. The full deposit on said policy has been paid. The expiration date of said policy is the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_. The undersigned insurer will give said Town of Loomis at least ten (10) days advance notice of the cancellation of said policy.

Dated: \_\_\_\_\_

\_\_\_\_\_  
INSURANCE COMPANY

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
AUTHORIZED REPRESENTATIVE (Signature)

\_\_\_\_\_  
AUTHORIZED REPRESENTATIVE (Type Name)

I declare under penalty of perjury that the foregoing is true and correct.

Executed at Loomis, California on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
AUTHORIZED REPRESENTATIVE (Signature)

\_\_\_\_\_  
AUTHORIZED REPRESENTATIVE (Type Name)

## **CONTRACTOR 1-YEAR GUARANTEE**

We hereby guarantee the **Hunter Oaks Landscape Improvements Project** improvements which we propose to construct in the Town of Loomis for (1) year in accordance with the guarantee required in the specifications. We agree to repair or replace any or all such work, together with all or any other work which may be displaced in so doing, that may be proven defective in workmanship or material within the period from the date of acceptance (recording of the Notice of Completion) without expense whatsoever to the Town, excluding ordinary wear and tear and unusual abuse or neglect.

**We shall provide a 1-year security of 10% of the total completion cost of the project at the time of final acceptance.**

In the event of our failure to comply with the above mentioned conditions within ten (10) days time after being notified in writing, we collectively or separately do hereby authorize the Town to proceed to have the defects repaired and made good at our expense and will pay the costs and damages incurred immediately upon demand.

Signed: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Dated: \_\_\_\_\_

# GENERAL PROVISIONS

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## **GENERAL PROVISIONS**

### **SECTION 1 – TERMS AND DEFINITIONS**

1.01 Terms – Unless otherwise stated, the words “directed, required, permitted, ordered, instructed, designated, considered necessary, prescribed, approved, acceptable, satisfactory,” or words of like meaning, refer to actions, expressions, and prerogatives of the Engineer.

1.02 Definitions – Except as amended or supplemented, whenever in the Contract Documents the following terms are used, the intent and meaning shall be interpreted as follows:

Agreement - The written contract documents between the Town and the Contractor covering the performance of the work.

As Shown, As Indicated, As Detailed - Where these words or words of similar import, are used, it shall be understood that reference to the drawings accompanying these specifications is made unless stated otherwise. Where "As Directed", "As Permitted", "Approved", or words of similar import, are used, it shall be understood that the direction, requirements, permission, approval, or acceptance of the Engineer is intended unless stated otherwise. As used herein, "Provide" shall be understood to mean "Provide Complete in Place" that is, "Furnish and Install", "Install" shall mean the installation complete in place of an item of equipment furnished by the Town.

ASTM - American Society for Testing and Materials specifications.

AWWA - American Water Works Association and its Standard Specifications.

Addenda - Written or graphic instruments issued prior to the opening of bids which clarify, correct or change the bidding documents or the Contract Documents.

Bid - The offer or proposal of the bidder submitted on the prescribed forms setting forth the prices for the work to be performed.

Bid Forms - Includes the Bid Schedule, Designation of Subcontractors, Bidders Statement of Responsibility, Bidder's Non-Collusion Affidavit, Bid Security, and all other information requested by the Bid Proposal Documents.

Bidder – Any individual, firm, partnership, corporation, or combination thereof submitting a bid for the work, acting directly or through a duly authorized representative. After the Town awards the Contract, the term “Bidder” shall be equivalent to the term “Contractor” for the purpose of identifying the Contractor's rights and obligations under the Contract Documents.

Bidding Documents - The Notice Inviting Sealed Proposals, Instruction to Bidders, Bid Proposal forms and Bidders Bond.

Bonds - Bid, performance, labor and material, and warranty bonds and other instruments of security.

Change Orders – A written order by the Engineer to the contractor making changes in the plans or specifications which is signed by the Contractor and Town authorizing an addition, deletion or revision in the work, with possible adjustment in the contract price or the contract time, issued on or after the effective date of the Agreement. If the change involves items for which there is no contract unit price, the order shall so state and stipulate that the changes shall be performed as extra work or work omitted.

Town - The Town of Loomis acting through the Town Council or any other board, body, official(s) to which or to whom the power belonging to the Town Council has been properly delegated.

Town Regulations - All written laws, rules, and policies established by the Town, including those set forth in the General Plan, Loomis Municipal Code, ordinances, resolutions, policies, procedures, and Town design documents (including the Standard Specifications, design standards, and relevant Public Facility Master Plans).

Code – The terms Government Code, Labor Code, etc., refer to codes of the State of California.

Contract – See definition for “Agreement”.

Contract Documents - See Agreement, Section 2.1, “List of Contract Documents and Precedence”.

Contract Drawings or Plans - All drawings which may have been prepared by or in behalf of the Town, as a basis for proposals, when duly signed and made a part of this contract by incorporation or reference, all drawings submitted in pursuance of the terms of this contract by the successful bidder with his proposal and by the contractor to the Town and reviewed by the Engineer; and all drawings submitted by the Engineer to the contractor during the progress of the work as provided for herein.

Contract Price - The total amount of money for which contract is awarded and as amended.

Contract Time - The number of days or the date stated in the contract as the duration for completing work.

Contract Unit Price - The Contractor’s original bid for a single unit of an item of work in the proposal.

Contractor - An individual, partnership, corporation, developer, joint venture, subdivider or other legal entity entering into a contract or agreement with the Town to perform the work covered by this contract, and their authorized agents or legal representatives. After the Town awards the Contract, the term “Contractor” shall be equivalent to the term “Bidder” for the purpose of identifying the Contractor’s rights and obligations under the Contract Documents.

Council - The Town Council of the Town of Loomis.

Day or Days - Unless herein otherwise expressly defined, shall mean a calendar day of twenty-four hours each.

Defective Work - Work that is unsatisfactory, faulty, omitted, incomplete, deficient, or does not conform to the requirements of the Contract Documents, directives of the Engineer, or requirements of any inspection, reference standard, test, or approval specified in the Contract Documents, or has been damaged prior to the Engineer’s recommendation of final acceptance. See General Provisions Section 6.01, “Materials and Workmanship”.

Directive – Any document, signed by the Town, with instruction to the Contractor pertaining to the completion of a project objective; including, but not limited to responses to requests for information, clarifications, letters of instruction, the notice of award and the notice to proceed.

Engineer - The Engineer duly and officially appointed by the Town to represent the Town and to observe the work of construction under this contract, acting personally or through agents or assistants duly authorized by him, such agents or assistants acting within the scope of the particular duties entrusted to them.

Extra Work - Performance or furnishing of work or material found necessary for the proper completion of the improvements, the payment of which is not covered by any item of the bid schedule and for which no means of payment, direct or indirect, has been provided in the contract.

Final Completion - The point at which work has been completed in accordance with the contract documents, plans and specifications to the satisfaction of the Engineer and there are no items of work remaining to be completed. See General Provisions, Section 8.22, “Final Completion”.

Force Account Work – Force account work is a method of compensation utilized to pay for extra work typically needed to overcome unanticipated work, resulting from the project work scope, necessary to complete the project work scope that cannot be well defined prior to the start of extra work. General Provision, Section 5.08 “Change Orders” establishes the specific methods of compensation for labor, materials and equipment used to perform the force account work.

Greenbook - The Standard Specifications and Plans written and promulgated by Public Works Standards, Inc., entitled “Standard Specifications for Public Works Construction”, and “Standard Plans for Public Works Construction”, current editions.

Hold Harmless - Agreement by one party to bring no claim for negligence, breach of contract, indemnity or otherwise against another party. See Agreement Section 17, “Indemnification”.

Inspector - The engineering or technical inspector(s) duly authorized or appointed by the Engineer or Town, limited to the particular duties entrusted to him or them.

Liquidated Damages - The amount of dollars assessed for each and every calendar day required to complete the contract in excess of the contract time. See General Provisions, Section 8.18, “Liquidated Damages”.

Losses - Any and all losses, costs, liabilities, claims, damages, and expenses, including, without limitation, reasonable attorneys’ fees and expenses.

Modification – Modifications to the Agreement are executed by change orders, and may only be issued after the effective date of the contract.

Notice - Any notice allowed or required to be given by the Town may be given by the Engineer.

Notice of Award – The written notice by the Town to the successful Bidder stating that upon completion of required conditions the Town will execute the contract.

Notice to Proceed – A written notice by the Town to the Contractor authorizing the Contractor to proceed with the work and fixing the date on which the contract time will start.

Plans - The contract plans and/or supplemental drawings approved by the Engineer which show the location, character, dimensions and details of the work.

Project - The total construction of which the work performed under the Contract Documents may be the whole or a part and which may include construction by the Town or by separate Contractors.

Proposal - The offer of a bidder when submitted on the proposal form, properly signed and guaranteed.

Reference Specifications - Those standards, rules, method of tests or analysis, codes, and specifications of other agencies, engineering societies, or industrial associations referred to in the Contract Documents. These refer to the current edition or amendments in effect at the time of advertising the project unless specifically referred to by edition, volume or date. Unless otherwise stated in the plans or specifications, the reference specification in effect shall be that edition which was in effect on the date of the Notice Inviting Bids.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the Contractor to illustrate some portion of the work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a supplier and submitted by the Contractor to illustrate material or equipment for some portion of the work. See General Provisions, Section 4.13, “Submittals”.

Special Provisions - Any provisions which supplement or modify these standard specifications.

Specifications – The information, directions, provisions and requirements pertaining to the work, and contained herein including Special Provisions, Technical Specification, General Provisions, those administrative subsections of Caltrans' Standard Specification that are specifically referenced in this Contract and the non-administrative sections (Section 10 through 95) of the Caltrans' Standard Specification dated May 2018.

Standard Plans - The Standard Details of the Town of Loomis, current edition, including the Parks and Streetscape Standard Plans, current edition, identifying construction standards for the various items of work indicated and/or referred to on the plans, specifications or special provisions.

Standard Specifications - The Standard Specifications of the Town of Loomis.

Standard Specifications for Public Works Construction - The Standard Specifications for Public Works Construction, "Greenbook", current edition.

State - State of California.

State Standard Plans - The Standard Plans of the Department of Transportation of the State of California, (Caltrans') Standard Plans dated May 2018.

State Standard Specifications - The Standard Specifications of the Department of Transportation of the State of California Caltrans' Standard Specification dated May 2018.

Subcontractor - Any individual, firm or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the work at the site. Unless otherwise specifically provided, the term Subcontractor includes Subcontractor of any tier, suppliers, manufacturers and distributors. See Section 3.07 of the General Provisions.

Substantial Completion – When the work (or a specified part thereof) has progressed to the point where it is sufficiently complete and in accordance with the Contract Documents. See General Provisions, Section 8.20, "Substantial Completion".

Superintendent – The executive representative of the contractor responsible for the site supervision of the work at all times during progress, authorized to receive and fulfill instructions from the Engineer and to accept orders for changed and extra work.

Surety - Any individual, firm or corporation, bound with and for the Contractor for the acceptable performance and completion of the work, and the satisfaction of all obligations incurred.

Surveyor - A land surveyor licensed in the State of California.

Unbalanced Bid - See Materially Unbalanced Bid and Mathematically Unbalanced Bid.

Work - The construction and services required by the Contract Documents as amended by contract modifications, whether completed or partially completed, including all labor, materials, equipment, tools, and services provided or to be provided, by the Contractor to fulfill the Contractor's obligations. The work may constitute the whole or a part of the project

Working Day – Any day except Saturday, Sunday, Holidays observed by the Town, or days in which the Contractor is entitled to an excusable delay. Holidays observed by the Town are: Thanksgiving, day after Thanksgiving, Christmas Day, New Year's Day, Martin Luther King Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, and Veteran's Day. See General Provisions, Section 8.19, "Delays and Extension of Time".

## **SECTION 2 – PROPOSAL REQUIREMENTS AND CONDITIONS**

2.01 General - Bidders may obtain complete sets of the Contract Documents, including the proposal forms to be used for bidding, at the location designated in the Notice to Bidders. Bidders shall use complete sets of Contract Documents in the preparation of bids. The Town makes copies of the Contract Documents available, on the above terms, for the sole purpose of obtaining Bids for the work and does not confer a license or grant permission for any other use of the Contract Documents.

2.02 Proposal Forms – The portion of the Contract Documents entitled “Bid Proposal” focuses the Bidders attention on the requirements for submitting a proposal, including the Notice to Bidders, and the Bid Proposal Forms.

Bids are required for the entire work described herein and shall be submitted on the blank forms prepared by the Town and provided herein. The Bid Proposal submitted to the Town shall consist of the completed Bid Schedule, Designation of Subcontractors, Bidders Statement of Responsibility, Bidder’s Non-Collusion Affidavit, Bidder’s Qualifications, Bidders References, Signature of Bidder, Bid Guaranty, and all other information requested by the Bid Proposal documents.

All proposals shall type or print legibly in ink the proposed prices both in writing and in figures and shall be signed, with address included, by the bidder or the bidder's authorized representative. Corrections must all be individually initialed by the Bidder. Bidder shall not modify or qualify the Bid Forms in any manner.

The Bid Forms shall be signed by a person or persons legally authorized to bind the Bidder to the Contract. The individuals signing each document shall warrant that they are authorized to bind the legal entity of the Bidder. Proposals made by individuals must show the individual's signature and post office address; if made by a firm or partnership and the signature of one or all of the partners must be shown. Proposals submitted by corporations must show the name and post office address of the corporation, the name of the state, under whose laws the corporation is chartered, and the signature and title of the person signing on behalf of the corporation.

2.03 Qualifications of Bidders - Each bidder shall be licensed as specified in the Notice to Bidders and in accordance with the provisions of Chapter 9, Division 3, of the Business and Professions Code, State of California, and shall be skilled and regularly engaged in the general class or type of work called for under this contract.

It is the intention of the Town to award a contract only to a bidder who is able to furnish satisfactory evidence that he has the requisite experience and ability and that he has sufficient capital, facilities and plant to enable him to prosecute the work successfully and promptly, and to complete it within the time set forth in the contract.

In determining the degree of responsibility to be credited to a bidder, the Town will weigh any evidence indicating the bidder, or personnel guaranteed to be employed in responsible charge of the work, has satisfactorily performed other contracts of like nature and magnitude.

2.04 Rejection of Proposals Containing Alterations, Erasures, or Irregularities - Proposals may be rejected if they show any alterations of form, additions not called for, conditional or alternative bids, incomplete bids, irregularities of any kind, or corrections and erasures without initials by the Bidder.

2.05 Submission of Bids - All Bid Forms, including all documents required to be submitted with the Bid, shall be enclosed in a sealed opaque envelope. The envelope shall be clearly marked on its face with the Bidder’s name and address, and the notation “SEALED BID ENCLOSED, TOWN OF LOOMIS”, with an identification of the project name and number as identified in the Notice to Bidders. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope. Oral, telephonic, facsimile, telegraphic, or electronically transmitted Bids are invalid and will not be accepted.

Bids may be mailed or delivered by messenger. It is the Bidder's responsibility alone to ensure that the Bid is received prior to the bid opening deadline at the place specified in the Notice to Bidders. Whether or not bids are opened exactly at the time fixed in the public notice inviting bids, any bid received after that time shall be returned unopened.

2.06 Approximate Estimate - The quantities listed in the bid schedule are approximate only, supplied as a general indication of the scope of work and to be used as a basis for comparing bids. The Town does not expressly or by implication agree that the actual amount of work will correspond therewith, and reserves the right to increase or decrease the amount of any class or portion of the work, or to delete any portions of the work in their entirety, from the quantities listed on the bid schedule, as may be deemed necessary or advisable by the Engineer.

2.07 Examination of Plans, Specifications and Work Site - Bidder shall examine carefully the plans, specifications, proposal and contract forms, and the physical site of the work contemplated, regardless of if a site walk or pre-bid meeting has been scheduled by the Town or not.. It will be assumed that the bidder has investigated and is aware of the conditions to be encountered in carrying out the proposed work, and is fully satisfied as to the scope, character, quality, quantity and requirements of the proposed work, and the submission of a bid will be an acknowledgement of that assumption.

The bidder shall receive no additional compensation for obstacles or difficulties due to surface or subsurface conditions actually encountered. Where investigations of surface or subsurface conditions have been made by the Town in respect to foundation or other structural design, and that information is shown in the plans, said information is included only for the convenience of bidders. The Town assumes no responsibility whatsoever as to the sufficiency or accuracy of borings, or of the log of test borings or other investigations or tests, or of the interpretation thereof; there is no guaranty, warranty or representation, express or implied, that the conditions indicated thereby in fact exist or are representative of those existing throughout the work. Such information shall be used as a basis for bids at the bidder's own and sole risk; making such information available to bidders is not to be construed in any way as a waiver of the other provisions of this paragraph, and bidders must satisfy themselves through their own investigation as to the surface and subsurface conditions to be encountered at the site. By submitting a Proposal, the Bidder has certified that he has examined all items indicated in Section 2.07, "Examination of Plans, Specifications, and Site of the Work."

Each proposal shall be enclosed in a sealed envelope and endorsed as specified in the Notice Invited Sealed Proposals. Bidders are warned the proposals containing irregularities of any kind, including erasures, omissions, conditions, alterations, or additional proposals may be rejected.

2.08 Withdrawals of Proposals - Any proposal may be withdrawn at any time prior to the time fixed in the Notice Inviting Sealed Proposals for the opening of bids, provided that a request in writing, executed by the bidder or his duly authorized representative, for the withdrawal of such bid, is filed with the Town. The withdrawal will not prejudice the right of a bidder to file a new proposal.

2.09 Proposal Guaranty - Each proposal shall be accompanied by either a certified check, cashier's check, or bidder's bond of a surety company acceptable to the Town in an amount not less than ten percent (10%) of the bid amount, and shall be made payable to the Town.

2.10 Disqualification of Bidders - More than one proposal from an individual, firm or partnership, a corporation, or an association under the same or different names will not be considered. Reasonable grounds for believing that any bidder is interested in more than one proposal for the work will be the cause of the rejection of all proposals in which such bidder is interested. If there is a reason to believe that collusion exists among the bidders, none of the participants in such collusion will be considered. Proposals in which the prices obviously are unbalanced may be rejected.

2.11 Bid Protest Procedures – Any protest of the proposed contract award shall be submitted in writing to the Town Clerk no later than 5:00 p.m. on the fifth (5<sup>th</sup>) business day following the date of the bid opening, with business day defined as those days excluding weekends or Town observed holidays.

The protest must include the name, address, and telephone number of the person representing the protesting party. In addition,

- (a) The party filing the protest must have submitted a bid for the Project. A Subcontractor of a party filing a bid for the project may not submit a bid protest.
- (b) The protest must contain a complete statement of the basis for the protest, and refer to the specific portion of the Contract Documents or the specific statute that forms the basis for the protest.
- (c) The party filing the protest must concurrently transmit a copy of the protest to the proposed awardee.

Any bidder's failure to fully comply with these procedures shall constitute a waiver of any right to further pursue a bid protest, including filing of a challenge of the award pursuant to the California Public Contract Code, filing of a claim pursuant to the California Government Code, or filing of any other legal proceedings.

The Town shall review all timely protests prior to the award of contract. The Town shall not be required to hold an administrative hearing to consider any protests, but may do so at its option. At the time of the Town Council's consideration of the project award, the Town Council shall also consider the merits of any timely protests. The Town Council may either reject the protest and award the project to the lowest responsible bidder or accept the protest and award the project to the next lowest responsible bidder. Nothing in this section shall be construed as a waiver of the Town Council's right to reject all bids.

2.12 List of Subcontractors - In accordance with Chapter 2, Division 5, Title 1 of the Government Code, each proposal shall have listed the name and address of such subcontractor to whom the bidder proposes to sublet portions of the work. A subcontractor is defined as one who contracts with the contractor to furnish materials and labor, or labor only, for performance of work at the building site. Subcontractors shall be listed on the form provided herewith.



## SECTION 3: REVIEW OF BIDS, CONTRACT AWARD AND EXECUTION

3.01 Public Bid Opening and Initial Review - Bids which have been submitted in accordance with the requirements of the Bidding Documents, and which are received on or before the bid deadline will be opened publicly, and the dollar amounts of each bid shall be read aloud.

The Town shall have the right to reject all bids. The Town shall have the right to reject any bid not accompanied by the required bid security or any other item required by the Bidding Documents, or a bid which is in any other way incomplete or irregular. The Town shall have the right to waive irregularities in a bid, and to award the Contract to the Lowest Responsible Bidder (as determined by the Town), only if the irregularities are non-material and inconsequential.

3.02 Determination of Lowest Responsible Bidder - Criteria for determining low bid in all contracts with the Town involving an expenditure of \$5,000.00 or more shall be determined as the "Lowest Monetary Bidder" on the basis of the Engineer's approximate estimate of the quantities of work to be done as set forth in the Bid Schedule, in accordance with the calculation criteria set forth on the bid.

After the Lowest Monetary Bidder has been determined, the Engineer shall review that Bidder's bid in order to determine whether or not that Bidder is the "Lowest Responsible Bidder." The term Lowest Responsible Bidder shall mean the Lowest Monetary Bidder whose bid is responsive, and who is responsible to perform the work, as required by the Contract Documents.

The term "responsive" is defined by California law, but generally means that the bid has been prepared and submitted in accordance with the Bidding Requirements. The term "responsible" is defined by California law, but generally means that the Bidder is able to demonstrate that it possesses: (1) the capacity to perform the work required by the Contract Documents with respect to financial strength, resources available, and experience; and (2) the integrity and trustworthiness to complete performance of the work in accordance with the Contract Documents.

The Town will make its determination of responsibility based upon information submitted by Bidders contained in the Bidders Qualifications and Bidders References included in the Bid Forms and, if necessary, through interviews with previous cities, clients, design professionals, or subcontractors with whom the Bidder has worked. In determining whether or not a Bidder is responsible, the Town may consider the following factors in relation to the work to be performed for this Project:

- (a) Demonstrated financial strength including, but not limited to, resources available, bonding capacity, and available insurance.
- (b) Demonstrated safety record including, but not limited to, Experience Modification Rate.
- (c) Successful completion of projects of similar scope and size. In reviewing this factor, the Town may consider elements including, but not limited to, contract amount of completed projects, experience on public works projects, experience implementing prevailing wage certified payroll requirements, timeliness of performance and, if necessary, evaluation of the Bidder's work by previous cities, clients, design professionals, or subcontractors.
- (d) Sufficiency of contract administration and construction management systems including, but not limited to, proposed scheduling tools, proposed subcontract forms, proposed progress payment applications, and proposed certification of payroll documents.
- (e) History of claims, litigation, termination or disqualification from projects.

If the Engineer finds that the Lowest Monetary Bidder submitted a responsive Bid and that the Bidder is responsible, then that Bidder shall be deemed the apparent "Lowest Responsible Bidder," and the Engineer shall report the findings to the Town Council.

If the Engineer finds that the Lowest Monetary Bidder's bid is not responsive, or that the Lowest Monetary Bidder is not responsible, then the Engineer may review the responsiveness and responsibility

of the next Lowest Monetary Bidder. If the Engineer finds that the next Lowest Monetary Bidder is responsive and responsible, then that next lowest Bidder shall be deemed the apparent "Lowest Responsible Bidder," and Engineer shall report its findings as recommendations to the Town Council. This process may continue until the Engineer finds the Lowest Monetary Bidder which is also responsive and responsible.

In the event that one or more Low Monetary Bidders are found by the Engineer to be non-responsive or non-responsible, those Bidders will be given notice and a reasonable opportunity to present additional relevant evidence to the Engineer for consideration, within five (5) working days after the Bidder receives the notice.

All findings by the Engineer shall be reported as recommendations to the Town Council. The Town Council reserves the right to reject any or all Bids, and to waive any irregularity. No Bid shall be binding upon the Town until after the Agreement is signed by both the Contractor and the Town. If the Town Council determines that it is in the Town's best interest to award the Agreement, a Notice of Award shall be sent to the Lowest Responsible Bidder as determined by the Town Council. The Town Council's decision shall be final.

The Town may investigate the responsibility and qualifications of all Bidders to whom the award is contemplated for a period not to exceed sixty (60) calendar days after the Bid opening, during which time no bid shall be withdrawn by the Bidders. The sixty (60) day review period may be extended upon the written request by the Engineer and written approval by the affected Bidder.

3.03 Award of Contract - Award of contract, if awarded, shall be made after the Town Council makes a determination as to which Bidder is the Lowest Responsible Bidder, the Town shall issue a Notice of Award to the Lowest Responsible Bidder. Within ten (10) calendar days after receipt of the Notice of Award, Bidder shall submit to the Town two (2) originals of the signed agreement, the required improvement securities, proof of insurance, a Town of Loomis business license and a copy of the required State Contractor's license. After the Bidder has properly submitted these documents, the Town will execute the Agreement and issue a Notice to Proceed.

3.04 Execution of Contract - The contract agreement shall be signed by the successful bidder in quadruplicate, three copies shall be filed with the Town and one copy shall be delivered to the Contractor and returned to the Town, together with the contract bonds and Certificates of Insurance, within fifteen (15) days after the notice of award has been sent to him by mail at the address given by him in his proposal. If the bidder fails or refuses to enter into a contract to do the work, then the proposal guaranty accompanying the bid shall be forfeited to the Town.

3.05 Status of Contractor - The right of general supervision by the Town shall not make the contractor an agent of the Town, and the liability of the contractor for all damages to persons or to public or private property arising from the contractor's execution of the work shall not be lessened because of such general supervision.

3.06 Assignment - No agreement or portion thereof maybe assigned without consent of the Council, except that the Contractor may assign money due which will accrue to him under the Agreement. If given written notice, such assignment will be recognized by the Town to the extent permitted by law, but any assignment of money shall be subject to all proper setoffs and withholdings in favor of the Town and to all deductions provided for in the Agreement. All money withheld, whether assigned or not, shall be subject to being used by the Town for completion of the work, should the Contractor be in default.

Any attempt to assign or delegate the Agreement without the written consent of the Town shall be void and of no force and effect. Consent by the Town to one assignment shall not be deemed to be consent to any subsequent assignment.

3.07 Recognition of Subcontractors - No subcontractors will be recognized as such, and all persons engaged in the work of construction will be considered as employees of the contractor and their

work shall be subject to the provisions of the contract, including specifically these general stipulations, the specifications and the contract drawings.

3.08 Return of Bid Security - Within ten (10) working days after the execution of the Agreement, the Town will return the proposal guarantees accompanying the proposals that are not to be considered in making the award. All other proposal guarantees will be held until the Agreement has been fully executed, after which, they will be returned to the respective bidders whose proposals they accompanied.

3.09 Forfeiture of Proposal Guaranty - If Bidder does not properly execute the contract and submit the acceptable bonds, insurance and certifications within the specified time; this shall be just cause for the annulment of the award and the forfeiture of the proposal guaranty to the Town. The Town may then award the contract to next Lowest Responsible Bidder. The forfeited proposal guaranty may be utilized by the Town in accordance with Public Contract Code, Sections 20170 through 20174.

3.10 Contract Bonds - Before execution of the contract by the Town, the Contractor shall file with the Town surety bonds satisfactory to the Town in the amounts, and for the purposes, noted below. Said bond shall be on the form furnished by the Town herein.

- (a) *Performance Bond* - The contractor shall furnish and bear the cost of a bond of a surety company acceptable to the Town, which bond is conditioned upon the faithful performance of all covenants and stipulations under this contract within the time prescribed, in a manner satisfactory to the Town, and that all materials and workmanship will be free from original or developed defects. The amount of the bond shall be one hundred percent (100%) of the total contract price; as such sum is set forth in the agreement.

Said bond shall be on the form furnished by the Town herein.

As a condition precedent to satisfactory completion of this contract, an amount equal to ten percent (10%) of the estimated contract cost shall hold good for the period specified in said bond after completion and acceptance of the work by the Town.

- (b) *Labor and Material Bond* – The contractor shall furnish and bear the cost of a bond of a surety company acceptable to the Town in the sum not less than one hundred percent (100%) of the total contract price, as such sum is set forth in the agreement, for the payment in full of all persons, companies, or corporations who perform labor upon or furnish materials to be used in the work under this contract, in accordance with the provisions of Section 4200 to 4208, inclusive (Chapter 3, Division 5), of the Government Code of the State of California, and any acts amendatory thereof. The bond shall be maintained by the Contractor in full force and effect until the work is accepted by the Town and until all claims for materials and labor are paid.

Said bond shall be on the form furnished by the Town herein.

- (c) *Warranty Bond* - The Contractor shall furnish a warranty bond in the amount of ten percent (10%) of the final contract price (total cost including change orders) to guaranty his work for one (1) year after acceptance of the work by the Town Council.

Bonds shall be duly executed by a responsible corporate Surety, licensed and authorized to issue such bonds in the State of California and secured through an authorized agent with an office in California. Each bond shall be signed by both the Contractor and Surety and the signature of the authorized agent of the Surety shall be notarized.

The Contractor shall pay all bond premiums, costs and incidentals. Should any bond become insufficient due to an increase in the contract amount, the Contractor shall obtain supplemental bonding within ten (10) days.

Should any Surety at any time be unsatisfactory to the Town, notice will be given the Contractor to that effect. No further payments shall be deemed due or will be made under the Agreement until a new Surety shall qualify and be accepted by the Town.

Changes in the work, or extensions of time, made pursuant to the Agreement, shall in no way release the Contractor or Surety from their obligations. The requirement for notifying the Surety of such changes or extensions shall be waived by the Surety.

3.11 Notification of Surety Companies - The surety companies shall familiarize themselves with all conditions and provisions of this contract and they waive the right of special notification of any change or modification of this contract or of extension of time, or of decreased or increased work, or of the cancellation of the contract, or of any other act(s) by the Town or Town's authorized agents, under the terms of this contract, and failure to so notify the aforesaid surety companies of changes shall in no wise relieve the surety companies of their obligation under this contract.

3.12 Power of Attorney - Attorneys-in-fact who sign bid bonds or contract bonds must file a certified and effectively dated copy of their Power of Attorney with each bond.

3.13 Insurance Requirements - Contractor shall provide at his own cost and expense from contract award date to acceptance of the work covered by the contract:

- (a) Workmen's Compensation and Employer's Liability Insurance of not less than the amount shown in the Special Provisions for all of his employees to be engaged in the work under this contract. Should any such work be sublet, the contractor shall require each of his subcontractors at any tier similarly to provide Workmen's Compensation and Employer's Liability Insurance, all in strict compliance with Federal and State laws.
- (b) Personal Injury, Bodily Injury and Property Damage Liability Insurance (including automobiles, products and/or completed operations coverage) and Aircraft and Watercraft Bodily Injury Liability and Property Damage Liability Insurance if contractor uses owned or non-owned water aircraft in his operation, with Personal Injury and Bodily Injury (including death resulting therefrom) of not less than a combined Personal Injury and Property Damage Liability limit of not less than the amount shown in the Special Provisions. Should any work covered by the contract be sublet contractor shall require each of his subcontractors of any tier similarly to provide the aforesaid coverages.
- (c) All Risk (excluding Earthquake and Flood) Builder's Risk Insurance in an amount not less than the value of any work under this contract, except for buried pipelines and appurtenances which need not be included in the insurance value. Under the policies of insurance described above, each policy shall contain the provision for thirty (30) days written notice submitted by registered mail from the insurance carrier(s) to the Town prior to cancellation or reduction in coverage.

3.14 Special Requirements - Under the policy of insurance described in Section 13.13-b, the policy shall contain the following provisions:

- (a) The Town and the Town's officers, representatives, agents and employees shall be named as additional insureds.
- (b) Endorsement providing that such insurance is primary insurance and no insurance of the additional insureds shall be called on to contribute to a loss.

- (c) Endorsement providing that such insurance shall not contain any exclusion regarding loss or damage to property caused by explosion or resulting from collapse of buildings or structures or damage to property underground, commonly referred to as "XCU" hazards.
- (d) Standard cross-liability clause covering personal injury, bodily injury (including death resulting therefrom), and property damage.

3.15 Builders Risk Insurance – If required, under the policy of insurance, the policy shall contain the following provisions:

- (a) The Town shall be included as insured.
- (b).. Losses shall be payable to the contractor and Town as their interest may appear.
- (c).. Deductible amounts of all losses covered by insurance shall be borne by the contractor.

3.16 Certificates - Prior to beginning work, contractor shall furnish certificates satisfactory to the Town as to contents and carriers of such insurance.

3.17 Legal Address of Contractor - Contractor's address as shown in the proposal, as well as such office or headquarters the contractor establishes at the site of work, hereby are designated as addresses to which drawings, samples, notices, letters, articles, or other communications to the contractor may be mailed or delivered. The delivery at either of these places of any item or communication from the Town or agents thereof to the contractor shall be deemed sufficient service of such delivery. Contractor's address as shown in the proposal may be changed at any time by notice in writing from the contractor to the Town. Nothing herein contained shall be deemed to preclude or render inoperative the service of any drawing, sample, notice, letter, or other article of communication to or upon the contractor personally.

3.18 Office of Contractor at Site - During the performance of the contract, contractor shall maintain a suitable office at the site of work which shall be the headquarters of a representative authorized to receive drawings, instructions or other communications or articles from the Town or Town's agents; any such thing given to said representative or delivered at the contractor's office at the site of work in his absence shall be deemed to have been given to the contractor. Contractor shall maintain a complete set of plans and specifications at the site office whenever work is in progress.

## **SECTION 4 - SCOPE AND CONTROL OF WORK**

4.01 Work to be Done – The work to be done consists of furnishing all labor, materials, tools, equipment and services necessary to complete the project, as further described in the Notice to Bidders of these Specifications, and as necessary to leave the site in a neat and finished condition with all equipment properly installed and working to the satisfaction of the Engineer.

While the Town has endeavored to accurately represent in the plans and specifications the physical conditions which may affect the cost of the proposed work, the Town does not warrant the completeness or accuracy of such information. It is the Contractor's responsibility to ascertain the existence of any such conditions affecting the cost of the work, which would have been disclosed by reasonable examination of the site.

Conclusions pertaining to any test, investigation, statement or estimate of fact incorporated in the plans and specifications shall be considered by the Contractor to be a recommendation only. The Contractor may request equal access to the underlying or background information to arrive at his own opinion thereon, including his determination of how reliable might be any conclusion appearing in (or inferred from) the information. The Contractor may not rely upon "record drawings" or similar final or accepted drawings or maps constructed on public or private property. Such information may be used for reference only. Actual locations and depths shall be determined by field investigations by the Contractor.

No oral or telephonic agreement or conversation with any officer, agent, or employee of the Town or the Engineer, either before or after execution of the contract, shall affect or modify any of the terms or obligations contained in any of the contract documents.

4.02 Plans and Specifications - It is the intent of the Plans and Specifications to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. For convenience, the Specifications are arranged in several sections, but such separation shall not be considered as the limits of the work required by any separate trade. The terms and conditions of such limitations are wholly between the Contractor and his subcontractors. In general, the Special Provisions, General Provisions, and other sections of the specifications indicate the responsibilities of the Contractor and the quality of material and methods of workmanship. The plans indicate dimensions, quantities, positions, and various other details of construction.

Any work, materials or equipment that may be reasonably inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words, which have a well-known technical or trade meaning, are used to describe the work, materials or equipment, such words shall be interpreted in accordance with that meaning. See General Provisions, Section 6.03, "Trade Names or Equals".

Subheadings and titles printed on the drawings in these General Provisions, in the specifications, and elsewhere in the contract documents, are inserted for the convenience of reference only, and shall not be taken or considered as having any bearing on the interpretation thereof.

4.03 References to Standards and Codes - Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or Laws or Regulations in effect at the time of the opening of bids (or, on the Effective Date of the Agreement if there were no bids), except as may be otherwise specifically stated. However, no provisions of any referenced standard specifications, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of Town, Contractor or Engineer, or any of their consultants, agents or employees, from those set forth in the Contract Documents, nor shall it be effective to assign to the Engineer, or any of the Engineer's Consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility for the Contractor.

4.04 Authority of the Engineer – The Town has the final authority in all matters affecting the work. Within the scope of the Agreement, the Engineer has the authority to enforce compliance with the Plans and Specifications and the Contractor shall promptly comply with instructions from the Engineer. The decision of the Engineer is final and binding on all questions relating to: quantities; acceptability of materials furnished and work performed; equipment; work execution, rate of progress or sequence of work; and interpretation of the Plans, Specifications, or other drawings. This shall be precedent to any payment under the Agreement, unless otherwise ordered by the Town.

4.05 Contract Documents and Precedence - The Contract Documents consist of the documents listed below, in order of precedence. If there is a conflict between component parts of the Contract Documents, the document highest in precedence controls.

- a. Change Orders.
- b. Project Directives.
- c. Permits issued by other agencies.
- d. Permits issued by the Town.
- e. Agreement and required agreement forms – Bid Bond, Faithful Performance and Labor and Materials Bonds, Warranty Bond, Insurance Endorsements, Worker's Compensation Certification.
- f. Project Specifications, in the following order - Addenda, Bid Proposal including all Bid Proposal Forms, Notice Inviting Sealed Proposals, Special Provisions, Technical Provisions, Exhibits to the Proposal, and General Provisions.
- g. Project Plans and Drawings.
- h. Town Standard Specifications.
- i. Town Standard Plans.
- j. Reference Specifications, in the following order – State of California Department of Transportation (Caltrans) State Standard Specifications (current edition), Standard Specifications for Public Works Construction "Greenbook".
- k. Reference Plans, in the following order – State of California Department of Transportation (Caltrans) State Standard Plans (2018 edition), Standard Plans for Public Works Construction (2018 edition).

All of the individual components of the Contract Documents are intended to be complementary and what is required by one shall be binding as if required by all. Interpretation of a disputed meaning or intent of the plans and specifications shall be made initially by the Engineer in accordance with the application of the order of precedence. Any final decision required regarding precedence and the clarification of discrepancies in the Contract Documents shall be made by the Engineer.

4.06 Interpretation of Specifications and Drawings - The specifications and the contract drawings are intended to be explanatory of each other. Any work indicated in the contract drawings and not in the specifications, or vice versa, is to be executed as if indicated in both. Should it appear that the work to be done, or any of the matters relative thereto are not sufficiently detailed or explained in these contract documents, including the contract drawings, the contractor shall apply in writing to the Engineer for such further explanations as may be necessary and shall conform thereto as part of this contract so far as may be consistent with the terms of the contract. Should any doubt or question arise respecting the true meaning of the specification, the Engineer shall make the final decision.

4.07 Figured Dimensions - Figured dimensions on the contract drawings shall in all cases be given precedence over scaled dimensions. If figured dimensions do not correspond to scaled dimensions, contractor shall request Engineer to verify the accuracy of the figured dimensions. It shall be the responsibility of the contractor to ascertain the correct scale of all contract drawings in his possession, including those which may have been reduced for reproduction.

4.08 Errors or Discrepancies - If the contractor, in the course of the work, discovers any discrepancies between the drawings and the conditions of the ground, or any errors or omissions in the drawings or in the layout given by stakes, points or instructions, it shall be his duty to inform the Engineer immediately in writing, and the Engineer shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the contractor's risk.

4.09 Drawings to be Furnished by Contractor - As soon as practical after the execution of this contract, the contractor shall supply drawings of devices to be furnished hereunder as are called for herein or as are required by the Engineer to make clear the details of construction and to demonstrate fully that all materials and equipment comply with the intent and provisions of this contract. Unless otherwise herein specified, such drawings shall be submitted to the Engineer for his review. Should the Engineer take exception with any drawings furnished by the contractor, the contractor shall make the revisions required, and resubmit them to the Engineer for review. After a satisfactory review by the Engineer, these drawings shall become a part of this contract and the work shall be done in conformity therewith. No such work shall be begun or devices purchased until the review of the drawings detailing such items have been completed. The review of the drawings shall not relieve the contractor of responsibility, or waive or modify any of the provisions or requirements of this contract.

The Engineer's review of drawings submitted by the contractor will be for, and will cover, only generally conformity to the plans and specifications and will not constitute a blanket approval of all dimensions, quantities and details of the material or equipment shown by (nor shall review relieve the contractor of his responsibility for errors contained in) such drawings.

All shop drawings submitted by the various subcontractors which require review of the Town's representative shall first be sent to the contractor who shall keep a record of the drawing numbers and the date of their receipt by him. Contractor shall submit the drawings to Town's representative for review in time to prevent delays in delivery of materials.

Contractor shall thoroughly check all such shop drawings for measurements, size of member, materials and details to make sure they conform to the intent of the plans and specifications. Drawings found to be inaccurate or otherwise in error shall be returned by the contractor to the subcontractor for correction before they are submitted by the contractor to the Town's representative for review.

4.10 Additional Drawings by Town - Contract drawings are intended to be comprehensive and to indicate in detail the scope of the work. However, the Engineer may furnish the contractor additional drawings during the progress of the work in order to clarify and define in greater detail the intent of the contract drawings or specifications. Contractor may request such detailed drawings by submitting his request in writing to the Engineer at least two (2) weeks in advance of the time they are required.

4.11 Lines and Grades - All work under this contract shall be constructed to the lines, grades and elevations shown on the contract drawings. Contractor shall establish the lines, grades and elevations unless it is otherwise specified in the Special Provisions.

4.12 Record Documents - The Contractor shall keep at the worksite a record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Directives, Field Orders and written interpretations and clarifications. These record documents together with all approved submittals, samples and shop drawings will be available to the Engineer as a reference at all times. Upon completion of the work, these record documents will be delivered to Engineer.

4.13 Record Drawings - The Contractor shall prepare and update a master "as-built" set of red ink-lined plans, to be reviewed and approved by the Engineer at the end of every month. Drawings shall contain information showing where actual installation differs from that shown on the original drawings, where underground or concealed features are found noting alignment (to 0.25') and elevation (to 0.1' ), field changes or deletions of work, and any additional work by change order. Upon the project's completion, and prior to the project's acceptance, the Contractor shall submit to the Town the completed as-built record Drawings on one (1) set of full size prints prepared on 22" x 34" paper.



Record Drawings are full size drawings (Plans) which marked up during construction to delineate the actual in-place constructed conditions. Record Drawings shall be provided by the Contractor for this Project. Requirements for Record Drawings as specified elsewhere shall supplement the requirements specified herein.

4.14 Reuse of Documents - Neither the Contractor nor any Subcontractor or supplier or other person or organization performing or furnishing any of the work under a direct or indirect agreement with the Town shall have any title or rights to any of the Drawings, Specifications or other documents (or copies thereof) which bear the seal of the design engineer. Such documents shall not be reused on extensions of the project or for any other project without written consent of the Town and the design engineer.

4.15 Subsurface Data – If completed, all soil and soil test data, water table elevations, and soil analyses included or referred to in the Contract Documents apply only at the location of the test holes and to the depths indicated. If completed, soil test reports for test holes which have been drilled are available for inspection at the office of the Engineer. Any additional subsurface exploration shall be done by Bidders or the Contractor at their own expense.

The elevation of the water table indicated by soil test reports is that which existed on the date the test hole was drilled. It is the Contractor's responsibility to determine and allow for the possibility of differing ground water elevations on the date of the project's construction. A difference in elevation between ground water shown in soil boring logs and ground water actually encountered during construction will not be considered as a basis for extra work.

4.16 Right-of-Way – Acquisition of right-of-way or permanent easements necessary for the improvements as shown on the plans will be provided by the Town. Unless otherwise provided, the Contractor shall make his own arrangements, pay for, and assume all responsibility for acquiring, using, and disposing of additional work areas, easements, and temporary facilities required. Contractor shall identify and hold the Town harmless from all claims for damages resulting from such actions.

4.17 Removal of Defective and Unauthorized Work - Should the Contractor deliberately proceed with any portion or phase of construction which is obviously incorrectly indicated in the contract plans or documents, he shall be responsible for any corrective measures required to make adequate repairs or adjustment. This shall include any work done beyond the lines and grades shown on the plans or established by the Engineer, or any extra work done without written authority.

All work that has been rejected shall be remedied or removed and replaced by the Contractor in an acceptable manner and no compensation will be allowed for such removal or replacement. If the Contractor fails to remedy rejected work within ten (10) working days after written demand, the Town may, without prejudice to other remedies, sell such materials at auction or at private sale, or otherwise dispose of such material. The Contractor shall be entitled to the proceeds of such sale, if any, in excess of the costs and damages for which the Contractor is liable to the Town, including reasonable attorneys' fees and expenses and compensation for the Town's services and expenses.

4.18 Acceptance of Defective Work - The Town shall have the option, at its sole discretion and by written notice to the Contractor, to accept defective work instead of requiring its removal or correction, in which case the contract sum shall be reduced by an amount equal to the difference between the value to the Town such work would have were it complete, correct, and in conformity with the Contract Documents and the value to the Town of such defective work. Such option shall be exercised solely by written notice to the Contractor and shall not be implied from any act or omission by the Town or the Engineer. If the remaining payments and retention are insufficient to cover the amount of the reduction of the contract sum, the Contractor shall promptly pay to the Town the amount of any such deficiency.

4.19 Submittals - Within ten (10) working days following the Notice to Proceed, the Contractor shall provide a detailed list for review and approval of all individual submittals required to be submitted under the contract. The list shall reference the specification section and paragraph that requires the submittal along with the date the Contractor plans to transmit the submittal to the Town for review.

Unless otherwise requested by the Engineer, submittals shall be provided electronically in .pdf format at least twenty-eight (28) calendar days prior to the approval being necessary for the work. Submittals shall be transmitted with a Submittal Cover Letter form as approved by the Engineer. Large submittals consisting of reports, oversized or colored pages, full sized shop drawings, manuals contained in binders, or submittals in other forms not easily reproduced shall be provided in hard copy format with six (6) copies.

For items requiring shop drawings, no materials shall be furnished, and no work shall be performed, until the drawings have been favorably reviewed. Shop drawings shall be of a size and scale to clearly show all necessary details.

After review by the Town of each of the Contractor's submittals, the material will be returned to the Contractor marked with actions defined as follows:

- (a) NO EXCEPTIONS TAKEN - Accepted subject to its compatibility with future submissions and additional partial submissions for portions of the work not covered in this submission. Does not constitute acceptance of deletion of specified or required items not shown in a partial submission.
- (b) MAKE CORRECTIONS NOTED - The same as item (a), except that minor corrections as noted by the Town shall be made by the Contractor. No resubmission is required.
- (c) REVISE AND RESUBMIT - Rejected because of major inconsistencies or errors which shall be resolved or corrected by the Contractor prior to subsequent review by the Town.
- (d) REJECTED - Submitted material does not conform to plans and Specifications in major respects. This material is not expected to be resubmitted.
- (e) SUBMIT SPECIFIED ITEM - Submittals not reviewed by the Town but received for record purposes.

Favorable review of the shop drawings by the Engineer is interpreted to mean that there is substantial and acceptable conformance with the contract plans, but details of design may not necessarily be checked for adequacy or accuracy. Such acceptance shall not relieve the Contractor from the responsibility for errors or omissions in the shop drawings or from deviations from the contract documents unless such errors, omissions, or deviations were specifically called to the attention of the Engineer in writing. The Contractor shall be responsible for the correctness of the shop drawings, for shop fits and field corrections, and for the results obtained by the use of such plans.

4.20 Substitutions – Proposed requests by the Contractor for changes in products, materials, equipment, and methods of construction required under the Contract Documents after the award of contract are considered "requests for substitutions." For proposed "or equal" substitutions, attention is directed to General Provision Section 6.03, "Trade Names or Equals."

Each request for substitution shall be prepared and presented to the Town in accordance with the procedures for submittals, except that the following additional information shall be provided.

- (a) An explanation of the advantages to the Town for accepting the substitution.
- (b) A comparison of significant qualities of the proposed substitution with those specified.
- (c) A list of changes or modifications needed to other parts of the work and to construction performed by the Town and separate Contractors, that will be necessary to accommodate the proposed substitution.
- (d) A statement indicating the substitution's effect on the Construction Schedule compared to the Baseline Construction Schedule without acceptance of the substitution. Indicate the effect of the proposed substitution on overall contract time.
- (e) Cost information, including a proposal of the net change, if any, in the Contract Sum.

- (f) Certification that the substitution is equal to or better in every respect to that required by Contract Documents, and that it will perform adequately in application indicated. Include Contractor's waiver of rights to additional payment or time extensions, that may be necessary because of the substitution's failure to perform adequately.

No extension of time will be allowed through failure of the Contractor to either transmit requests for substitution sufficiently in advance of the work, or on account of processing time outside the time limits noted.

4.21 Construction Staking Lines and Grades - Unless otherwise stated in the Special Provisions, the Contractor shall provide, preserve, and replace if necessary, all of the necessary construction stakes required for the construction of the project. Grades for underground conduits will be set on the ground surface and shall then be traNSFerred to the bottom of the trench by the Contractor.

Stakes or marks will be set by a California Licensed Surveyor or a California Registered Civil Engineer to establish the lines and grades required for the completion of the work as specified in the Contract Documents. It shall be the Contractor's responsibility to notify the Engineer of any discrepancies found between field grades and notes shown within the Contract Documents.

Contractor shall furnish horizontal control and cut sheets to the Engineer immediately upon the setting of construction or boundary markers. Upon completion, all work shall conform to the lines, elevations, and grades shown on the plans.

4.22 Inspection of the Work - All work is subject to inspection and approval of the Engineer. Unless otherwise stated in the specifications, the Town shall perform all required inspections. The Contractor shall notify the Engineer before noon of the working day before inspection is required. Unless otherwise authorized, work shall be done only in the presence of the Engineer. Any work done without proper inspection will be subject to rejection. The Engineer shall at all times have access to the work during its construction at shops and yards as well as the project site. The Contractor shall provide every reasonable facility for ascertaining that the materials and workmanship are in accordance with the Contract Documents. Inspection of the work shall not relieve the Contractor of the obligation to fulfill all conditions of the contract.

If a portion of the work is covered contrary to the Engineer's request or direction, or contrary to the requirements of the Contract Documents, it must, if required in writing by the Engineer, be uncovered for the Engineer's observation and be replaced at Contractor's expense without adjustment of the contract time or the contract sum.

If a portion of the work has been covered, which is not required by the Contract Documents to be observed or inspected prior to it's being covered and which the Engineer has not specifically requested to observe prior to it's being covered, the Engineer may request to see such work and it shall be uncovered and replaced by Contractor. If such work is in accordance with the Contract Documents, the costs of uncovering and replacing the work shall be added to the contract sum by change order; and if the uncovering and replacing of the work extends the contract time, an appropriate adjustment of the contract time shall be made by change order. If such work is not in accordance with the Contract Documents, the Contractor shall pay such costs and shall not be entitled to an adjustment of the contract time or the contract sum.

Regular working hours for Town Construction Inspectors are between 7:30 a.m. and 4:00 p.m., Monday through Friday, excluding Town holidays. If the Contractor works outside these times, the Contractor may be charged for additional inspection. Inspection by the Engineer or by a Town inspector, or any order measurement, approved modifications, certificate or payment of money, or acceptance of any part of whole of the work, or any extension of time, or any possession by the Town or its agents, shall not operate as a waiver for any provision of this contract or of any power reserved therein to the Town, or any right to damage thereunder; no breach of this contract shall be held to a waiver of any or subsequent breach. All remedies shall be taken and construed as cumulative.

4.23 Testing - Unless otherwise stated in the Contract Documents, all required testing will either be performed directly by an independent laboratory coordinated and paid for by the Contractor. The Contractor shall submit the resulting certified test results and Certificates of Compliance for all materials requiring such as specified in the Technical Provision. Contractor shall cooperate with the Town in coordinating the necessary testing. The coordination of testing, including the number and location of tests, shall be under the direction of the Engineer. All compaction test sites deeper than five (5') feet below grade shall be properly shored by the Contractor to protect testing personnel.

The cost for performing re-tests due to failures, or additional call-outs if work is not ready to test, will be charged to the Contractor. The Town shall require retesting until all required tests are successfully passed.

## SECTION 5 – CHANGES IN WORK

5.01 Limited Town Authority to Approve Change Orders - The Contractor recognizes that the Town is a public agency and that it can only act through its duly authorized agents. In this regard, the Contractor agrees that only written change orders, executed by the governing body of the Town, shall be valid. The Engineer shall have no authority to issue a change order unless so specifically authorized, and no person shall have authority to issue any oral change order.

5.02 Contractor Liability for Unapproved Change Orders - Unless a valid change order is issued, all changes in the work performed by the Contractor shall be at the Contractor's own risk, and shall not be entitled to any additional compensation. Furthermore, the Contractor may be required to make the work conform to the plans and specifications. No act or series of acts by the Town during the course of the contract shall be deemed to constitute a waiver of the Town's right to rely upon the provisions of this Section 5, "Changes in Work".

5.03 Non-Material Change Requests by the Contractor - Changes in the plans and specifications requested in writing by the Contractor, which do not materially affect the work and which are not detrimental to the work or to the interests of the Town, may be granted to facilitate the work, when approved in writing by the Engineer. If such changes are granted, they shall be made at a reduction in cost or at no additional cost to the Town. Nothing herein shall be construed as granting a right to the Contractor to demand acceptance of such changes or to increase the contract sum or contract time as a result of the proposed change.

5.04 Effect of Extension of Time - The granting of any extension of time due to delays which, in the judgment of the Town, are unavoidable delays shall in no way operate as a waiver on the part of the Town of his rights under this contract.

5.05 Letters of Instruction - The Engineer may issue letters of instruction in the form of Field Orders, Clarifications, responses to Requests for Information, or any other document which makes interpretations or clarifications to the Contract Documents that do not modify the scope of work or involve an adjustment in the contract sum or contract time. Letters of Instruction shall be binding upon the Contractor, and the Contractor shall promptly carry out the requirements of such Letters of Instruction.

5.06 Requests for Information, Inconsistencies and Changed Conditions - Before undertaking each part of the work, the Contractor shall carefully study all pertinent figures shown in the Contract Documents and verify that all applicable field measurements are free of conflicts, errors, discrepancies, inconsistencies and omissions. If such conditions are discovered, the Contractor shall notify the Engineer by writing a Request for Information, and await direction from the Engineer before proceeding.

If the Contractor encounters a changed condition, as defined by one or more of the conditions below, the Contractor shall notify the Engineer by writing a Request for Information before disturbing the condition further.

- (a) Material differing from that represented in the Contract which the Contractor believes may be hazardous waste, as defined by Health and Safety Code, Section 25117 that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provision of existing law; and
- (b) Subsurface or latent physical conditions at the site differing materially from those represented in the Contract Documents; and
- (c) Unknown physical conditions at the site of any unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in the work and of the character provided for in the Contract Documents.

No extension of Contract time shall be made by the Town due to the Contractor's failure to provide a timely written notice of any inconsistency or changed condition requiring direction. The Engineer will respond to the Contractor's Request for Information within three working days, providing an interpretation, clarification or change order for an appropriate adjustment in contract time and cost pursuant to General Provisions, Section 5.07, and "Change Orders". Contractor shall wait for the Engineer's written response to a Request for Information before proceeding with any work.

The Contractor shall not be liable to the Town for failure to report any conflict, error, or discrepancy in the Contract Documents, unless the Contractor had actual knowledge or could foresee such conditions as may be discovered by a reasonable examination of the work site or materials. If the Contractor performs any construction activity in which he knows or should know involves an error, inconsistency, ambiguity, or omission referred to in this Section, without notifying and obtaining the written consent of the Engineer, Contractor shall be responsible for the resultant costs, including, without limitation, the costs of correcting defective work. However, in an emergency affecting the safety of persons or property, the Contractor shall take all reasonably necessary precautions to prevent or minimize damage, injury, or loss.

**5.07 Extra and Omitted Work** - Whenever corrections, alterations or modifications of the work under this contract are ordered and approved by the Engineer and increase the amount of work to be done, such added work shall be known as Extra Work. When such corrections, alterations or modifications decrease the amount of work to be done, such deleted work shall be known as Omitted Work. The General and Special Provisions shall apply with equal force to all extra and omitted work.

When the contractor considers that any changes ordered involve extra or omitted work, he shall immediately notify the Engineer in writing and subsequently keep him informed as to when and where the alleged extra work is to be performed.

When extra work reports are agreed upon and signed by both parties, they shall become the basis of payment. When extra work is still under negotiation or has not been agreed upon, the Contractor shall keep daily detailed and accurate records itemizing each element of cost and shall provide certified payroll, invoices, and other substantiating records and documentation with records and/or claims for compensation to be provided no later than 30 days following the time in which the work claiming to be extra was performed.

Unless notification of extra work is documented, and unless a complete statement of materials used and expenses incurred is furnished by the contractor, the contractor shall not be entitled to payment of such alleged extra work, and any future claims for compensation will be invalid.

Payment for extra work shall be in accordance with General Provisions, Section 5.08 - "Change Orders". Omitted work shall not constitute a claim for damages on account of anticipated profits on the work that may be omitted.

**5.08 Change Orders** – At any time during the progress of the work, and without in any way rendering void the Agreement, the Town may order alterations, additions or deductions from the work by change order, without notice to sureties. When so ordered in writing, the Contractor shall proceed with work as directed by the change order.

The change order shall describe the change in the work, the adjustment of the contract sum (if any), and the adjustment of the contract time (if any). The Contractor shall not be entitled to any extension of time for the completion of the work by virtue of any change order unless the change order specifically provides for this. If, after receiving a change order, the Contractor feels that he is entitled to an extension of time, he may, within five (5) working days file a written claim to that effect for consideration by the Engineer.

The process of submitting a proposed change, a cost proposal, or negotiating an agreed upon change order, or any failure to reach an agreement as to an adjustment in the contract sum or the contract time, shall not relieve the Contractor of his obligation to perform in accordance with the Contract Documents.

A change order may be in the form of a Town directed change order or an agreed upon change order. Upon the receipt of either form of change order, the Contractor shall proceed promptly and diligently with the extra work.

- (a) *Town Directed Change Orders* - A Town directed change order may be issued by the Town without the Contractor's signature where the Town determines that it is in the Town's best interest to proceed with the work, and the change does not materially alter the character of the work. The Contractor shall be deemed to have accepted the terms of any Town directed change order unless the Contractor asserts a claim with respect to the change order, no later than ten (10) working days following the Contractor's receipt of the change order. See General Provisions, Section 5.09, "Disputed Work".
- (b) *Agreed Upon Change Orders* - Within five (5) working days after receiving a request from the Town for a written proposal for an agreed upon Change Order, the Contractor shall provide the Engineer with a cost proposal in a form satisfactory to the Engineer, setting forth the Contractor's proposed adjustments to the contract sum and contract time for performing the extra work.

Compensation for agreed upon change orders shall be calculated based upon the unit prices stated in the Bid Schedule and no additional markup for overhead or profit will be provided unless stated otherwise as follows. If there are no unit prices for the extra work, the Contractor and the Town may agree upon unit prices or lump sum costs, which shall be used to increase or decrease the contract sum. In the absence of any such agreement, the contract sum shall be adjusted by Force Account.

1. *Quantity Adjustments* - Unit prices shall govern not only for alterations to work covered by written specifications and drawings, but also for other work incidental or necessary to completing the work for which written specifications and drawings may be later prepared. Whenever an item of work or materials is specified in the contract by unit price and is changed by less than twenty-five percent (25%) of the Engineer's estimated quantity for that item of work as specified in the Bid Schedule, then the contract sum shall be increased or decreased by the application of the unit price so specified. Whenever an item of work exceeds twenty-five percent (25%) of the Engineer's estimated quantity, the Town reserves the right to renegotiate with the Contractor for the unit price associated with that bid item. This renegotiated price shall apply to only the amount in excess of twenty-five percent (25%). If the Town decides not to renegotiate, or a renegotiated price cannot be reached by the Contractor and the Town, then the payment for this item shall be adjusted by Force Account.
2. *Agreed Upon Price* - If there are no unit prices for proposed extra work, the Contractor and the Town may agree upon unit prices or lump sum costs, by written change order, prior to commencing work. In the absence of any such agreement, the contract sum shall be adjusted by Force Account.
3. *Force Account* - When extra work is to be paid on a force account basis, the labor, materials and equipment used in the performance of that work shall be paid in accordance with the 2018 State Standard Specification, Section 9-1.04 "Force Account." To the total of the direct costs computed, there can be an added markup of up to thirty-five percent (35%) to the cost of labor, up to fifteen-percent (15%) to the cost of materials and up to fifteen-percent (15%) to the cost of equipment. These markups shall constitute full compensation for any and all overhead costs, profit, or other costs not specifically designated as a cost of labor, material or equipment. When subcontractors perform force account work, an additional ten-percent (10%) markup shall be added to the total cost of the extra work to reimburse the Contractor for additional administrative costs. No markup for any Subcontractor beyond the first tier shall be paid.

During the performance of extra work by Force Account, and as a condition to the Contractor's right to an adjustment of the contract sum, the Contractor shall prepare daily reports itemizing all costs for labor, materials, and equipment rental

and provide certified payrolls. For labor costs, the reports shall include names, job classifications, hours worked and rates of pay. For equipment costs, the reports shall include size, type, identification number and hours of operation. All records and reports shall be submitted to the Engineer for approval on a daily basis. Reports shall be made on the State of California, Daily Extra Work Report Form or on a similar form approved by the Engineer.

- i. *Labor* - Labor costs shall be based on the prevailing wage scale for each craft or type of workman, and no compensation shall be allowed for payment in excess of the prevailing wage. Employer payments for payroll taxes and insurance, health and welfare, pension, vacation, and other direct labor costs shall be included and will be calculated as the Labor Surcharge stipulated in the *State of California, Labor Surcharge and Equipment Rental Rates* book.
- ii. *Materials* - Materials cost shall be the cost of all materials purchased by the Contractor and used in the extra work and shall be the actual cost of such materials, including sales taxes, freight and delivery charges. The Town reserves the right to reject materials to be furnished by the Contractor, sources of supply or, if necessary, to furnish the materials to the Contractor. No compensation will be paid to the Contractor for any material furnished by the Town or for materials not used.
- iii. *Equipment Rental* - The Contractor will be allowed the actual rental rate of equipment, prorated over the time the machinery or equipment is required. For Contractor owned equipment, this rate shall be as stipulated in the *State of California, Labor Surcharge and Equipment Rental Rates* book. In addition, the Contractor will be allowed reasonable move-in and move-out charges, if applicable. All equipment shall, in the opinion of the Engineer, be in good working order, good condition, and suitable for its purpose. Equipment or tools having a replacement value of \$200.00 or less, whether or not consumed by use, shall be considered small tools and no payment will be made therefore.
- iv. *Other Services or Expenditures* - The Town may authorize and approve payment for work performed by special forces or necessary services and expenditures other than labor, materials, and equipment rental.

5.09 Disputed Work - When the Engineer and Contractor fail to agree as to whether an alteration ordered by the Engineer constitutes a material change or difference in the character of the work, or fail to agree upon the compensation to be allowed for such altered work, the Contractor shall proceed with the altered work and file with the Engineer, within ten (10) working days after receiving direction from the Engineer, a written protest detailing the particulars of the dispute and the amount of additional compensation or time required for the alteration. Failure of the Engineer to recognize a change in the character of work when ordering alterations shall in no way be construed as relieving the Contractor of the Contractor's duty and responsibility for filing a protest as prescribed above. The Town will not consider additional compensation for altered work unless the Contractor files a written protest within ten (10) working days after receiving direction from the Engineer.

If the Contractor has complied with the notification requirements of this sub-section, consideration of payment due shall be made as later determined through claim resolution procedures as set forth in General Provisions, Section 10, "Measurement and Payment".

Although not to be considered as approval for proceeding under extra work provisions, the Contractor shall keep and furnish records of disputed work in accordance with General Provisions, Section 5.07, "Extra Work".



## SECTION 6 - CONTROL OF MATERIALS

6.01 Materials and Workmanship - All materials, parts and equipment furnished by the Contractor in the work shall be new, high grade, and free from defects. Workmanship shall be in accordance with generally accepted standards. Materials and workmanship shall be subject to the Engineer's approval.

Materials and workmanship not conforming to the requirements of these specifications shall be considered defective and will be subject to rejection. Defective work or material, whether in place or not, shall be removed immediately from the site by the Contractor, at his expense, when so directed by the Engineer.

If the Contractor fails to replace any defective or damaged work or material after notice from the Engineer, the Engineer may cause such work or materials to be replaced. The replacement expense shall be deducted from the amount to be paid to the Contractor.

Used or secondhand materials, parts and equipment are permissible only if permitted by the Special Provisions.

Specialized material or equipment to be used in the work that is not readily available from material suppliers (such as electroliers, luminaries, signal poles, heads, cable, controllers, pumps, etc.) shall be ordered within five (5) days after award of the contract. Time extensions will not be granted for project delays due to the unavailability of such specialized material and equipment unless the Contractor furnishes the Engineer with documentation of purchase order dates, acceptable reason for delay of delivery, or proof of diligent efforts to obtain said items from alternate sources.

The Contractor shall provide the Engineer with periodic reports to inform the Engineer of any changes in the projected material or equipment delivery dates.

6.02 Protection of Work and Materials - The Contractor shall provide and maintain storage facilities and employ such measures as will preserve the specified quality and fitness of materials to be used in the work. Stored materials shall be reasonably accessible for inspection. The Contractor shall also adequately protect new and existing work and equipment for the duration of his contract.

The Contractor shall not, without the Town's consent, assign, sell, mortgage, hypothecate, or remove equipment or materials which have been installed or delivered and which may be necessary for the completion of the contract.

6.03 Trade Names or Equals - Whenever any particular material, process, or equipment is indicated by patent, proprietary or brand name, or by name of a manufacturer, such wording is used for the purpose of facilitating its description and shall be deemed to be followed by the words "or equal". Because products specified may have a uniqueness that can't be matched, the Contractor must "bid" the work based upon the products specified. If, during the submittal process, an equivalent product is proposed by the contractor, the contractor must provide data to show that the product is considered equal. Contractor shall also identify any price differences, which shall be considered as part of the substitution and if accepted, shall result in an appropriate credit or cost to the Town by change order should the substitution be made.

Unless otherwise authorized by the Engineer, the offer must be submitted in sufficient time, before the normal use or installation of the material, process or equipment, for the Engineer to determine the equivalency and for the Contractor to make any required purchases (including delivery).

The Contractor shall, at his expense furnish data concerning items offered by him as equivalent to those specified. The Contractor shall have the material tested as required by the Engineer to determine that the quality, strength, physical, chemical, or other characteristics, including durability, finish, efficiency,

dimensions, service, and suitability are such that the item will fulfill its intended function. Installation and use of a proposed item shall not occur until after approval by the Engineer.

Test methods shall be submitted for approval by the Engineer prior to the test being performed on an item proposed for substitution. Test results shall be reported promptly to the Engineer, who will evaluate the results and determine if the proposed item is equivalent. The Engineer shall determine whether the material offered is equivalent to that specified, and the Engineer's findings shall be final. If a substitute offered by the Contractor is found to be not equal to the specified material, the Contractor shall furnish and install the specified material.

The specified contract completion time shall not be affected by any circumstances developing from the provisions of this Section.

6.04 Inspection of Materials by Town - Unless otherwise specified, inspection may be required at the source for such typical materials and fabricated items as bituminous paving mixtures, structural concrete, metal fabrication, metal casting, welding, concrete pipe manufacture, protective coating application, and similar shop or plant operations.

Standard items of equipment such as electric motors, conveyers, elevators, plumbing fixtures, etc., are subject to inspection at the job site. Special items of equipment such as designed electrical panel boards, large pumps, sewage plant equipment, etc., are subject to inspection at the source, normally only for performance testing. The Special Provisions may specify additional inspection requirements.

6.05 Inspection of Materials by Others - When the Town does not elect to make its own inspection at the source, the Town may, at its expense, engage an inspector or accredited testing laboratory to inspect the materials, equipment or process. The inspector or representative of the testing laboratory shall judge the materials by the requirements of the plans and specifications. No materials or equipment shall be shipped nor any processing, fabrication or treatment of such materials shall be done without a favorable inspection by the engaged agent. These materials shall be subject to re-inspection at the job-site.

6.06 Tests of Materials - Before incorporation into the work, the Contractor shall submit samples of materials, as the Engineer may require, at no cost to the Town. The Contractor, at his own expense, shall deliver the materials for testing to the place, and at the time designated, by the Engineer. Unless otherwise provided by the Special Provisions, all testing shall be performed under the direction of the Engineer, and at no expense to the Contractor.

The Contractor shall notify the Town in writing at least fifteen (15) days in advance of his intention to use materials for which tests are specified, to allow sufficient time for the Town to perform the tests. The notice shall name the proposed supplier and source of material.

6.07 Certification - The Engineer may waive material testing requirements of the Specifications and accept the manufacturer's written Certificate of Compliance or test data demonstrating that the materials to be supplied meet the requirements of the specifications. A Certificate of Compliance is acceptable for authorizing the use of steel pipe in sizes less than eighteen (18) inches and vitrified clay, cast iron or ductile iron pipe in all sizes. All materials used on the basis of a Certificate of Compliance may be sampled or tested by the Town at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve the Contractor of the responsibility for incorporating materials in the work which conforms to the requirements of the Contract Documents.

6.08 Weighing and Metering Equipment - All scales and metering equipment used for proportioning materials shall be inspected for accuracy and certified within the past twelve (12) months by the State of California Bureau of Weights and Measures, by the County Director or Sealer of Weights and Measures, or by a scale mechanic registered with or licensed by the County,

The accuracy of the work by a scale service agency, except as stated herein, shall meet the standards of the California Business and Professions Code and the California Code of Regulations

pertaining to weighing devices. A certificate of compliance shall be presented to the Engineer for approval prior to operation, and shall be renewed whenever required by the Engineer at no cost to the Town.

All scales shall be arranged so they may be read easily from the operator's platform or area. They shall indicate the true net weight without the application of any factor. The figures of the scales shall be clearly legible. Scales shall be accurate to within one-percent (1%) when tested with the plant shut down. Weighing equipment shall be so insulated against vibration or moving of other operating equipment in the plant area such that the error in weighing with the entire plant running will not exceed two-percent (2%) for any setting nor one and one half percent (1.5%) for any batch.

6.09 Calibration of Testing Equipment – Testing equipment, such as but not limited to, pressure gages, metering devices, hydraulic systems, force (load) measuring instruments, and strain-measuring devices shall be calibrated by a testing agency acceptable to the Engineer at intervals not to exceed twelve (12) months, and following repairs, modification, or relocation of the equipment. Calibration certificates shall be provided when requested by the Engineer.

## SECTION 7 – UTILITIES

7.01 Town's Statutory Obligation - Pursuant to Government Code, Section 4215: "in any contract to which a public agency as defined in Section 4401 is a party, the public agency shall assume the responsibility, between the parties to the contract, for the timely removal, relocation, or protection of existing main or trunk line utility facilities located on the site of any construction project that is the subject of the contract, if such utilities are not identified by the public agency in the plans and specifications made a part of the invitation for bids. The contract documents shall include provisions to compensate the Contractor for the costs of location, repairing damage not due to the failure of the Contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the plans and specifications with reasonable accuracy and for equipment on the project necessarily idled during such work. The Contract documents shall include provisions that the Contractor shall not be assessed liquidated damages for delay in completion of the project, when such delay was caused by the failure of the public agency or the owner of the utility to provide for removal or relocation of such utility facilities."

7.02 Contractor's Obligation to Identify and Protect Subsurface Infrastructure - The Contractor shall locate and protect service laterals, conduits, and appurtenances of any underground facility, the presence of which could be reasonably inferred from the Contract Documents or from the presence of visible facilities such as buildings, meters, and junction boxes, prior to doing any work that may damage any such facilities, or interfere with their service. Where underground main distribution conduits, such as water, gas, sewer, electric power, telephone, or cable television are shown on the plans, the Contractor shall assume that every parcel will be served by a service connection for each type of utility. The Contractor shall comply with all requirements for the protection of underground infrastructure as set forth in Government Code, Sections 4215 through 4216.9.

It shall be the Contractor's responsibility to complete all work in a manner that satisfies utility company standards, providing if requested, detailed plans prepared by a California Registered Civil Engineer showing necessary temporary support of utilities during coordinated construction work. The Contractor is directed to contact these agencies before submitting bids and to be familiar with their requirements and shall include all costs of this coordination within the proposals bid prices.

The Contractor agrees to assume liability and to hold the Town of Loomis, its officers, and employees harmless from any damages resulting from the existence of underground utilities and structures not reported to the Engineer, not indicated on the public records examined, or located at variance with that reported or shown on records examined.

7.03 Location - The Town will search known records and indicate on the plans those utilities, except service connections, which may affect the work. All available information regarding removal, relocation, or disconnection of utilities, or installation of new utilities, will be furnished to prospective bidders before the receipt of bids. The Contractor shall immediately report to the Engineer those utilities omitted from the plans or found substantially at variance with the location shown.

If identified, existing and proposed utilities and improvements are shown in their approximate locations. Locations may not have been field verified and no guarantee is made as to the accuracy and completeness of the information shown. The fact that any facility is not shown on the plans shall not relieve the Contractor of his responsibility under this Section. It shall be the Contractor's responsibility to determine the existence and location of utilities shown on the plans, indicated by field locating services, or evidenced by facilities visible in the field. No additional compensation will be allowed for delays incurred as a result of the Contractor's failure to field verify and/or pothole existing utilities prior to beginning construction. Potholing shall be considered as part of the various contract bid items and no additional compensation will be allowed.

At least three (3) working days prior to commencing work, the Contractor shall request that utility and agencies mark or otherwise indicate the location of their substructures. Contractor shall contact Underground Service Alert (USA) at (800) 642-2444 and the Engineer at least forty-eight (48) hours prior to excavation. The location of utilities as shown on the plans are approximate and are not to be construed as certainty. It shall be the Contractor's responsibility to determine the true location and depth of all utilities

and service connections affecting or conflicting with the work, prior to the performance of the work. As necessary, the Contractor shall pothole these utilities prior to working in the area to avoid damage to them. Potholing shall be considered as part of the contract bid items, and no separate payment will be made. Contractor shall familiarize himself with the type, material, age and condition of any utility which may be affected by the work.

7.04 Protection - As necessary or as directed by the Engineer, the Contractor shall field adjust proposed improvements to avoid conflicts with existing improvements. The Contractor shall not interrupt the service function or disturb the supporting base of any utility, without authority from the utility Owner or order from the Town.

Where protection is required to ensure support of existing underground, overhead and at-grade utilities (including their associated structures and service connections) as shown on the plans, the Contractor shall furnish and place the necessary protection at his expense. In case of damage, the Contractor, without additional compensation, shall restore utilities to as good of a condition as they were found.

Upon learning of the existence and location of any utility omitted from or shown incorrectly on the plans, the Contractor shall notify the Town and be fully responsible for protecting such utility. When authorized by the Engineer, additional protection may be paid by change order, for utilities other than a service connection.

The Contractor shall immediately notify the Engineer and the utility owner if he disturbs, disconnects or damages any utility. If the utility is located substantially as indicated on the plans, the Contractor shall bear the costs of repair or replacement.

When placing concrete around or contiguous to any utility, the Contractor shall at his expense, furnish and install a cushion of expansion joint material, clear opening, sleeve, or other suitable material approved by the Engineer so as to prevent embedment or bonding of the utility with the concrete.

7.05 Shut Down Notification – The Town is in-charge of the sewer and storm water collection systems, traffic signals and street lighting system and as such the Contractor shall coordinate shut downs of these utilities and facilities with the Town's Engineer and Public Works Maintenance Department. The Contractor shall also coordinate the shutdown of all other utilities, including, but not limited to water, electricity, gas, communications, or CATV with the corresponding utility owner.

Shut downs of any utility or other facility, when allowed, shall be done only after:

- A. The Contractor has coordinated with and notify the Engineer/Utility Owners in writing, at least seventy-two (72) hours in advance of the shut down, and,
- B. Has properly notified customers (residents, businesses/agencies) emergency response staff, and,
- C. Has all materials required for the work at the job site prior to requesting a shut off.

Except for scheduled shutdowns and in cases of emergency, the Contractor shall notify all customers and effected parties of a shutdown at least forty-eight (48) hours in advance by writing and four (4) hours in advance by person to allow adequate draw time. Once shut down, the Contractor shall proceed with the work in an expedient manner until the water lines or sewer lines are back in service.

7.06 Removal - Unless otherwise specified, the Contractor shall remove all portions of interfering utilities shown on the plans as 'abandoned' or "to be abandoned in place". Before starting removal operations, the Contractor shall ascertain from the utility Owner whether abandonment is complete. The costs involved in the removal and disposal of utilities to be abandoned shall be considered as part of the contract bid items, and no separate payment will be made.

7.07 Relocation - When feasible, the utilities within the area affected by the work will complete their necessary installations, relocations, repairs, or replacements before commencement of work by the Contractor. When the Contract Documents or plans indicate that a utility is to be relocated, altered or

constructed by others, the Town will conduct all negotiations with the utilities and the work will be done at no cost to the Contractor.

Utilities interfering with the permanent project work, discovered after the award of the contract, shall either be relocated, altered, or reconstructed by the utility, or the Engineer may order changes in the work to avoid interference. Such changes will be paid for in accordance with General Provisions, Section 5, "Changes in Work".

When the plans or specifications provide for the Contractor to alter, relocate, or reconstruct a utility, all costs for such work shall be absorbed in the contract bid items. Temporary or permanent relocation or alteration of utilities by the Contractor for his own convenience shall be his responsibility, and he shall make all arrangements, obtain all approvals, and bear all costs. The Contractor may, for his own convenience or to expedite the work, agree with the owner of any utility to disconnect and reconnect interfering service connections. The Town shall not be involved in any such agreement.

7.08 Delays - The Contractor is responsible for notifying utility companies in time to prevent delays attributable to utility relocations or alterations as called for in the Contract Documents. The Contractor shall not be entitled to damages or additional payment if such delay does occur. The Engineer will determine the extent of the delay based on the Baseline Construction Schedule (Section 8.05) and on the project as a whole, and any commensurate extension of time.

7.09 Cooperation - When necessary, the Contractor shall conduct his operations so as to permit access to the worksite and provide time for utility work to be accomplished during the progress of the contract work.

## SECTION 8 – PROSECUTION AND PROGRESS

8.01 Notice to Proceed - Within twenty-one (21) calendar days following receipt of the signed agreement, bonds and insurance, the Town shall issue the Contractor a Notice to Proceed provided that the documents are acceptable to the Town. Unless stated otherwise, the contract time shall commence upon the receipt date on the Notice to Proceed.

8.02 Commencement of Work - Work shall commence within fifteen (15) calendar days following the receipt date on the Notice to Proceed, and shall be diligently prosecuted to completion within the time provided in the Notice to Bidders.

8.03 Subcontracting - Unless otherwise indicated by the Special Provisions, the Contractor shall perform the majority of the project work.

8.04 Administrative Duties - The Contractor shall coordinate the scheduling and timing of administrative duties with other activities to avoid conflicts and to ensure orderly project progress. Such activities include, but shall not be limited to, the preparation of construction schedules, preparation and processing of submittals, requests for information and responding to requests for quotations, attending and preparing for progress meetings and coordinating project closeout activities.

8.05 Baseline Construction Schedule – Within ten (10) calendar days of the Notice to Proceed, the Contractor shall submit to the Engineer an acceptable Critical Path Method (CPM) progress schedule showing the critical path for completing the various items of work within the number of contract days specified. The schedule shall show the order in which the Contractor proposes to carry out the major items of work and the dates on which he will start and finish the various items (including procurement of materials and equipment). If requested, the schedule shall be resource loaded to reflect person/crew hours and equipment loading for various construction activities in order for the Town to better evaluate the proposed schedule.

- (a) *Town Review of Schedule* – The Town may review and note exceptions to the Contractor's schedule, if it is not sufficiently detailed to clearly show the work to be completed during each month to assure the completion of the work within the project duration. The Contractor will be solely and exclusively responsible for resolving any exceptions, and the Town's review will not create any scheduling obligations of the Town. Any noted corrections to the schedule shall be addressed within five (5) working days.
- (b) *Update of Schedule* – After submission of a schedule to which the Town has taken no exceptions, the Contractor shall submit an updated schedule on a monthly basis or as otherwise specified by the Town until completion of the work. The updated schedule must show the "As Constructed" progress up to the date for which the schedule has been prepared and reflect any proposed changes in the method of operations, to achieve the project milestones within the required project duration.
- (c) *Float* – The schedule must show early and late completion dates for each task. The number of days between these dates will be designated as "float". The float will be assigned to the project and available for the Town, at the Engineer's discretion, to allocate the "float" to the Contractor as needed to complete the work in accordance with the agreement.
- (d) *Failure to Submit Schedule* – If the Contractor fails to submit a schedule within the time periods specified in this sub-section, or submits a schedule to which the Town has taken uncorrected exceptions, the Town may withhold payments to the Contractor until such schedule is submitted and/or corrected in accordance with the Contract Documents.

8.06 Three-Week Look Ahead Schedule - The Contractor is required to furnish to the Engineer, on a weekly basis at the project's progress meetings, a three-week look ahead schedule. The schedule

must show planned activities in sufficient detail to allow proper monitoring of the planned construction activities.

8.07 Construction Sequence - The Contractor shall prepare and submit at the pre-construction meeting a staging or phasing plan identifying the sequence of construction work and traffic control needed to complete the project. The staging plan shall be subject to review and approval by the Engineer, prior to the start of construction. The goal of the phasing plan will be to minimize impacts to surrounding businesses and residents in the project areas. When required by the Special Provisions or plans, the Contractor shall follow the sequence of operations as set forth therein.

8.08 Recording Existing Conditions - Existing conditions throughout the project site shall be photographed and/or videotaped by the Contractor before starting construction. Recording shall include and show every detail of existing improvements, including the current condition of the curb, gutter, sidewalk, signs, landscaping, streetlights, structures near the project including face of buildings, canopies, shades, fences and any other features within the limits of work. Photos and/or videotape shall be delivered to the Engineer at the pre-construction meeting.

8.09 Preconstruction Conference - The Town shall designate a date and time for the pre-construction conference once the contract has been fully executed. At the pre-construction conference, the Town shall discuss various administrative procedures and project coordination issues. At a minimum, the Contractor should be prepared to furnish and discuss the following:

- (a) Letter designating the Superintendent.
- (b) A list of key personnel and emergency contact information including telephone numbers to be used in case of emergency
- (c) Sequence or phasing plans identifying the phasing of construction work and any alternative sequences for consideration.
- (d) Traffic control plans associated with the staging plans (to be signed and stamped by a Licensed Traffic Engineer).
- (e) A draft of the master Baseline Construction Schedule, in Critical Path Method (CPM) format (to be finalized no later than ten (10) days after the Notice to Proceed).
- (f) A breakdown of lump sum bid items to be used as a basis for determining the value of work completed on future progress payments.
- (g) A submittal schedule listing all project submittals that will need to be reviewed and a listing of proposed material suppliers.
- (h) Utility company coordination and/or permit issues.
- (i) Videotape and/or photography of the project's existing condition (to be completed prior to starting construction).
- (j) Anticipated cash flow projections, if requested by the engineer.

8.10 Progress Meeting - The Contractor, Job Superintendent and Subcontractors, if requested by the Town, shall attend weekly progress meetings to be scheduled by the Engineer at a time agreeable to both the Engineer and the Contractor. Contractor shall also attend special meetings in addition to regular progress meetings if necessary and directed by the Engineer.

8.11 Hours of Construction - Construction activities shall be limited to the hours of 8:00 a.m. to 6:00 p.m., unless otherwise noted or further restricted in the Contract Documents, or as directed by the Engineer. No work shall be done on weekends, holidays or outside these specified hours, unless otherwise approved by the Engineer. The Contractor shall take into consideration and coordinate time constraints for special events or activities organized by the Town or other agencies. No mechanical equipment, including hauling or deliveries by trucks, shall start before 8:00 a.m. and all equipment must shut down before 6:00 p.m. unless approved by the Engineer.



8.12 Prosecution of Work - To minimize public inconvenience and possible hazards and to restore the streets and other work areas to their original condition and former state of usefulness as soon as practicable, the Contractor shall diligently prosecute the work to completion. If, in the Engineer's opinion the Contractor fails to prosecute the work to the extent that the above purposes are not being accomplished, the Contractor shall, upon orders from the Engineer, immediately take the steps necessary to fully accomplish said purposes. All costs for prosecuting the work as described herein shall be absorbed in the Contractor's bid. Should the Contractor fail to take the necessary steps to fully accomplish said purposes, after orders of the Engineer to do so, the Engineer may suspend the work in whole or in part, until the Contractor takes said steps. With or without such suspension, the Engineer may cause such steps to be taken by force account or by other means at the Contractor's expense.

8.13 Suspension of Work - Work may be stopped or suspended in whole or in part for up to ninety (90) days when, in the Engineer's opinion, the suspension is necessary and in the interest of the Town. The Contractor shall immediately comply with any written order of the Engineer suspending work. Such Town directed suspension shall be without liability to the Contractor on the part of the Town. Suspended work shall be resumed upon written order of the Engineer. An extension of contract time equal to the period of suspension shall be issued to the Contractor by change order. Any claim by the Contractor for an adjustment of the contract sum or the contract time shall be made within ten (10) working days after the end of the work suspension.

If work is suspended through any fault of the Contractor, all expenses and losses incurred by the Contractor during such suspensions shall be borne by the Contractor. If the Contractor fails to properly provide for public safety, traffic, and protection of the work during periods of suspension, the Town may elect to do so, and shall deduct the cost thereof from monies due the Contractor. Such action will not relieve the Contractor from any liability.

8.14 Default by the Contractor and Termination of Control - As a result of any of the following events, the Contractor shall be deemed to be in default:

- (a) If the Contractor is in bankruptcy or makes a general assignment for the benefit of creditors, or
- (b) If the Contractor fails to make prompt payment to subcontractors for labor or materials, or
- (c) If a receiver is appointed on account of the Contractor's insolvency, or
- (d) If the Contractor fails to provide enough properly skilled workmen or enough materials to insure compliance with the construction time schedule, or
- (e) If the Contractor fails to perform any portion of the work within the timing requirements of the Contract Documents, or abandons the project site, or
- (f) If the Contractor disregards instructions from the Engineer or violates any provision of the contract, or
- (g) If the Contractor fails to replace or repair any damage caused by the Contractor or its agents, representatives, contractors, subcontractors, or employees in connection with the performance of the work, or
- (h) If the Contractor violates any legal requirement related to the work.

In case of default, the Town may give written notice to the Contractor and the Contractor's bonding agent that if the default is not remedied within ten (10) calendar days or the Contractor does not provide adequate written assurance to the satisfaction of the Engineer that the cure will be forthcoming, the Contractor's control over the work may be terminated as of the date specified in the written notice.

Upon such termination of control the Town may enter upon and take possession of the entire work and may also take possession, for the purpose of completing the work, of all of the Contractor's tools, equipment and appliances upon the work, and all materials on the site or stored off-site for incorporation into the work. The Town may, at its sole option and without further notice to anyone, complete the work by

day labor, by contract entered into by negotiations, by competitive bidding, by calling upon the performance of the performance bond surety, or by other means as the Town, in its discretion, shall elect.

After termination of the Contractor's control over the work as herein provided, the Contractor shall not be entitled to any further payments under the contract until the entire work thereunder has been fully completed and finally accepted by the Town. After such completion and acceptance, if the "unpaid balance of the contract price" (as defined in the next paragraph) exceeds the sum of the amounts expended by the Town in taking over and completing the work, including all managerial and administrative expense incurred by the Town on account thereof and the amount of all damages incurred by the Town by reason of the Contractor's default, such excess shall be paid to the Contractor. If the said amount expended exceeds the unpaid balance, the Contractor and his surety shall be liable to the Town for the difference. At the Contractor's request, the expense incurred by the Town in taking over and completing the work, and the amount of any damage incurred by the Town by reason of the Contractor's default shall be audited and certified by an independent third party, whose certificate thereof shall be binding and conclusive upon the parties.

For the purposes of the computations required by the paragraph above, the "unpaid balance of the contract price" shall be the original contract price as adjusted by any change orders issued prior to termination of the Contractor's control, less all payments made on account thereof prior to such termination, and less any and all amounts withheld or paid pursuant to stop notices filed with the Town upon claims of subcontractors or others from equipment, labor or materials furnished to the work on behalf of the Contractor.

Upon completion and acceptance of the work, the Contractor shall be entitled to the return of all materials not used in the work, but without claim against the Town for loss or damage with respect thereto, and shall be entitled to the return of all his equipment, tools and appliances taken possession of by the Town, but without claim against the Town for any charge for the use thereof or for usual and ordinary depreciation and wear and tear.

The exercise of remedies provided for in this sub-section, for default by the Contractor, shall be in addition to, and shall not be deemed a waiver by the Town of any other rights or remedies due the Town under the contract provisions, for default by the Contractor.

8.15 Contractor's Right to Stop Work or Terminate Contract – The Contractor may give written notice to the Engineer of intention to stop work or terminate the Agreement, or both if the work should be stopped by order of any court or other public authority, through no act, omission or fault of the Contractor or any Subcontractor, agent or employee of the Contractor, and such work stoppage under such order shall continue for thirty (30) consecutive days from the effective date of such order

If, after the Contractor provides notice to the Town of any of the above defaults, the Town does not remedy the default within ten (10) calendar days, the Contractor may stop work and may give the Town written notice of contract termination. The Contractor may then recover from the Town payment for all work executed to date and any loss sustained upon any equipment or materials procured for the work prior to the work stoppage. No compensation for loss of anticipated profits will be provided, however, on work not completed. The Contractor's right to recovery shall be subject, however, to the duty of the Contractor to mitigate all loss or damage so far as reasonably possible.

8.16 Town's Right to Terminate Contract – The Town may, at its option, terminate the Agreement, in whole or from time to time in part, at any time by giving notice to the Contractor. Upon such termination, the Contractor agrees to waive any claims for damages, including loss of anticipated profits, on account thereof; and, as the sole right and remedy of the Contractor, the Town shall pay the Contractor in accordance with this sub-section. Upon termination, the obligations of the Contractor for portions of the work already performed shall continue.

- (a) Upon receipt of a Notice of Termination, the Contractor shall, unless the notice directs otherwise, do the following:
  - 1. Immediately discontinue the work to the extent specified in the notice.

2. Place no further orders or subcontracts for materials, equipment, services, or facilities, except as may be necessary to complete such portion of the work that are not to be discontinued.
  3. Promptly cancel, on the most favorable terms reasonably possible, all subcontracts to the extent that they relate to the performance of the discontinued portion of the work.
  4. Thereafter do only such work as may be necessary to preserve and protect the work already in progress and to protect materials, plants, and equipment on the project site or in transit thereto.
- (b) Upon such termination, the Town shall pay to the Contractor as a sole and exclusive remedy for the termination, the sum of the following, and the Contractor will be entitled to no other compensation or damages, and expressly waives same:
1. The amount of the contract amount allocated to the portion of the work properly performed by the Contractor as of the date of termination, less sums previously paid to the Contractor, plus
  2. Previously unpaid costs of any items delivered to the project site which were fabricated for subsequent incorporation in the work, plus
  3. Any proven losses with respect to materials and equipment directly resulting from such termination, plus
  4. Reasonable demobilization costs in excess of what would have been incurred if work were not terminated, plus
  5. Reasonable costs for preparing a statement of the aforesaid costs, expenses, and losses in connection with such termination.

The Town may terminate the Agreement at its own discretion or when conditions encountered during the work make it impossible or impracticable to proceed, or when the Town is prevented from proceeding with the Agreement by act of God, by law, or by official action of a public authority.

8.17 Time of Completion and Days Charged - The Contractor shall diligently prosecute and fully complete the work within the number of calendar or working days set forth in the Notice inviting Sealed Proposals or shall be subject to liquidated damages. Time is of the essence in the performance of all obligations under the Contract Documents, and all timing requirements shall be strictly adhered to unless otherwise modified by the Town. See General Provisions, Sections 8.12, "Prosecution of Work", and 8.18, "Liquidated Damages".

Under a calendar day contract, Town observed holidays and inclement weather delays are to be anticipated and unless there is a deviation from what is customary for the time of year the project is under construction, no additional days will be granted. Every day, including holidays, Saturdays and Sundays shall be counted as a day charged under a calendar day contract.

Under a working day contract, the Contractor will be given credit for Town observed holidays and inclement weather delays, in accordance with the State Standard Specifications. Should the Contractor prepare to begin work at the regular starting time in the morning of any day on which inclement weather, or the conditions resulting from the weather prevents the work from beginning at the usual starting time and the crew is dismissed as a result thereof and the Contractor does not proceed with at least seventy-five percent (75%) of the normal labor and equipment force engaged in the current controlling operations for at least sixty percent (60%) of the total daily time being currently spent on the controlling operations, the Contractor will not be charged for a working day whether or not conditions should change thereafter.

8.18 Liquidated Damages - The Town and the Contractor, by execution of the agreement, each agree that time is of the essence in the performance of the work, and that actual damages for inconvenience and loss from any delay in completion of the contract beyond the date provided in the Notice to Bidders is extremely difficult or impossible to determine.

The Town and the Contractor further agree, as specified in the Notice to Bidders, that liquidated damages shall be assessed for each and every calendar day required to complete the contract in excess of the contract time established for the project, and that the amount stated therein is a reasonable estimate of the amount of such damages. The Engineer may deduct any liquidated damages owed to the Town, as determined by the Engineer from any payments otherwise payable to the Contractor under this agreement.

Separate from the above-mentioned liquidated damages, the Contractor shall be responsible for paying all damages incurred by private businesses (residential, commercial or industrial), schools and hospitals due to non-completion of the project by the date specified.

Nothing contained herein shall limit the Town's rights or remedies against Contractor for any default other than failure to complete the work within the contract time. This provision for liquidated damages shall not be applicable nor act as a limitation upon the Town if the Contractor abandons the work. In such event, the Contractor shall be liable to the Town for all losses incurred.

The date of the Engineer's Certificate of Substantial Completion shall be the termination date, if applicable, of liquidated damages.

#### 8.19 Delays and Extensions of Time

(a) *Excusable Delays* - shall mean delays in the prosecution or completion of the work which result from causes beyond the control of the Contractor and Town and which could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor, suppliers, or any tier of the Contractor's subcontractors. Excusable Delays fall into the following categories:

1. Abnormal Delays – Excusable Delays caused by acts of god, fire, unusual storms, floods, tidal waves, earthquakes, strikes, labor disputes, freight embargoes, and shortages of materials insofar as they prevent the Contractor from proceeding with at least seventy-five percent (75%) of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical path activity.
2. Weather Delays – Excusable Delays due to inclement weather conditions or the conditions resulting from weather prevent the Contractor from proceeding with seventy-five percent (75%) of the normal labor and equipment force engaged in the current critical activity item for a period of at least five (5) hours per day toward completion of the current critical path activity.
3. Material Shortage Delays – Excusable Delays due to shortages of material, provided that the Contractor submits satisfactory proof to the Engineer. For the proof to be satisfactory, the Contractor must demonstrate that he has made every effort to obtain the materials from all known sources within reasonable reach of the proposed work. Only the physical shortage of material, caused by unusual circumstances, will be considered under these provisions as an excusable delay, and no consideration will be given to any claim that material could not be obtained at a reasonable, practical, or economical price, unless it is shown to the satisfaction of the Engineer that such material was only available at exorbitant prices. A material shortage delay will not be considered for material ordered or delivered late or for material whose availability is affected by virtue of mishandled procurement. The above provisions shall apply equally to equipment to be installed in the work.

(b) *Compensable Delays* - shall include delays that occur in the prosecution or completion of the work, through no fault of the Contractor which prevent the Contractor from proceeding with at least seventy-five percent (75%) of the normal labor and equipment force for at least five (5) hours per day toward completion of the current critical activity item(s) on the latest favorably reviewed progress schedule due to the following causes:

1. Delays due solely to the actions and/or inactions of the Town.

2. Delays due to changed conditions as defined in General Provisions, Section 5.05, "Requests for Information, Inconsistencies and Changed Conditions".
  3. Delays due to other Contractors employed by the Town who interfere with the Contractor's prosecution of the work as defined above.
- (c) *Inexcusable Delay* - means any delay in the completion of the work beyond the expiration of the contract time resulting from causes other than Excusable Delays or Compensable Delays. An Inexcusable Delay shall not entitle the Contractor to an extension of the contract time or an adjustment of the contract sum. In addition to liquidated damages for inexcusable delays, the Contractor agrees to pay the Town's actual costs, including charges for engineering, inspection and administration incurred during the delay.
- (d) *Concurrent Delays* - those periods of delay when the prosecution of the work is delayed during the same period of time due to causes from a combination of the delays defined as Excusable, Compensable or Inexcusable.

If the Contractor desires an extension of time, he shall file a written request based upon the delays reported. The Engineer will ascertain the facts, the extent of the delays, and the effect upon the entire project, and the Town will grant an extension of time equivalent to verified time lost. The request for an extension of time must be made no later than ten (10) working days after the start of the condition that purportedly caused the delay, and no later than fifteen (15) working days after the date on which performance on the condition purportedly causing the delay has ended.

Contractor may make a delay claim for an extension of the contract time for an Excusable Delay or a Compensable Delay. If an Excusable Delay and a Compensable Delay occur concurrently, the maximum extension of the contract time shall be the number of calendar days from the commencement of the first delay to the cessation of the delay which ends last. If an Inexcusable Delay occurs concurrently with either an Excusable Delay or a Compensable Delay, the maximum extension of the contract time shall be the number of calendar days, if any, by which the Excusable Delay or the Compensable Delay exceeds the Inexcusable Delay.

For a Compensable Delay, the Contractor may make a delay claim for an adjustment in the contract sum in an amount equal to the sum of the actual and unavoidable additional costs of labor, material, and equipment furnished at the site by the Contractor or subcontractors, including wages, salaries, fringe benefits and payroll taxes.

Extensions of time, when granted, will be based upon the effect of delays to the project as a whole and will not be granted for non-controlling delays to minor portions of the work unless it can be shown that such delays did, in fact, delay the progress of the project as a whole. For purposes of determining delays, all float associated with the project schedule shall belong to the project. See General Provisions, Section 8.05, "Baseline Construction Schedule".

If delays are caused by unforeseen events beyond the control of either the Contractor or the Town, such delays will entitle the Contractor to an extension of time as provided herein, but the Contractor shall not be entitled to damages or additional payment due to these delays. War, governmental regulations, labor disputes, strikes, fires, floods, adverse weather necessitating cessation of work, other similar action of the elements, inability to obtain materials, equipment, or labor because of Federal Government restrictions arising out of National Defense, required extra work, action or inaction by the Town, or other specific reasons as may be further described in the specifications may constitute such a delay. If delays beyond the Contractor's control are caused by reasons other than those mentioned above, but are substantially equal in gravity to those enumerated, an extension of time may be granted, if deemed by the Engineer to be in the best interests of the Town.

The Contractor shall be entitled to an extension of time if delayed due to a failure of the Town to furnish necessary right-of-way or materials which the Town agreed to furnish, or by the Town's failure to supply necessary plans or instructions concerning the work, after written request by the Contractor.

For Compensable Delay periods resulting in indirect overhead expenses, the Contractor shall be reimbursed as provided for in General Provisions, Section 5, "Changes in Work".

8.20 Substantial Completion – When work in accordance with the Contract Documents has progressed to a stage of one-hundred percent (100%) complete, as determined by the Engineer, except for the completion of minor punch list items of deficiencies or omissions in the work which require correction in order to satisfy the agreement, yet do not impair the Town's ability to occupy and fully utilize the work for its intended purpose, the project shall be deemed "Substantially Complete". Portions of the work may also be designated by the Town as substantially complete if the Contract Documents require separate delivery.

When the Engineer determines that the work or such designated portions of the work are substantially complete, the Engineer will prepare and sign a Certificate of Substantial Completion. The date of substantial completion shall establish the date at which days charged against the project duration shall terminate. The date of substantial completion shall also establish the date of occupancy by the Town and the traNSFer of responsibility from the Contractor to the Town for such items as security, maintenance, heat, utilities, insurance, and damage to the work from causes other than that of the Contractor. Unless otherwise indicated in the Certificate of Substantial Completion, the Contractor's guarantee for the work shall commence upon the date of substantial completion. See General Provisions, Section 11.01, "Contractor's Guarantee".

8.21 Project Closeout - After the Contractor has received the Certificate of Substantial Completion and has only minor work remaining, project closeout may begin. The following items and procedures are required as part of the project close out process.

- (a) Following the completion of punch list items, the Contractor shall make a written request to the Town to conduct a final inspection. The written request shall be accompanied by a Certification that the work has been performed in accordance with the Contract Documents.
- (b) Within fourteen (14) days of receipt of the Contractor's Certificate of Completion, a final inspection will be scheduled and conducted by the Town. As a result of the inspection, the Town will advise the Contractor of any work that must be completed or corrected before Acceptance, in the form of a punch list.
- (c) The Town will conduct a re-inspection of the punch list items within when requested by the Contractor, in writing, with assurances that the punch list requirements have been met. Any charges by a Consulting Engineer/Architect hired by the Town to do repeat re-inspection of the punch list may be recovered from the Contractor.
- (d) The contractor shall provide a final payment request with lien releases (if applicable) in a format acceptable to the Town.
- (e) The as-built drawings and all record documents and shall be provided to the Town by the Contractor including but not limited to, equipment operation and maintenance manuals, copies of warranties, shop drawings, product data, etc. Record documents shall be properly identified and organized into binders.

8.22 Final Completion - After the Contractor has received the Certificate of Substantial Completion along with the punch list, and has completed the items identified as necessary for project closeout, the Engineer will make a determination as to if the work is fully completed and in accordance with the Contract Documents. If so, the Engineer will recommend final acceptance to the Town Council.

Should it become necessary, due to developed conditions, for the Town to occupy any portion of the work, or any part of any structure or equipment, before the contract is completed or accepted, such occupancy shall not constitute an acceptance of any part of the work, unless so stated in writing by the Town.

8.23 Final Acceptance – Final acceptance by the Engineer will be considered after the work has been fully completed. A Notice of Completion will be filed with the County Recorder once Final Acceptance has been made.

8.24 Risk of Loss - The Contractor shall be responsible for the charge, care and protection of the project and shall bear all risks of injury or damage to the work, materials or equipment delivered to the site, by any means including fire, earthquake, wind, storm or other action of the elements, vandalism, or loss by theft, from the date of Notice to Proceed to the date of the filing of the Notice of Completion by the Engineer. The Contractor shall rebuild, repair, restore and make good all injuries or damage to any portion of the work, and shall bear the entire expense thereof, except such injuries or damages that are caused by riot, insurrection, acts of the Federal or State Government, or a public enemy in time of war.

8.25 Use of Improvements During Construction - The Town reserves the right to take over and utilize all or part of any completed facility or appurtenance. Such action by the Town will not relieve the Contractor of responsibility for injury or damage to said completed portions of the improvement resulting from use by public traffic, from the action of the elements or from any other cause attributable to the Contractor's operations or negligence. The Contractor will be required to restore such portions of the improvement before final acceptance. Nothing in this Section shall be construed as relieving the Contractor from full responsibility for correcting defective work or materials.

## **SECTION 9 —RESPONSIBILITIES OF THE CONTRACTOR**

9.01 Contractor's Responsibility for the Work - The Contractor shall supervise, coordinate, and direct the work using Contractor's best skill and attention. Contractor shall have control over and be solely responsible for construction means, methods, techniques, sequences, procedures, and the coordination of all portions of the work in accordance with the terms of the Contract Documents until the completion and final acceptance of the work by the Town. The Contractor shall furnish and maintain in good condition all equipment and facilities as required for the proper execution and inspection of the work. Such equipment and facilities shall meet all requirements of applicable ordinances and laws.

The Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erections and repairs occasioned or rendered necessary by causes of any nature whatsoever, excepting only acts of God and none other, to all or any portions of the work, excepting as otherwise stipulated.

9.02 Contractor's Responsibility for Subcontracted Work - The Town will deal directly with, and make all payments to the Contractor only. The Contractor shall be responsible for the coordination of all trades, subcontractors, and suppliers engaged upon the work. Neither the Town nor the Engineer will undertake to settle any differences between the Contractor and his subcontractors.

All persons engaged in the work, including subcontractors, will be considered as employees of the Contractor. The Contractor will be held responsible for their work and shall be responsible to the Town for acts and omissions including those by their respective agents and employees.

When subcontracted work is not prosecuted in a manner satisfactory to the Engineer, the Contractor shall be notified to take corrective action within a specified time. If timely correction is not made, then upon receipt by the Contractor of written instructions from the Engineer, the Subcontractor shall be removed immediately from the work and shall not be reemployed.

9.03 Superintendent - The Contractor shall employ, and provide a written letter designating a superintendent and/or representative and all their contact information. The superintendent and/or representative shall be present on the job site whenever work is in progress to coordinate all work with the Town and neighboring property owners, and who shall be available by phone twenty-four (24) hours per day, seven (7) days a week up to the Final Acceptance of the work by the Town. A backup representative may also be provided. A joint venture shall designate only one Superintendent.

Town approval of the Superintendent is required prior to starting work. The Town reserves the right to request an appropriately qualified replacement of the Superintendent any time during construction of the project. Contractor shall provide the Engineer with the Superintendent's telephone number, along with an after-hours emergency contact number of a responsible person who shall correct hazardous situations, should they occur, during times other than the normal working hours.

Directions and information given to the Superintendent shall be considered as having the same effect as if delivered to the Contractor and the Superintendent shall have full authority to execute the same and to supply materials, tools and labor without delay, and who shall be the legally appointed representative of the contractor. Contractor shall be liable for the faithful observation of any instructions delivered to him or to his appointed representatives.

9.04 Character of Workers - Contractor shall provide competent, fully qualified personnel to perform the work and shall at all times maintain good discipline and order among its employees and Subcontractors. Any employed person or Subcontractor who is found to be incompetent, intemperate, troublesome, disorderly or otherwise objectionable or who fails or refuses to perform his work properly and acceptably, shall be immediately removed from the work by the Contractor and shall not be reemployed. Such discharge shall not be the basis of any claim for compensation or damages against the Town of Loomis or any of its officers, employees or agents.



9.05 Laws to be Observed - The Contractor shall keep himself fully informed of, and at all times observe and comply with all Federal, State and County laws, including those of CAL-OSHA; all municipal ordinances and regulations of the Town of Loomis; and all orders and decrees of bodies having jurisdiction over the work. The Contractor shall also cause all agents and employees engaged on the project to observe and comply with all such laws, and shall protect and indemnify the Town of Loomis and all officers, employees, and agents thereof connected with the work against any claim or liability arising from or based on the violation of any such law

- (a) *Non-Discrimination* – Attention is directed to Labor Code, Section 1735 which reads as follows: “No discrimination shall be made in the employment of persons upon public work because of the race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status or sex of such persons, except as provided in Government Code, Section 12940 and every Contractor for public works violating this Section is subject to all the penalties imposed for a violation of this chapter.”
- (b) *Alien Labor* - The Contractor shall forfeit as penalty to the Town of Loomis fifty dollars (\$50.00) for each alien with no permit to work in the United States of America (USA) knowingly employed in the contract, by him or by any Subcontractor under him upon any of the work herein mentioned, for each calendar day, or portion thereof, during which such alien is permitted or required to labor in violation of the provisions of the Labor Code and in particular Sections 1850 to 1854 thereof, inclusive.
- (a) *Hours of Labor* – Hours of labor shall be pursuant to Labor Code, Sections 1810. Pursuant to Labor Code, Sections 1813, Contractor shall forfeit to the Town, as a penalty, twenty-five dollars (\$25.00) for each worker employed in the execution of this Agreement by Contractor, or any Subcontractor in violation of the terms of this Section or in violation of the provision of any law of the State of California. Such forfeiture amounts may be deducted from the contract sum. Contractor and each Subcontractor shall keep, or cause to be kept, an accurate record showing the actual hours worked each calendar day and each calendar week by each worker employed on the project, which record shall be kept open at all reasonable hours to the inspection of the Town, its officers and agents, and to the inspection of the appropriate enforcement agency of the State of California.
- (d) *Prevailing Wage* – As identified in the Notice to Bidders, the work contemplated by this agreement is a public work subject to prevailing wages under California Labor Code, Sections 1720 et. seq. The State of California Department of Industrial Relations has ascertained the general prevailing per diem wage rates in the locality in which the work is to be performed for each craft, classification, or type of worker required to perform the work. A schedule of the most recent general prevailing per diem wage rates made available to the Town will be on file at the Town’s principal facility office and will be made available to any interested party upon request. This prevailing wage rate schedule is provided by the Town for Bidder’s information only and is not guaranteed by the Town to be current. Contractor is obligated to verify all appropriate prevailing wage rates and pay those rates as required. By this reference the verified current schedule of prevailing wage rates is made part of the Contract Documents. Contractor shall pay not less than the prevailing per diem wage rates, as specified in the schedule and any amendments thereto, to all workers employed by Contractor in the execution of the work. Contractor shall cause all subcontracts to include the provision that all Subcontractors shall pay not less than the specified prevailing per diem wage rates to all workers employed by such Subcontractors in the execution of the work.

Contractor shall forfeit to the Town, as a penalty, no more than fifty-dollars (\$50.00) for each calendar day or portion thereof for each worker that is paid less than the specified prevailing per diem wage rates for the work or craft in which the worker is employed for any portion of the work done by Contractor or any Subcontractor in violation of the provisions of the Labor Code, and in particular Sections 1770 to 1781 thereof, inclusive. Such forfeiture amounts may be deducted from the contract sum. Contractor shall also pay to any worker who was paid less than the specified prevailing per diem wage rate for the work or craft for which the worker was employed for any portion of the work, for each calendar day, or portion thereof, for which the worker was paid less than the specified

prevailing per diem wage rate, an amount equal to the difference between the specified prevailing per diem wage rate and the amount which was paid to the worker.

The Town will not recognize any claim for additional compensation because of the payment by the Contractor for any wage rate in excess of prevailing wage rates set forth in the Agreement, including payment in excess of the prevailing wage for extra work paid by force account. The possibility of wage increases is one of the elements to be considered by the Contractor in determining the Contractor's bid and will not, under any circumstances be considered as the basis of a claim against the Town under the Agreement.

- (e) *Payroll Records* - Pursuant to Labor Code, Sections 1776, Contractor and all Subcontractors shall keep an accurate payroll record, showing the name, address, social security number, job 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. All payroll records shall be certified as being true and correct by Contractor or Subcontractors keeping such records; and the payroll records shall be provided to the Town no later than three weeks after closing of payroll. Certified payroll shall also be made available for inspection upon request by the State of California Division of Labor Standards Enforcement, or the Division of Apprenticeship Standards of the State of California Division of Industrial Relations.
- (f) *Apprentice Program* - Attention is directed to State of California Labor Code, Sections 3095, 1777.5, 1777.6, and 1777.7 and Title 8, California Code of Regulations, Section 200, and the applicable Sections that follow. Responsibility for compliance with these requirements lies with the Contractor. To ensure compliance and complete understanding of the law requiring apprentices, and specifically the required ratio thereunder, Contractor or Subcontractors should, where some question exists, contact the Division of Apprenticeship Standards, 425 Golden Gate Avenue, 4<sup>th</sup> Floor, San Francisco, California, 94102 or one of its branch offices prior to commencement of the work. In the event Contractor willfully fails to comply with this Section, it will be considered in violation of the requirements of the Contract.

Nothing contained herein shall be considered or interpreted as prohibiting or preventing the hiring by Contractor or Subcontractors of journeyworker trainees who may receive on-the-job training to enable them to achieve journeyworker status in any craft or trade under standards other than those set forth for apprentices.

- (g) *Safety Program* – the Contractor shall conform to the rules and regulations pertaining to safety established by the California Division of Industrial Safety and to all requirements as set forth in the State of California Construction Safety Orders (CAL-OSHA), and in particular, Article 3 of these Safety Orders, regarding Accident Prevention and safety meetings. Within ten (10) working days following the Notice of Award the Contractor shall provide a copy of the Contractor's Safety Plan. The price paid for the plan is included in the various contract items of work and no additional compensation will be made therefore.

9.06 Permits and Fees – Unless otherwise stated in the Special Provisions, the Contractor shall procure all permits, registrations and licenses, including a Town business registration, pay all charges and fees, and give all notices necessary for lawful prosecution of the work. All permits, registrations, licenses, and other authorizations shall be secured in sufficient time to prevent delays to the work. The Contractor shall comply with the provisions of said permits, licenses and other authorizations. The contractor shall submit satisfactory proof to the Town, prior to issuance of the Notice to Proceed, that such permits, registrations or licenses are and will be in effect throughout the entire life of this contract. The contractor shall keep all permits, registrations and licenses posted on the job site.

For Town Capital Improvement Construction Projects, the Contractor shall obtain a "No Fee" encroachment and/or building permit. Contractor shall coordinate through the Engineer to insure that all appropriate construction inspections occur.

9.07 Coordination and Cooperation - Construction work by utility companies or other Contractors may be needed or may be occurring simultaneously within or adjacent to the limits of work for this project.

The Contractor shall coordinate and cooperate with all other Contractors and utility companies throughout the duration of this project to avoid delays and minimize interference and conflicts. Cooperation will be required in the arrangement for the storage of materials, and in the detailed execution of the work. It is the Contractor's responsibility to ascertain the nature of work by others, coordinate his work, and install, modify, and maintain traffic control as necessary to avoid interferences and delays on the construction activities. Failure of the Contractor to keep informed of the work progressing on the site and failure to give written notice of lack of progress or defective workmanship by others shall be construed as acceptance by the Contractor of the status of the work as being satisfactory for proper coordination with his own work.

Where the work of one trade joins or is on the other's work, there shall be no lack of continuity or discrepancy when work is completed. In conforming one kind of work with another, marring or damaging other work will not be permitted. Should improper work of any trade be covered by another which results in damage or defects, the whole work affected shall be made good by the Contractor without expense to the Town.

The Town reserves the right to perform work or allow others to perform work, as necessary, within or adjacent to the limits of this project, at any time. If the Contractor or any of his Subcontractors or employees causes loss or damage to any separate Contractor on the work, the Contractor, by agreement or arbitration, if he deems it necessary, will settle any claim for such loss or damage. If such separate Contractor shall sue the Town, on account of any loss so sustained, the Town shall notify the Contractor, who shall indemnify and hold harmless the Town against any loss or damage arising therefrom, including the cost and expense of defending any such suit.

If any portions of the work specified herein are to be installed in any right-of-way owned by the State, County, Municipality, or other public entities or public utilities, it shall be incumbent upon the contractor to familiarize described above will necessarily be subject to their inspection and approval before acceptance of these portions of the work by the Engineer. Any costs for inspection by agents other than those of the Town shall be borne by the contractor. Where other agencies have jurisdiction over some portion of the work, and the requirements of the agencies are at variance with this specification, then that portion of the work shall be done in accordance with the requirements of the agency(ies).

The Contractor shall absorb in his bid all costs involved in coordinating his work with others. The Contractor will not be entitled to additional compensation from the Town for damages resulting from such simultaneous, collateral and essential work.

9.08 Use of Premises - The Contractor shall confine construction activities to the project limits; which shall consist of right-of-way, easements and/or property owned by the Town of Loomis. With prior approval of the Engineer, adjacent street right-of-way may also be utilized for day-to-day operations. Unless approved by the Engineer, no storage of materials and equipment will be allowed to remain within the right-of-way during non-working hours, on the weekends, or during holidays.

Each day, after the completion of construction operations, unless otherwise approved by the Engineer, the project limits shall be secured and made accessible to the public. All excess materials and equipment not protected by approved traffic control devices (such as k-rails) shall be relocated to a staging area or demobilized. Trench spoils shall be off-hauled daily and open excavations shall be protected with steel plates.

Personnel of Contractor and Subcontractors shall not occupy, live upon, or otherwise make use of the project site during any time that work is not being performed at the project site, except as otherwise provided for in the Contract Documents for issues such as site security.

9.09 Construction Staging and Field Office - If additional space beyond the construction limits is necessary for staging, the Contractor shall, at his own cost and initiative, make special arrangements with neighboring property Town(s) to secure a staging area for a field office and/or material and equipment storage. The staging area must be fenced, with screening, and shall be operated in a manner that minimizes the inconvenience to neighbors.

The Contractor is encouraged to negotiate side agreements with the property owners of such sites prior to submitting bids. Prior to occupying the staging area, the Contractor will be required to provide to the Engineer a copy of the agreement or temporary construction easement granted by the property owner. A written release from the property owners or Town, holding the Town harmless from liability, will also need to be provided. In addition to approval from the property owners, the Contractor may also need to secure a Use Permit from the Town's Planning Division.

9.10 Site Security - Contractor shall be responsible for the care and custody of work and the site, including all necessary security provisions, on a 24-hour per day basis throughout the entire term of the Agreement. The Contractor shall provide and maintain storage facilities and employ such measures as will preserve the specified quality and fitness of materials to be used in the work.

9.11 Construction Water – The Contractor is responsible for obtaining all water required for the project and shall work with, and obtain all permits from, the appropriate water purveyor prior to obtaining construction water. If hydrant water is to be used, the Contractor must first obtain a hydrant meter and pay all related expenses. Direct connections to hydrants without a meter are not allowed. If water trucks are used, they shall be installed with backflow prevention devices. The cost of water, including all associated fees, deposits or permits shall be incorporated into the various bid items and no separate payment shall be made. Water in the Town of Loomis is supplied by:

Placer County Water Agency  
144 Ferguson Road  
P.O. Box 6570  
Auburn, CA 95604  
M-F: 8 a.m. to 5:00 a.m.  
Tel.: (530) 823-4850  
customerservices@pcwa.net

9.12 Project Site Maintenance – All work identified in this section shall be considered as part of the contract bid items, and no separate payment will be made thereof.

- (a) *Disposal of Material* - Unless otherwise shown on the plans or specified herein, all excess materials and materials removed from existing improvements shall become the property of, and be disposed by the Contractor. The Contractor shall be responsible for all costs associated with disposing all excess materials in a safe and legal manner. No material shall be placed on private or public property without prior approval from the Town and the property owner. The Contractor shall not allow any refuse, excavated material, surplus concrete or mortar, or any associated washings, to be disposed upon paved streets, into manholes or into the Town's storm drain system.

Contractor shall establish a system for daily collection and disposal of waste materials from construction areas and elsewhere on the site. Contractor shall handle waste materials that are hazardous, dangerous, or unsanitary separately from inert waste by containerizing appropriately. Burning or burying of waste materials on site will not be permitted.

All materials removed from the existing improvements, which in the opinion of the Engineer have salvage value, shall be delivered to the Town Corporation Yard at 1000 Bransten Road, Loomis, or at any other site designated by the Engineer within the Town and shall be considered as part of the contract bid items, with no separate payment will be made thereof.

- (b) *Cleanup and Dust Control* – at all times during construction, including weekends and holidays, and throughout all phases of construction, including work suspensions and until final acceptance of the project, the Contractor shall keep the work site clean and free from rubbish, debris, and prevent the formation of an airborne dust nuisance.

Materials and equipment shall be removed from the site as soon as they are no longer necessary. Upon completion of the work and before final inspection, the entire site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance.

The Contractor shall abate dust nuisance by cleaning, sweeping, and sprinkling with water, those excavated areas of dirt or other materials which are prone to causing dust, within both the project site and the storage or staging area. If required or directed by the Engineer, the Contractor shall provide an approved water truck of large capacity with spraying capability and/or street sweeper.

The Contractor shall be required to apply water for dust control immediately during construction efforts and within one (1) hour after notification by the Engineer that an airborne nuisance exists. If dust control is not adequate, in the opinion of the Engineer, the Engineer will have this work performed by others and will deduct such cost from the total contract price.

All hauling trucks or other construction vehicles leaving the site shall be cleaned of mud or dirt clinging to exterior body surfaces or wheel rims before traveling on Town streets outside the work limits. All trucks coming to or leaving the site with materials or loose debris shall be loaded in a manner, which will prevent the dropping of materials or debris on Town streets. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately.

When construction operations cause dirt to be deposited on public streets, the Contractor shall immediately remove such material. Streets shall be cleaned by street sweeping, rather than flushing, so as to prevent mud from entering the storm drain system.

Excess excavated material shall be removed from the site immediately. Sufficient material may remain for use as backfill if permitted by the specifications. Forms and form lumber shall be removed from the site as soon as practicable after stripping.

Failure of the Contractor to comply with the Engineer's cleanup orders may result in an order to suspend work until the condition is corrected. No additional compensation will be allowed as a result of such suspension.

- (c) *Air Pollution Control* - The Contractor shall not discharge smoke, dust, or any other air contaminants into the atmosphere in such quantity as will violate the regulations of any legally constituted authority.
- (d) *Noise Control* - The Contractor shall make every reasonable effort to control noise generated as a result of construction to the satisfaction of the Engineer. Use of an air compressor, jackhammer or other loud, vibrating sound generating device shall be limited to operations between the hours of 8:00 a.m. and 6:00 p.m. Monday thru Friday and between 9:00 a.m. to 5:00 p.m. on Saturday and Sunday, unless otherwise authorized by the Engineer.
- (e) *Vermin Control* - At the time of acceptance, structures entirely constructed under the contract shall be free of rodents, insects, vermin and pests. Necessary extermination work shall be arranged and paid for by the Contractor as part of the contract work within the contract time and shall be performed by a licensed exterminator in accordance with requirements of governing authorities. The Contractor shall be liable for injury to persons or property and responsible for the elimination of offensive odors resulting from extermination operations.
- (f) *Sanitation* - The Contractor shall provide and maintain enclosed toilets for the use of employees engaged in the work. These accommodations shall be maintained in a neat and sanitary condition. They shall also comply with all applicable laws, ordinances and regulations pertaining to the public health and sanitation of dwellings and camps.
- (g) *Wastewater* - Wastewater systems shall not be interrupted. Should the Contractor disrupt existing sewer facilities, the Contractor shall immediately notify the Engineer, and the Contractor shall establish a plan, subject to the approval of the Town, to convey the sewage in closed conduits and disposed of it back into the sanitary sewer system. Sewage shall not be permitted to flow in trenches or be covered by backfill.
- (h) *Temporary Light, Power and Water* - The Contractor shall at his own expense furnish, install, maintain, and remove all temporary light, power, and water, including piping, wiring,

lamps, and other equipment, necessary for the work. The Contractor shall not draw water from any water source, except to extinguish a fire, without first obtaining permission from the appropriate water utility company/agency.

- (i) *Storm Water Pollution Control* – All work shall conform to Provision C.3 and C.6 of the Countywide Municipal Storm Water Permit (MRP) and the National Pollutant Discharge Elimination System (NPDES) permit. The applicant shall implement all Placer Countywide Water Pollution Prevention Program (PCWPPP) measures and Best Management Practices (BMP's). Failure to comply with the approved construction BMP's will result in the issuance of correction notices, citations and/or a stop work order.

Contractor shall submit to the Town a Storm Water Pollution Prevention Plan (SWPPP) in compliance with all NPDES requirements, and constructing those facilities which may be required to provide prevention, control, and abatement of water pollution. SWPPP shall address how the Contractor will prevent materials specified above from being rinsed or washed into the storm drain system and which BMPs will be implemented for preventing sediment and pollutant discharges into the storm water system.

All construction efforts shall be conducted in a manner which prevents the release of hazardous material or hazardous waste into the soil or groundwater, and minimizes the discharge of pollutants into the storm drain system. No pollutants will be allowed to enter the storm drainage system. The Contractor shall be responsible for containing and removing any waste from the Contractor's construction operations using the appropriate BMP. The Contractor shall be responsible for cleaning catch basins of solid or liquid waste materials originating from the Contractor's operation before this material migrates further into the storm drain system. Violation of this provision shall cause the Town to issue a stop-work notice and take necessary action to require the Contractor to correct and comply with regulations. All costs related to the stop-work action and corrective work to come into compliance shall be fully borne by the Contractor.

**Existing Drainage Conditions** - If the work performed interferes with established drainage patterns, ample provisions shall be made by the Contractor to correct the interference. The Town may also direct the Contractor to take additional measures to be performed at the Contractor's expense.

**Illicit Discharge** - No dumping or discharge of construction materials, debris, and hazardous materials will be permitted into the Town's storm drainage system. In the event of any discharge, leakage, spill or emission of hazardous materials, Contractor shall promptly notify the Town and shall clean all affected property. The Contractor shall indemnify, hold harmless and defend the Town against all liability incurred as a result of any such discharge, leakage, spill or emission, regardless of whether such liability, cost or expense arises during or after the term of the permit.

9.13 Preservation of Property - The Contractor shall be responsible for the protection of public and private property adjacent to the work.

Due care shall be exercised to avoid damage to existing roadway improvements and facilities, adjacent property, roadside trees, lawn and shrubbery not designated for removal, pole lines, fences, signs, survey markers and monuments, buildings and structures, conduits, pipelines under or above ground, sewer and water laterals, and any other improvements or facilities within or outside the limits of construction. As ordered and approved by the Engineer, the Contractor shall provide and install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operations, they shall be replaced or restored, at the Contractor's expense, to a condition as good as when the Contractor entered upon the work, or as good as required by the Contract Documents.

Existing striping damaged during construction within and adjacent to the project site shall be replaced with thermoplastic. Partially damaged striping (such as what might occur trenching through a pavement legend), shall be replaced in their entirety.

Contractor shall preserve carefully benchmarks, reference points, and stakes; in case of willful or careless destruction, he will be charged with the resulting expense of replacement and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

Any survey monuments that are damaged or removed as part of the construction shall be replaced by the Contractor and a Record of Survey, as required by State law, shall be filed by a licensed Land Surveyor at the Contractor's expense.

The fact that any such improvement or facility is not shown upon the plans shall not relieve the Contractor of his responsibility under this Section. It shall be the Contractor's responsibility to ascertain the existence of any underground improvements or facilities indicated on the plans, indicated by locating services, or as evidenced by facilities visible in the field.

Contractor shall protect his work, supplies and materials from damage due to the nature of the work, the action of the elements, trespassers, or any cause whatsoever which is under his control, until the completion and acceptance of the work. Neither the Town nor any of the Town's agents assume any responsibility for collecting indemnity from any person(s) causing damage to the work of the contractor.

9.14 Protection of Buried Utilities – When the Contractor's attention is directed to the existence of pipes, cables, culverts, and other underground structures and improvements which may or may not be shown on the plans, it is the responsibility of the contractor to ascertain the exact location of such underground utilities in advance of any digging operations so that they shall not be disturbed or damaged by him during the progress of the work. All expenses of whatever nature arising from such disturbance or replacement or repair thereof shall be borne by the contractor.

If the location of pipelines being installed by the contractor under this contract conflicts with the location of existing pipelines, contractor shall so notify the Engineer in writing. The Engineer will ascertain the location of the existing utility in question and may at his discretion relocate the pipeline being installed for the convenience of the contractor. It shall not be construed that the Town or the Engineer is in any way required or obligated to locate or relocate pipelines to locations other than shown on the contract plans. If the Engineer relocates pipelines at the request of the contractor, the contractor shall bear all the expenses incurred in connection therewith.

9.15 Protection of Bridges - Contractor shall be responsible for any damage he may cause to bridges, culverts and road structures. He shall determine in advance the allowable safe load for each structure and, if necessary, provide special shoring and support at his expense.

9.16 Protection of Traffic Signal Facilities - The Contractor shall give at least seventy-two (72) hours advance notice to the Engineer before commencing any street work (such as pavement grinding or trenching) that may potentially damage any traffic signal detection loop wires or any other signal facility. This requirement is in addition to any Underground Services Alert notifications. The Town will then mark the underground traffic signal facilities.

The Contractor shall not proceed with any grinding, trenching or other underground work until it has been verified with the Inspector that signal facilities have been marked.

In the event that the Contractor's construction activities cause any failure of a traffic facility, it shall be repaired and be made fully operable within 24-hours of the damage occurring. In the event that such repair is not undertaken within this time limit, the Town may repair the facility at the Contractor's expense.

9.17 Restoration of Adjacent and Existing Improvements - Contractor shall do all cutting, fitting, or patching of the work required to make all parts of the work come together properly with existing and adjacent conditions.

Unless otherwise provided, the Contractor shall repair or replace all existing improvements (e.g., curbs, sidewalks, driveways, fences, signs, utilities, street surfaces, structures, etc.) damaged or removed

as a result of his operations. Repairs and replacements shall be at least equal to existing improvements, and shall match in terms of condition, finish and dimension to the satisfaction of the Engineer.

All Underground Services Alert (USA) markings, including the initial markings made by the Contractor and those markings placed by others in response, shall be removed at the Contractor's expense when they are no longer required. Acceptable means of removal include sand blasting, high pressure washing, or other means approved by the Engineer.

All traffic signs and street signs within the limit of work necessarily removed during the various phases of operations shall be temporarily reset by the Contractor at or near the original location upon completion of each phase of construction operations. Prior to removal of all traffic control signs, the Contractor shall submit photographs of the site which show the existing location of these signs so that upon completion the photographs will aid in resetting the signs at or near their original location. Traffic control signs and street signs will be replaced upon completion of the work and the cost of removal and replacement shall be considered as part of the contract bid items, and no separate payment will be made thereof.

Rural type mail boxes shall be maintained by the Contractor in a manner satisfactory to the property owner and postal service, and the Contractor shall relocate the same as soon as possible to a permanent location in accordance with postal regulations and in a location acceptable to the property owner.

Any object to be removed and reused at other locations shall be removed with due care and delivered or stored at the project's construction storage area, or if approved by the Engineer, at any other site designated by the Engineer within the Town. Such objects may consist of street light poles, signal mast arms and other objects directed by the Engineer. Items not approved by the Engineer for reuse purposes, and without salvage value, shall become the property of the Contractor, to be disposed of at Contractor expense, in an acceptable manner.

9.18 Archeological Remains - If human and/or archeological remains are uncovered during excavation. All earthwork within one-hundred (100) feet of these materials will be stopped until a Coroner and/or professional archeologist (SCA) and/or the Society of Professional Archeology (SOPA) has had an opportunity to evaluate the significance of the find and suggest appropriate mitigation measures.

9.19 Access to Private Property - The Contractor shall schedule and perform operations so as to minimize disruption of access to private property. Prior to blocking access to any private driveway or parking lot entrance, the Contractor shall notify the residents, business owners or tenants of pending closure and allow residents to remove vehicles. During non-working hours no driveway, house or parking lot shall be denied access to a public roadway.

The Contractor shall coordinate with the adjacent property owners and businesses and maintain vehicle and pedestrian access to their properties at all times. Temporary access ramps, fencing, or other measures shall be provided as needed.

9.20 Traffic Control and Public Convenience – The Contractor shall provide for safe movement of all vehicular, bicycle and pedestrian traffic through and around the construction operations with as little inconvenience and delay as possible. The Contractor shall have no amount of work under construction other than what he can properly prosecute with due regard to the rights and convenience of the public.

Proper conveyance of vehicular traffic and pedestrians through the work area depends upon navigating under unexpected situations. The means of clarifying such conditions to the public include the Contractor's use of signs, flagmen, pavement markings, barricades, lights, cones and delineators. No one standard sequence of signs or control devices will suit all conditions which may result from construction operations. Even for the same work, the conditions may vary from hour to hour, requiring adjustment and revisions of the traffic control in effect. The traffic control requirements specified herein are therefore intended to establish general principles to be observed in the control and regulation of traffic through and around the construction operations anticipated for this project. The requirements set forth in this Section represent the minimum traffic control requirements imposed and the Contractor shall be solely responsible for providing the full extent of traffic control measures that are necessary. Only individuals trained in the



principles of implementing traffic control and/or traffic control flagging shall be assigned that responsibility at the work site.

- (a) *Traffic Control Plan* – The Contractor shall submit a Traffic Control Plan to clearly describe proposed traffic control measures. The plan shall be generally in accordance with the illustrations included in the “California Manual of Uniform Traffic Control Devices” and the “Work Area Traffic Control Handbook”, (Building News Incorporated P.O. Box 3031, Terminal Annex, Los Angeles, CA 90051). The submittal shall consist of scaled drawings for each situation anticipated to be encountered, i.e., intersections, mid-block (each during working and non-working hours), etc. The drawings shall show signs, traffic control devices and flagmen as required.

The Traffic Control Plan shall be directed equally to the regulation and protection of non-vehicular traffic including pedestrians, bicyclists, joggers, skaters, skateboarders, etc. The Contractor shall provide for the protection and separation of non-vehicular traffic from construction operations at all times. No work involving the implementation of traffic control shall begin until the Engineer has reviewed and has no exception to the traffic control plans. The Contractor may implement a revised Traffic Control Plan only with subsequent review with no exceptions by the Engineer.

- (b) *Traffic Control Devices* - Traffic control devices shall be provided in sufficient quantities and types as required to provide safe and adequate traffic control. During hours of darkness, approved lights and/or flares shall be included, in proper working order, to illuminate signs and hazards and alert approaching traffic. Barricades shall be furnished and maintained along all open trenches in contact with traffic. No work may begin on any day or at any time before traffic control devices have been placed, test driven and, if required, adjusted and revised. All traffic control devices shall be placed in accordance with the Manual of Uniform Traffic Control Devices and the Contractor’s favorably reviewed traffic control plans. Locations of devices shall be adjusted to suit the conditions and circumstances of each detour situation. In all cases, signs shall be placed to most effectively convey their messages to approaching traffic.

The Contractor shall maintain all traffic control devices, at proper locations and in proper working order, at all times during construction operations and whenever a hazard resulting from Contractor’s operations exists. The Contractor shall adjust and revise traffic control devices, placement, etc., to suit changing conditions around construction operations. Traffic control devices shall remain in place at all times, as required to alert approaching traffic of upcoming hazards. After hazards have been removed, all traffic control devices shall be removed. Temporary signs shall be removed or their messages covered.

Daily traffic control measures shall continue until cleanup activities have been satisfactorily completed and all of the Contractor’s equipment has been removed from the traveled way.

- (c) *Traffic Control Detours* - The Contractor shall direct, divert and detour traffic through, around and adjacent to construction operations in accordance with the traffic control plans specified in the Contract Documents or in accordance with the Contractor’s favorably reviewed traffic control plans.

1. *Field Review of Detours* - Immediately after traffic control devices have been placed, the detour shall be test driven by the Engineer or Inspector and the Contractor’s Superintendent. The test drive shall include approaches to the detour from each possible direction, and traverse the full length of each detour route. The Contractor shall adjust and revise all traffic control devices as determined to be required by the test drive and the test drive shall be repeated, if determined necessary by the Engineer or Inspector. The Contractor shall provide additional traffic control devices as required to maintain the flow of traffic throughout construction operation.
2. *Diverting Bicycle and Pedestrian Traffic* – Whenever construction operations obstruct the flow of bicycle and pedestrian traffic or present a hazard to bicycles and pedestrians, the Contractor shall take appropriate action to protect and

separate bicycles and pedestrians from the work area. Such action may include placement of barricades between bicycles and pedestrians and the work areas, placement of warning signs, and provisions utilizing personnel as required to protect and maintain access for bicycles and pedestrians as conditions warrant.

3. Diverting Vehicular Traffic - Whenever construction operations obstruct the flow of vehicular traffic or present a hazard to vehicles operating in the vicinity of construction operations, the Contractor shall take appropriate action to warn, detour and otherwise protect approaching drivers and vehicles.
  4. Flagmen - The Contractor shall employ flagmen as required for each specific detour and at all locations where barricades and warning signs cannot control the movement of traffic. A warning sign shall be placed ahead of the flagman reading: "Flagman Ahead." The distance between the sign and the flagman should be based on the average traffic speed, allowing approximately fifty (50) feet for each ten (10) miles per hour. During hours of darkness, flagman stations shall be illuminated such that the flagman will be clearly visible to approaching traffic. Lights for illuminating the flagman station shall receive favorable review by the Engineer. The flagman shall wear a red or orange warning garment when flagging. Flagmen shall be provided with approved red flags or STOP/SLOW hand paddles, and two-way radios for communication. When flagging during hours of darkness, the flagman shall signal with a red light or flare and shall have a belt and suspender harness outside his garment fitted with reflectors or made from reflectorized cloth, unless the garment is well reflectorized in one of these ways.
  5. Notice to Agencies - The Contractor shall notify the Engineer and all agencies having jurisdiction over the work, in writing, at least ninety-six (96) hours, excluding holidays and weekends, prior to instituting any lane closure or detour. At the end of each workday, the Contractor shall inform the Engineer, Police Department and Fire Departments of the status of all detours, lane restrictions, or road closures. The Contractor shall cooperate and coordinate with the various parties involved in the collection and removal of trash and garbage, the trAnSIt providers, the U.S. Postal Service, and others, as necessary, in order to maintain existing schedules and services.
  6. Emergency Vehicle Access Through Detours - During all detours and/or street closures the Contractor shall provide for the movement of emergency vehicles through the work area. It is essential that the Contractor's work and equipment does not impede emergency access.
  7. Night Detours - The Contractor shall not be permitted to maintain any lane closure or road closure during non-working hours without first obtaining written approval from the Engineer. During non-working hours the Contractor shall restore travel lanes to their original alignment and configuration by means of placing temporary asphalt pavement or bridging with steel plates. The Contractor shall place "ROUGH ROAD" signs conforming to the Manual of Uniform Traffic Control Devices at uneven temporary pavement or bridging locations. See General Provisions, Section 9.18 (b), "Trench Safety Requirements".
  8. Temporary Traffic Lanes – Temporary traffic lanes shall be at least ten (10) feet wide, or eleven (11) feet wide around curves. Provide an additional two (2) feet of clearance from curbs. The length of temporary lanes should be limited to the area under construction and the distance necessary to divert traffic.
- (d) *Parking Restrictions* - The Contractor shall post approved "No Parking" signs at all locations necessary to establish work areas and detour traffic. Signs shall read: "NO PARKING - CONSTRUCTION TOW-AWAY ZONE," show the actual day and hours of parking restriction and indicate the telephone number of the Town's Police Department or agency having jurisdiction. Signs shall be placed at least forty-eight (48) hours in advance of the restriction. The Engineer shall approve the location and duration of no parking limits and verify their placement. "No Parking" signs shall be removed when no work is under

construction and must be reposted forty-eight (48) hours before the resumption of construction activities.

For any violation of "No Parking" signs by motorists, the Contractor shall contact and coordinate directly with the Town's Police Department for removal of vehicles in accordance with the California Vehicle Code. The Contractor shall also coordinate with the Police Department directly for enforcement and towing of parked vehicles.

9.21 Safety - The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the work. The Contractor's responsibilities shall specifically provide for the safety of persons involved in the project, other persons who are affected by the performance of the work, the work in place, materials and equipment to be incorporated in the work, the project site, and adjoining property.

The services of the Town in conducting inspection or construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's work methods, equipment, bracing, shoring or scaffolding, or safety measures, in, on, or near the construction site.

Safety vests and personal protection equipment shall be worn by the Contractor, all subcontractors and other personnel when working or present on the site. Hard hats shall be worn when working around earthmoving or any heavy construction equipment or during any overhead construction work.

Payment for performing all work necessary to provide safety measures shall be included in the bid items for which safety measures are required and no additional compensation will be made.

- (a) *Safety Orders* – The Contractor shall have at the work site, copies or suitable extracts of: Construction Safety Orders, Tunnel Safety Orders, and General Industry Safety Orders issued by the State Division of Industrial Safety. The Contractor shall comply with provisions of these and all other applicable laws, ordinances, and regulations.
- (b) *Trench Safety Requirement* - As required by California Labor Code, Section 6705 and in addition thereto, for any excavation of any trench or trenches five (5') feet or more in depth, the Contractor shall submit to the Engineer for review, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. Structural calculations prepared, stamped and signed by a Registered Engineer licensed to practice in the State of California shall accompany the plan to verify the structural safety and adequacy of the sheeting, shoring and bracing to be used on the project. No such plan shall allow any shoring, sloping or a protection system less effective than that required by the Construction Safety Orders of the State Division of Occupational Safety and Health.

The maximum length of open trench shall be three-hundred (300) feet or the distance that pipe can be installed in a single day as determined by the Engineer. Trenches shall be backfilled and covered with two (2) inches of cutback (in paved areas) or bridged with tack-welded steel plates at the end of each workday. Cutback shall be placed around plate edges to provide a smooth transition and to secure against displacement.

As soon as possible under the provisions of these specifications, the Contractor shall backfill all excavations and restore to usefulness all improvements that existed prior to the start of construction.

- (c) *Confined Space Entry Program (CSEP)* - Entry into permit-required confined spaces as defined in Section 5157, Title 8, California Code of Regulations (CCR) may be required as a part of the work. All manholes, tanks, vaults, pipelines, excavations, or other enclosed or partially enclosed spaces shall be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise. The Contractor shall be responsible for implementing, administering, and maintaining a confined space entry program (CSEP) in accordance with Sections 5156, 5157, 5158, Title 8, CCR and shall implement such a program prior to performing any work in a permit-required confined space. A copy of the

permit shall be available at all times for review by the Contractor and Town personnel at the work site.

Prior to starting work, the Contractor shall prepare and submit its comprehensive CSEP to the Engineer. The CSEP shall address all potential physical and environmental hazards and contain procedures for safe entry into confined spaces, including, but not limited to the following:

1. Training of personnel
2. Purging and cleaning the space of materials and residue
3. Potential isolation and control of energy and material inflow
4. Controlled access to the space
5. Atmospheric testing of the space
6. Ventilation of the space
7. Special hazards consideration
8. Personal protective equipment
9. Rescue plan provisions

The Contractor's CSEP submittal shall also include the names of the Contractor's and Subcontractor's personnel assigned to the project who will have CSEP responsibilities, their CSEP training, their specific assignment and their responsibilities in carrying out the CSEP.

Payment for implementing, administering, and providing all equipment and personnel associated with the CSEP shall be included in the bid items for which the CSEP is required and no additional compensation will be made.

- (d) *Hazardous Conditions: Contractor's Responsibility for Precautions* - Contractor agrees that if, during the progress of the work, a hazardous condition is identified which involves a risk of bodily harm to any person or a risk of damage to any property, the Contractor will take such special precautions as shall be necessary to make the progress of the work safe under such condition. Conditions may result from, but are not limited to, the use of specified materials or equipment, the location of the work, the condition of the site, the kind or method of construction, or the manner in which any of the work is required to be done. The Contractor agrees to assume the sole responsibility for determining whether any such hazardous condition exists or will be created during the course of the work.
- (e) *Use of Explosives* – Explosives may be used only when authorized in writing by the Engineer, or as otherwise stated in the Specifications. Explosives shall be handled, used, and stored in accordance with all applicable regulations. No explosive material shall be transported to, stored or utilized on the site without written permission of Engineer. All blasting work and handling of explosives on the site shall be done only by qualified persons who possess a valid permit. The Engineer's approval of the use of explosives shall not relieve the Contractor from liability for claims caused by blasting operations.
- (f) *Special Hazardous Substances and Process* – Materials that contain hazardous substances or mixtures may be required on the work. A Material Safety Data Sheet as described in California Code of Regulations, Section 5194 shall be requested by the Contractor from the manufacturer of any hazardous products used and submitted to the Engineer.

Hazardous material usage shall be accomplished with strict adherence to California Division of Industrial Safety requirements and all manufacturer warnings and application instructions listed on the Material Safety Data Sheet and on the product container label. The Contractor shall notify the Engineer if a specified product cannot be used under safe conditions.

9.22 Patent Fees or Royalties - All fees, royalties or claims for any patented invention, article or method that may be used upon or in any manner connected with the work under this contract shall be included in the price bid for the work and the contractor and his sureties shall protect and hold the Town, together with all the Town's officers, agents, servants and employees, harmless against any and all demands made for such fees or claims brought or made by the holder of any invention or patent and, before the final payment is made on account of this contract, contractor shall, if requested by the Engineer, furnish acceptable proof of a proper release from all such fees or claims.

Should the contractor, his agents, servants or employees, or any of them, be enjoined from furnishing or using any invention, article, material or appliance supplied or required to be supplied or used under this contract, the contractor shall promptly substitute other articles, materials or appliances, in lieu thereof, of equal efficiency, quality, finish, suitability and market value and satisfactory in all respects to the Engineer. Or, in the event that the Engineer elects in lieu of such substitution to have supplies and to retain and use any such invention, article, material or appliance as may be required by the contract to be supplied – in that event, the contractor shall pay such royalties and secure such valid licenses as may be requisite and necessary for the Town, the Town's officers, agents, servants and employees, or any of them to use such invention, article, material or appliance without being disturbed or in any way interfered with by any proceeding in law or equity on account thereof. Should the contractor neglect or refuse to make the substitution promptly, or to pay such royalties and secure such licenses as may be necessary, then, in that event, the Engineer shall have the right to make such substitution or the Town may pay such royalties and secure such licenses and charge the cost thereof against any monies due the contractor from the Town or recover the amount thereof from him and his sureties notwithstanding final payment under this contract may have been made.

9.23 Advertising - The names of the Contractor or Subcontractors, with their addresses and the designation of their particular specialties, may be displayed at the job site on removable signs only if written approval is received from the Engineer. Commercial advertising material shall not be attached to, or painted on the surfaces of, any buildings, fences, canopies, or barricades.

9.24 Antitrust Claims – Attention is directed to Public Contract Code, Section 7103.5 which provides: "In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or Subcontractor offers and agrees to assign to the Town 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. Sec 15) or 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 public works contract or subcontract. The assignment shall be made and become effective at the time the Town tenders final payment to the Contractor, without further acknowledgement by the parties."

9.25 Audit and Examination of Records – The Town and entities and agencies designated by the Town, shall have access to, and the right to audit and examine at no additional cost, all of the Contractor's project related data including but not limited to, books, estimates, records, contracts, bid cost data, Subcontractor and supplier job cost data, change orders, correspondence, instructions, drawings, receipts, vouchers, purchase orders, notes, computations, daily logs, and memoranda relating to the work. Pursuant to Government Code, Section 8546.7, the Contractor shall preserve all such records and will be subject to examination and audit by the State Auditor, at the request of the Town, for a period of three (3) years after final payment under the Agreement.

9.26 Notice of Entrance - Before entering any private property the contractor shall give the owner, tenant and inspector a minimum of forty-eight (48) hours written notice.

9.27 Additional and Emergency Protection - Wherever, in the opinion of the Engineer, the contractor has not taken sufficient precautions for the safety of the public or the protection of the works to be constructed under this contract, or of adjacent structures or property which may be injured by processes of construction on account of such neglect, and whenever, in the opinion of the Engineer, an emergency shall arise and immediate actions shall be considered necessary in order to protect personal and property

interest, whether public or private, then and in that event, the Engineer, with or without notice to the contractor, may provide suitable protection to the said interests by causing such work to be done and such material to be furnished as shall provide such protection as the Engineer may consider necessary and adequate.

The cost and expense of such work and material so furnished shall be borne by the contractor and if the same shall not be paid on presentation of the bills therefore, then such costs shall be deducted from any amounts due or to become due the contractor. The performance of such emergency work under the direction of the Engineer shall in no way relieve the contractor from any damages which may occur during or after precaution has been taken by the Engineer.

9.28 Placing Portions of Work in Service - Portions of the work may be placed in service as completed if desired by the Town. Contractor shall give proper access to the work for this purpose. Such use and operation shall not constitute an acceptance of the work and the work, and the contractor shall be liable for defects due to faulty construction until the entire work under the contract is finally accepted.

9.29 Rights-of-Way - The Town will provide all rights-of-way and easements in or beneath which pipes and other structures will be constructed by the contractor under this contract. If through the failure of the Town to acquire or clear title to rights-of-way, the contractor sustains loss which could not have been avoided by the judicious handling of forces and plant, there shall be paid to the contractor such amount as the Engineer may find to be a fair and reasonable compensation for such part of the contractor's actual loss as the Engineer deems unavoidable. Actual loss shall be understood to include no items other than necessary payments, idle time of men, idle time of equipment, cost of extra moving of equipment, and cost of longer hauls, with no allowance in any case for overhead or profit. If performance of the contractor's work is delayed as a result of the failure of the Town to acquire or clear title to rights-of-way, a commensurate extension of time will be granted.

## SECTION 10 - MEASUREMENT AND PAYMENT

10.01 Measurement of Quantities for Unit Price Work - Materials and items of work which are to be paid for on the basis of measurement shall be measured in accordance with the methods stipulated in the particular sections of the Contract Documents involved. Unless specifically stated otherwise in this contract, no extra measurement(s) according to local custom of any kind shall be allowed in measuring the work under this contract; only the length, area, solid contents, number, weight, or time in standard units, as the case may be, shall be considered as specified.

Unless otherwise specified, quantities of work shall be determined from measurements or dimensions in the horizontal planes. Stationing shall be along the street centerline, lengths of sanitary sewers, storm drains and water lines shall be measured as the horizontal distances from center to center of structures, rounded to the nearest foot, and lengths of all return radii and curb data shall be measured along the face of curb. Volumetric quantities shall be the product of the mean area of vertical or horizontal sections and the intervening horizontal or vertical dimensions. Measurements shall be in accordance with U.S. Standard Measures. A pound is an avoirdupois pound. A ton is two-thousand (2,000) pounds avoirdupois. The unit of liquid measure is the U.S. gallon.

When payment is to be made on the basis of weight, the weighing shall be done on certified platform scales or, when approved by the Engineer, on a completely automated weighing and recording system. The Contractor shall submit to the Engineer with duplicate licensed Weighmaster's certificates showing the actual net weights. The Town will accept the certificates as evidence of the weights delivered.

10.02 Bid Items - Should any bid item be eliminated in its entirety, payment will be made to the Contractor for actual costs incurred, in connection with such eliminated contract work, and for costs incurred prior to the date of the Engineer's written notification eliminating such work. The actual costs to be paid to the Contractor shall be computed in the same manner as if the work were to be paid on a force account basis. No compensation will be made to the Contractor, in any case, for loss of anticipated profits. Increased or decreased scope involving a change order will be paid as stipulated in the change order.

The estimated value of work performed, for lump sum bids or lump sum bid items will be determined from the schedule of values, to be prepared by the Contractor and presented at the preconstruction meeting. Elements of work on the schedule of values shall be separated into groupings appropriate for the project. The Technical Specifications may be used as a guide for establishing these groupings. Move-in costs, bond and insurance costs, and submittal preparation costs can be included in the schedule of values under a separate mobilization line item. This line item shall not exceed five-percent (5%) of the contract's value. Overhead and profit shall not be allowed as a line item, but shall be prorated over other items of work.

10.03 Bid Quantities - The quantities listed in the Bid Schedule for each bid item do not govern final payment. Payments to the Contractor will be made only for the actual quantities of contract items constructed in accordance with the plans and specifications. If upon completion of the construction, the actual quantities show either an increase or decrease from the quantities given in the bid schedule, the contract unit prices will still prevail.

Payment will not be made for materials wasted or disposed of in a manner not called for under the contract. This includes rejected material not unloaded from vehicles, material rejected after it has been placed and material placed outside of the plan lines. Unless otherwise provided, no payment will be made for materials delivered to the site but not incorporated in the work. Such quantities will not be included in the final pay quantities. No compensation will be allowed for the disposal of rejected or excess material.

When a bid item is noted as "Revocable" in the Bid Schedule, it may be deleted in its entirety or in part, or added to at the sole discretion of the Town. The "25% Rule" described in Section 5.08 (b)(1), "Unit Price Adjustments" shall not apply to revocable bid items. Furthermore, due to the potential for large discrepancies between the estimated quantity and actual quantity of work, any reference within the

specifications to work scope that does not have a corresponding bid item and is to be paid "as part of other items of work" shall not be included for payment as part of a revocable bid item.

When the estimated quantity for a specific portion of work is designated on the Bid Schedule as a "Final Pay Quantity", the estimated quantity specified shall be the final quantity for which payment for such specified portion of the work will be made, regardless of the actual quantity constructed, unless the dimensions of said portions of the work shown on the plans are revised by the Engineer. If such dimensions are revised and such revisions result in an increase or decrease in the quantity of such work, the final quantity for payment will be revised by the amount represented by the change. The estimated quantity for any portion of the work designated as a Final Pay Quantity shall be considered as approximate only and no guarantee is made that the quantity, which can be determined by computations, based upon the details and dimensions shown on the plans, will equal the estimated quantity. No allowance will be made in the event that the quantities based upon computations do not equal the estimated quantities. Final pay quantities will be designated on the Bid Schedule with the letter (F) and shall only apply to the corresponding portions of work specifically designated on the plans. Any portion of work not designated as a final pay quantity will be measured and paid for as specified under other provisions of the Contract Documents.

10.04 Progress Payments – On or about the 25<sup>th</sup> day of each month may be designated as the date which would terminate each working month for the purpose of making progress payments.

The Contractor's request for a progress payment shall be submitted under cover of the Request for Progress Payment form approved by the Engineer. The Request for Progress Payment form shall be complete and properly executed by the contractor, and have, as attachments, the items listed on the form.

The Contractor shall, on the date established, prepare and submit a progress estimate to the Town for work accomplished during the previous working month, based on the various contract bid items and the unit bid prices. Invoices shall include amounts previously paid, itemized retention and any deductions or additions authorized by change order. Consultation with the Engineer may be necessary to determine the amount of work accomplished.

The first progress payment will not be made until the following submittals have been provided and accepted: list and schedule of submittals, Baseline Construction Schedule, schedule of values (if applicable), SWPPP. Subsequent progress payment requests will not be accepted unless accompanied by the progress payment cover letter, an updated baseline or revised schedule, a certification that the record drawings have been updated as of the date of the invoice.

Upon receipt of a progress payment request, the Town shall, within ten (10) working days, determine if the request is proper, and if disputed the Town will return the progress payment to the Contractor along with a written document setting forth the progress payment request's shortcomings. Following receipt of an undisputed and properly submitted progress payment request, the Town shall authorize payment within thirty (30) calendar days.

Contractor may request partial payment for materials delivered to the site but not yet incorporated into the work (materials on hand). To receive consideration for payment of materials on hand, the Contractor shall provide the Engineer with a list of such materials at least five (5) working days prior to submitting the monthly estimate of amount earned for work completed. At the Engineer's sole discretion, up to seventy-five-percent (75%) of the estimated value of materials on hand may be considered for payment, subject to the following:

- (a) Only materials which have received favorable review of shop drawings will qualify.
- (b) Eligible materials must be delivered and properly stored, protected, and maintained in a manner favorably reviewed by the Engineer, at the job site or at a bonded warehouse.
- (c) The Contractor's actual net cost for the materials must be supported by paid invoices to suppliers or other documentation requested by the Engineer.



- (d) Materials delivered to the site less than thirty (30) days prior to their scheduled incorporation in the work shall not qualify.
- (e) Partial payments for materials on hand shall not be deemed to be final payment for the material nor relieve the Contractor of his obligations under the Contract.
- (f) Partial payments for materials on hand shall be subject to retention.

From each progress estimate, five percent (5%) will be deducted and retained by the Town, and the remainder of the amount due, less the amount of all previous payment will be paid to the Contractor provided all work invoiced has been completed and approved by the Engineer.

The Engineer may withhold or nullify, the whole or any part of any payment to such extent as may be necessary to protect the Town from loss on account of any of the following:

- (a) Defective or vandalized work not remedied,
- (b) Damage to the Town or another Contractor,
- (c) Claims filed, or reasonable evidence indicating probable filing of claims,
- (d) Stop notices, or failure of the Contractor to make payments properly to subcontractors or laborers or suppliers, in which case 125% of the stop notice amount shall be withheld until a release form is received,
- (e) A reasonable doubt that the contract can be completed for the balance unpaid,
- (f) Reasonable evidence that the work will not be completed within the contract time and that the unpaid balance of the contract sum would not be adequate to cover the Town's liquidated damages assessed in accordance with the Agreement for the anticipated delay,
- (g) Failure of Contractor to maintain, update and submit record documents, schedules or other submittals as required by the Contract Documents,
- (h) Performance of work by Contractor without properly processed shop drawings;
- (i) Any other failure of Contractor to perform its obligations under the Contract Documents.

The Contractor may elect to receive one hundred percent (100%) of payments due under the contract from time to time, without retention of any portion of the payment by the Town, by depositing and maintaining securities of a value equivalent to the retention amount with the Town in accordance with the provisions of Public Contract Code, Section 22300. Such securities, if deposited by the Contractor, shall be valued by the Town's Administrative Services Director, whose decision on valuation of the securities shall be final.

Contractor warrants that, upon submittal of an application for payment, all work for which payment has been previously issued by the Town and received by the Contractor, shall be free and clear of all claims, stop notices, security interests, and encumbrances in favor of Contractor, Subcontractors, or other persons or firms entitled to make claims by reason of having provided labor, materials, or equipment relating to work.

The payment of progress payments by the Town shall not be construed as an absolute acceptance of the work done up to the time of such payments and shall not constitute acceptance of defective work.

**10.05 Retentions** - The Town shall retain five percent (5%) of the amount of each progress estimate, and the accumulation of said amounts so retained from the progressive payments to the extent unencumbered will be paid to the contractor in no less than thirty-five (35) days after the completion and acceptance by the Engineer and the Town of the work done.

Upon contractor's request, Town will make payment of funds withheld from progress payments pursuant to the requirements of Code Section 14402 if contractor deposits in escrow with the Town, or with

a bank acceptable to the Town, securities eligible for the investment of State funds under Government Code Section 16430 or bank or savings and loan certificates of deposit, upon the following conditions:

- (a) Contractor shall bear the expense of the Town and the escrow agent in connection with the escrow deposit made.
- (b) Securities or certificates of deposit to be placed in escrow shall be of a value at least equivalent to the amounts of retention to be paid to the contractor pursuant to this section.
- (c) Contractor shall enter into an escrow agreement satisfactory to the Town, which agreement shall include provisions governing inter alia:
  - 1. Amount of securities to be deposited.
    - 1. Providing of powers of attorney or other documents necessary for the traNSFer of the securities to be deposited.
    - 2. Conversion to cash to provide funds to meet defaults to termination of the contractor's control over the work, stop notices filed pursuant to the law, assessment of liquidated damages or other amounts to be kept or retained under the provisions of the contract.
    - 3. Decrease in value of securities or deposit.
    - 4. Termination of the escrow upon completion of the contract.
- (d) Contractor shall obtain the written consent of the surety to such agreement.

10.06 Final Payment - The Town shall, prior to final acceptance, provide the Contractor with a copy of the final quantities for the various contract bid items and a summary of contract change orders for his review. All prior payments shall be subject to correction in determining the total contract sum. The Contractor shall reply promptly in writing, to indicate either his concurrence or an explanation of possible discrepancies in the total contract sum.

The project will not be submitted to the Town Council for acceptance until the Engineer and the Contractor concur with the totals of all quantities, costs, contract change orders and the total contract sum. Following concurrence, a semi-final payment will be made to the Contractor after deducting all previous payments and all amounts to be retained under the provisions of the contract. The retention payment shall be due and payable as a final payment after the expiration of thirty-five (35) days following the date of final acceptance of the work by the Town Council.

If within the time fixed by law, a properly executed notice to stop payment is filed with the Town, due to Contractor's failure to pay for labor or materials used in the work, all money due for such labor or materials will be withheld from payment to the Contractor in accordance with applicable laws.

If releases are required, the Contractor shall pay or cause to be paid to Subcontractors the amount stated in the conditional releases within five (5) days after receipt of the semi-final payment, and shall promptly thereafter furnish evidence of such payment to the Town.

The securities deposited by the Contractor will be released, providing that the following requirements of the contract have been fulfilled:

- (a) Satisfactory completion of all construction work and written acceptance of said work by the Town;
- (b) The submission by the Contractor to the Engineer of all required stop notice releases, submittals, written guarantees, warranties, operating manuals, and other project related documentation;
- (c) The return to the Engineer of all drawings and written specifications loaned to the Contractor during the construction period.

- (d) The submission by the Contractor to the Engineer of record documents and a set of red-lined drawings showing the revisions to the original set of drawings which reflect the actual construction of the project for preparation of "Record Drawings".

The Contractor agrees that the payment of the final amount due under the contract shall release the Town of Loomis from any and all claims or liability on account of all work performed under the contract, except those items previously made in writing and identified by the Contractor as unsettled. Release of the final payment by the Town shall not be construed as an acceptance of any defective work or acceptance of improper materials.

10.07 Acceptance - Contractor shall notify Engineer in writing of the completion of the work, whereupon the Engineer shall promptly satisfy them self by personal inspection as to the actual completion of the work in accordance with the terms of the contract. After receiving a written recommendation from the Engineer for acceptance of the work, Town shall accept or reject the work; stating, if the work is rejected, the requisite conditions for acceptance. When the Town accepts the work, they shall file a Notice of Completion with the County Recorder in the county where the work is located and shall promptly notify the contractor in writing of the recordation. Contractor warrants and guarantees that title to all work, materials and equipment accepted by the Town will pass to the Town free and clear of all liens, claims, security interests or encumbrances, and that no work, materials or equipment accepted will have been acquired by the contractor, or by any other person performing the work at the site or furnishing materials or equipment for the project, subject to an agreement under which an interest therein or encumbrances thereon is retained by the seller or otherwise imposed by contractor of such other person.

10.08 Compensation for Extra or Omitted Work – Compensation for extra or omitted work shall be in accordance with Section 5.08, Change Orders.

10.09 Compensation to Town for Extension of Time - In case the work called for under this contract is not completed within the time limit stipulated herein, the Town shall have the right, as provided hereinabove, to extend the time of completion thereof. If the time limit so be extended, the Town shall have the right to charge to the contractor and to deduct from the final payment for the work the actual cost to the Town of engineering, inspection, administration, legal and other overhead expenses which are directly chargeable to the extension of time. The cost of final surveys and preparation of the final estimate shall not be included in such charges.

10.10 Liquidated Damages for Delay - It is agreed by the parties to the contract that time is of the essence and that in case all the work is not completed before or upon the expiration of the time limit as set forth, damage will be sustained by the Town, and that it is and will be impractical to determine the actual amount of damage by reason of such delay, and it is, therefore, agreed that the contractor will pay to the Town the amount specified in special provisions of the contract per day for each and every calendar day delay beyond the time prescribed.

In addition, the Town shall have the right to charge to the contractor and to deduct from the final payment for the work the actual cost to the Town of engineering, inspection, administration and other overhead expenses which are directly chargeable to the contract and which accrue during the period of such delay, except that the cost of final surveys and preparation of the final estimate shall not be included in such charges.

10.11 Claims - The term "Claim" shall mean a written demand or assertion by the Contractor seeking, as a matter of asserted right, adjustment in the terms of the Contract Documents, payment of money, extension of time, or other relief with respect to the Contract Documents, or determination of other disputes or matters in question between the Town and Contractor arising out of or related to the Contract Documents or the performance of the work, including claims alleging an error or omission.

A claim must be stated with specificity, including identification of the event giving rise to claim, the date of the event, and the asserted effect on contract sum and contract time. The claim shall include adequate supporting data. Adequate supporting data for a claim for an adjustment of the contract time shall include scheduling data demonstrating the impact of the event on the completion of the work.

Adequate supporting data for a claim for an adjustment of the contract sum shall include a detailed cost breakdown of the items allowed, isolating labor, material, and equipment costs, and providing detailed quantities and unit prices for changed work. If the exact amount of a claim is not ascertainable at the time such claim is made, the supporting data currently available shall be submitted. Supplemental data supporting the exact amount of the claim shall be submitted as soon as available.

Notwithstanding the making of any claim or the existence of any dispute regarding any claim, unless otherwise directed by the Engineer, the Contractor shall not cause any delay, cessation, or termination in the performance of the work, including portions of the work pertaining to a claim.

**10.12 Time Limit on Claims** - Contractor shall submit any and all claims, together with adequate supporting data to the Engineer as soon as possible but not later than ten (10) working days after occurrence of the event giving rise to the claim, or the date the Contractor first recognized, or reasonably should have recognized, the condition giving rise to the claim, whichever is earlier. Contractor hereby expressly waives all claims not made within this time limit.

Contractor is expressly barred from asserting any claims of which the Contractor was aware, whether or not the exact amount of such claims was ascertainable, that is not submitted to the Engineer prior to the Contractor proceeding with the work.

**10.13 Town Response to Claims** - The Engineer shall promptly review claims. If additional supporting data is deemed necessary, the Engineer shall request such additional data within ten (10) working days after receipt of the claim. The Contractor shall furnish such additional data no later than ten (10) working days after receipt of the Town's request. The Engineer shall render a decision promptly, but in any event, within thirty (30) working days after the receipt of the claim or the receipt of additional supporting data. If the amount of the claim is in excess of \$50,000, the aforesaid thirty (30) working day period shall be sixty (60) working days. Failure of the Engineer to render a decision within the aforesaid thirty (30) or sixty (60) working day period shall be deemed a decision denying the claim and the last day of such period shall be the date of such decision. The decision of the Engineer shall be final and binding unless appealed in accordance with the General Provisions, Section 10.15, "Appeal of the Engineer's Decision".

**10.14 Appeal of Engineer's Decision** - If Contractor disputes the Engineer's decision of a claim, the Contractor shall, within thirty (30) calendar days of the decision, make a written appeal of the decision to the Engineer. The written appeal shall include all supporting data upon which the Contractor requests the Town to modify its decision, including all documentation transmitted between the Contractor and the Engineer on the underlying claim. The Engineer shall make a good faith effort to resolve the claim prior to final completion of the Project. In the event the claim is not resolved prior to final completion, the Contractor's claim shall be heard by the Director of Public Works prior to recommending final acceptance to the Town Council. The Contractor's administrative remedies under the Contract Documents shall be exhausted after the decision of the Director of Public Works is rendered. In case of disagreement with the decision of the Director of Public Works, the Contractor may pursue the resolution of the dispute by presenting a formal claim to the Town.

## SECTION 11 - GUARANTY

11.01 Contractor's Guaranty - Prior to final acceptance, the Contractor shall warrant and guaranty to the Town that all work is in accordance with the Contract Documents and is not defective.

The guaranty shall be accompanied by a warranty bond for ten percent (10%) of the final contract sum, which shall warrant the quality of the work for a period of one (1) year after acceptance. The guaranty and warranty bond shall be in accordance with the Agreement Forms furnished in the Contract Documents.

11.02 Correction of Defective Work During the Guaranty Period - If within two (2) years after the date of Town Council acceptance, or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guaranty required by the Contract Documents, any work is found to be defective, the Contractor shall promptly without cost to the Town and in accordance with the Town's written instructions, either correct such defective work or if it has been rejected by the Town, remove it from the site and replace it with non-defective work.

If the Contractor does not promptly comply with the terms of such instructions within ten (10) working days after written demand by the Town, the Town may have the defective work corrected. The Town may also correct defective work immediately in cases of emergency where delay would cause serious risk of loss or damage. All direct, indirect and consequential costs of correcting defective work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) shall be absorbed by the Contractor.

The Contractor shall remove from the Project site portions of the work and materials which are not in accordance with the Contract Documents and which are neither corrected by the Contractor nor accepted by the Town. If Contractor fails to pay the costs of such removal within ten (10) working days after written demand, the Town may, without prejudice to other remedies, sell such materials at auction or at private sale, or otherwise dispose of such material. The Contractor shall be entitled to the proceeds of such sale, if any, in excess of the costs and damages for which the Contractor is liable to the Town, including reasonable attorneys' fees and expenses and compensation for the Town's services and expenses.

The Town shall have the option, at its sole discretion and by notice to the Contractor, to accept defective work as defined in Section 4.18 – "Acceptance of Defective Work".

## **SPECIAL PROVISIONS**

### **SECTION 12 - BID ITEM DESCRIPTIONS**

#### **12-01 GENERAL**

The bid items listed in the Bid Schedule are not intended to be exclusive descriptions of all the work necessary to complete the project scope. As such, the Contractor shall determine, segregate and include in their pricing for each bid item the cost for furnishing all labor, materials, tools, equipment and other incidentals which may be reasonably assumed as necessary to complete all of the contract work, complete in place, as described by the Contract Documents.

#### **Mobilization and General Conditions – Bid Item 1**

The contract lump sum price paid for "Mobilization and General Conditions" shall include, as full compensation the cost for mobilization, incidentals, and other general project requirements which may not have a bid item but are required to complete the work. Work under this bid item includes, but is not limited to notifications, project records and documents, obtaining all required permits, licenses, and paying all fees, developing construction schedule, moving on and off the site any equipment required for the operations, preparatory work, including coordination and cooperation, project meeting, developing construction water supply, pre-construction video and photos, providing on-site sanitary facilities, developing a temporary construction staging area, moving equipment to and from the staging area daily, providing temporary vehicular and pedestrian traffic control measures, and implementing and maintaining storm water inlet protection measures, erosion control, contractor and subcontractor insurance and bonds, demobilization and all other mobilization or general conditions work, as specified in the Standard Specifications or these specifications.

The Mobilization and General Conditions bid price should not exceed 10 percent (10%) of the total bid price for payment purposes. Any amount beyond 10% will be paid as part of the first payment following contract acceptance, in accordance with Public Contract Code 10264(a)(5). The following schedule shall be used by the Town to make partial payments for mobilization in accordance with Public Contract Code 10264(a), except that the amount of work completed does not include the amount earned for mobilization.

- (1) When 5 percent of the original contract amount is earned, 50 percent of the amount bid for mobilization, or 5 percent of the original contract amount, whichever is lesser, may be paid.
- (2) When 10 percent of the original contract amount is earned, 75 percent of the amount bid for mobilization or 7.5 percent of the original contract amount, whichever is lesser, may be paid.
- (3) When 20 percent of the original contract amount is earned, 95 percent of the amount bid for mobilization, or 9.5 percent of the original contract amount, whichever is lesser, may be paid.
- (4) When 50 percent of the original contract amount is earned, 100 percent of the amount bid for mobilization, or 10 percent of the original contract amount, whichever is lesser, may be paid.
- (5) Upon completion of all work on the project, payment of any amount bid for mobilization in excess of 10 percent of the original contract amount will be paid.

#### **Bid Item 2 – Site Clearing**

The contract lump sum price paid for "Site Clearing" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in clearing and grubbing existing landscape and turf, topsoil stripping and stockpiling, and the removal of trees shown on the plans. Work includes saw-cutting, removal of material, grinding of tree stumps and roots, disposal, hauling, recycling, dust control, construction staking, and water pollution control as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

#### **Bid Item 3 – Tree and Plant Protection Fencing**

The contract lump sum price paid for "Tree and Plant Protection" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in the protection and pruning of existing trees and planting, protection fencing, mulching, signage and all other necessary protection measures as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 4 – Erosion Control Cobble**

The contract unit price paid per cubic yard for “Erosion Control Cobble” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing 4”-6” Noiyo Cobble complete in place, including excavation, compaction, and filter fabric as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 5 – Freestanding Block Wall****Bid Item 6 – 12” Retaining Wall @ Backflow Preventer**

The contract lump sum price paid for “Freestanding Block Wall” and “12” Retaining Wall @ Backflow Preventer” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing a freestanding or segmental block retaining wall complete in place, including excavation, foundation compaction, concrete foundation, drainage (if required) and filter fabric, and protection of existing backflow preventer to remain (if applicable), as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 7 – Monument Sign Upgrades**

The contract lump sum price paid for “Monument Sign Upgrades” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in the installation of a new planter wall, including protection of existing monument sign, painting of monument sign lettering, new solar powered up lighting, removal and disposal of existing CMU block, new segmental block planter wall, and the stockpiling and re-installation of topsoil as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 8 – 6-Foot Metal Bench with Center Armrest**

The contract unit price paid per each “6-Foot Metal Bench with Center Armrest” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing a metal bench, including foundation as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 9 – 2”x4” Redwood header**

The contract unit price paid per linear foot of “2”x4” Redwood Header” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing redwood header landscape edging as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 10 – Irrigation System**

The contract lump sum price paid for “Irrigation System” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in the installation of automatic irrigation system, including excavation, trenching and backfilling, and inspections as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 11 – Soil Amendment and Preparation (F)**

The contract unit price paid per square foot for “Soil Amendment and Preparation” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing soil for planting as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

As a Final Pay Item, payment will be made based upon the Bid Item listed quantity, regardless of the actual quantity used, unless dimensions are changed by the Engineer.

**Bid Item 12 – 24” Box Tree****Bid Item 13 – 5 Gallon Shrub****Bid Item 14 – 2 Gallon Shrub****Bid Item 15 – 1 Gallon Shrub**

The contract unit price paid per each for “24” Box Tree” “5 Gallon Shrub” “2 Gallon Shrub” and “1 Gallon Shrub” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals

and for doing all the work involved in installation of tree and plant material as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 16 – Chipped Bark Mulch (3” Layer)**

The contract unit price paid per cubic yard for “Erosion Control Cobble” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing bark mulch in planting areas, including excavation, compaction, and filter fabric as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

**Bid Item 17 – 90-Day Plant Establishment**

The contract lump sum price paid for “90-Day Plant Establishment” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in landscape maintenance during the 90-day plant establishment period, as shown on the plans or as specified in the contract documents, complete in place, and no additional compensation will be made.

Note that the project does not need to wait until the end of the 90-day maintenance period before taking it to Council for acceptance and recording the Notice of Completion. Payment for this item can be counted as earned, for project closeout purposes, and be added to the project’s retention as additional funds held, to be released at the end of the 90-day maintenance period.



## **SECTION 13 - GENERAL CONSTRUCTION**

### **13-01 GENERAL**

All work shall conform to the applicable provisions of the Town of Loomis Land Development Manual and Construction Standards, the State of California, Department of Transportation Standard Plans and Specifications, 2018 edition, the General Provisions, Special Provisions, Technical Specifications, and the project plans.

### **13-02 LICENSES**

The Contractor and all their subcontractors shall hold current licenses for the craft that they are contracting for, as required by State and Local laws. The Licenses must be in good standing without any official unresolved record of complaints registered or filed with the Board or California Department of Consumer Affairs.

The Contractor and all Subcontractors shall obtain a Town business license, the cost of which shall be included in their bid unit prices.

### **13-03 PERMITS**

The Contractor shall be responsible for applying for and obtaining any outside agency permits that may be required for the work. If there are fees associated with these permits, the Town shall reimburse the Contractor for the fee amount by change order.

The Contractor shall also be responsible for obtaining and paying the fees associated with a Town Business license prior to starting work. Business licenses are \$197 for the first year, and \$54 each subsequent year. Business licenses expire on December 31<sup>st</sup> and need to be renewed annually.

### **13-04 BUILDERS RISK INSURANCE**

Builder's Risk Insurance is not required as part of this project.

### **13-05 TIME OF COMPLETION AND LIQUIDATED DAMAGES**

The Time of Completion shall be as described in the Notice Inviting Bids. Liquidated damages shall be \$500 per calendar day, for each day following the expiration of the contract duration.

### **13-06 WORKING HOURS**

General working hours within the public right of way are limited to between the hours of 8:00 a.m. and 5:00 p.m. Monday thru Friday, unless otherwise permitted by the Engineer. The following work hour restrictions also apply to lane closures.

### **13-07 STAGING AREA**

Material and equipment staging shall be limited to areas within the public right-of-way that can be safely utilized without unreasonable impact to the traveling public. All work areas shall be either secured with proper barricades or restored and available to the public at the end of each work-day.

### **13-08 SANITARY FACILITIES**

The Contractor shall provide, secure, and maintain enclosed, portable restrooms for the use of personnel engaged in the work. These accommodations shall be maintained in a neat and sanitary condition, and shall comply with all applicable laws, ordinances, and regulations pertaining to public health and sanitation. The Contractor's proposed locations for restroom facilities shall be reviewed with the Engineer prior to delivery and placement of the restroom facility. Unless it is in an approved staging area, the Contractor shall remove all sanitary facilities from the project site at the end of each working day.

### **13-09 WATER AND POWER**

The Contractor will be responsible for furnishing all water and power that may be necessary to complete the work.

### **13-10 CONSTRUCTION STAKING**

The Contractor will be responsible for providing all construction staking that may be required for the project.

### **13-11 TESTING**

Any testing of materials required or anticipated as part of the project shall be completed by the Town. Contractor shall provide the Town with sufficient notice of any work scope requiring testing so that the testing can be scheduled.

### **13-12 CLEANUP AND SAFETY**

Cleanup includes finishing roadway work as described in Section 22, "Finishing Roadway" of the Standard Specifications and cleanup work for the whole project site.

The Contractor shall keep the site in a sanitary and neat condition each day during the project. The Contractor shall eliminate refuse from the site as necessary and when directed by the Town in order to avoid an unsightly appearance or inconvenience to others.

The Contractor shall remove and sweep all debris from sidewalks, curb and gutter by the end of each day. This includes staging sites of trucks and haul routes.

Upon completion of the work, the Contractor shall remove from the site all unused materials and all equipment belonging to or used by Contractor and all rubbish resulting from Contractor's work on this project.

Contractor agrees to assume sole and complete responsibility for the job site during the course of construction of this project, including safety of all persons and property. This requirement shall apply continuously and not be limited to normal working hours. The Contractor shall hold the Town and Town representatives harmless from any and all liability in conjunction with the performance of the work.

### **13-13 DAMAGE REPAIR**

The Contractor shall be responsible for the protection of public and private property adjacent to the work and shall exercise due caution to avoid damage to such property. The Contractor shall repair or replace all existing improvements within the right-of-way which are not designated for removal, but that are damaged or removed as a result of the Contractor's operations. Repairs and replacements shall be completed at the Contractor's expense and be at least equal to existing improvements, matching them in finish and dimension.

Attention is directed to Section 5-1.39, "Damage Repair and Restoration," of the Standard Specifications.

### **13-14 NOTIFICATIONS**

The Contractor shall mail notification, seven (7) calendar days in advance, to all property owners, businesses, tenants, residents, and potentially impacted parties within or adjacent to the work area advising them of the pending construction.

Contractor shall submit a draft notification letter at the preconstruction meeting, for the Town to review and approve prior to distributing. The letter shall include a description of the work being performed, the Contractor's schedule, contact names and phone numbers. Upon completing the notification distribution, the Contractor shall provide written notice, to the Town, that the task has been completed.

In addition, the Contractor shall coordinate with any directly affected utility companies or service providers prior to the start of work. An example list of agencies includes (although there may be others):

Pacific Gas & Electric  
Comcast  
US Post Office  
Police and Fire

Sprint/ATT  
Republic Services  
Local Police Authorities  
All affected businesses / residents

### **13-15 PROJECT SCHEDULE**

A master schedule, submitted for review prior to the preconstruction meeting, along with periodic three-week look ahead, progress schedules will be required for this contract and shall conform to the provisions in Section 8, "Prosecution and Progress" of the Standard Specifications.

Any changes to the schedule shall require a revised schedule to be resubmitted to the Engineer for review prior to commencing work for the following week.

### **13-15 ORDER OF WORK**

The contractor shall schedule his work such that during the site clearing phase of the project, a investigation shall be made so as to determination the location and size of irrigation pipe and control wire conduit sleeves (if any) crossings under Hunter Oaks Lane, so as to confirm the adequacy of the irrigation design.

### **13-16 MEETINGS**

Pre-Construction Conference: A Pre-construction Conference will be scheduled within five (5) working days of the contract's execution. The conference will address administrative items, the scope of work, the Contractor's proposed construction schedule and sequencing. At the Pre-construction conference the Contractor shall provide the following items:

- The proposed schedule (showing durations for each project area)
- Typical work area and lane closure traffic control plans
- Contact information, including after-hours and emergency response staff contact names and phone numbers.
- Draft notification flyer

The meeting shall be attended by the Contractor's project manager and field superintendent along with the Town's project manager and inspector.

Periodic Construction Meetings: While weekly construction progress meetings are not anticipated, additional meetings may be held at a date and time mutually satisfactory to the Contractor and the Town's Representative.

### **13-17 PAYMENT AND WORK NOT INCLUDED**

The Town reserves the right to increase or decrease the quantities of work included in the Bid Schedule or to delete an entire bid item from the bid schedule, either before execution of the agreement or during the agreement term.

During the life of the contract, the Town may request that the Contractor perform work not listed in the Bid Schedule. Compensation for these activities shall be negotiated under a written change order before the additional services are performed.

### **13-18 MEASUREMENT AND PAYMENT**

Full compensation for all items mentioned in this section shall be considered as included in the prices paid for the various items of work involved for which there are bid items, and no additional compensation will be made.

## **SECTION 14 - TEMPORARY TRAFFIC CONTROL**

### **(SECTION 12)**

#### **14-01 GENERAL REQUIREMENTS**

Traffic control shall conform to the latest edition of "California Manual on Uniform Traffic Control Devices" issued by Caltrans, or State Standard Plan T13, "Traffic Control System for Lane Closure on Two Lane Conventional Highways." Any deviation in traffic control from the references mentioned above will not be allowed unless advance written approval is granted by the Engineer.

Attention is directed to Sections 7-1.03, "Public Convenience," 7-1.04, "Public Safety," and 12, "Temporary Traffic Control," of the Standard Specifications and to the section entitled, "Public Safety," elsewhere in these Special Provisions. Nothing in these Special Provisions shall be construed as relieving the Contractor from his responsibility as provided in said Sections.

The Contractor shall submit traffic control plans to the Engineer for review at the preconstruction meeting prior to performing any work affecting vehicular and pedestrian traffic. The traffic control plan established by the Contractor shall be in conformance with the California Manual of Uniform Traffic Control Devices and be prepared by a licensed engineer.

Minor deviations from the traffic requirements of this section, which do not significantly change the cost of the work, may be permitted upon the written request of the Contractor, if in the opinion of the Engineer public traffic will be better served and work expedited. Such deviations shall not be adopted until the Engineer has indicated his written approval. All other modifications will be made by contract change order.

Contractor shall provide all markers, signs, delineators, barricades, No Parking signs, portable flashing beacons, flaggers, etc. necessary to ensure the safe passage of traffic through the work zone.

All members of the Contractor's work force shall wear high-visibility safety clothing while working in the public right-of-way. The Contractor shall hold weekly safety meetings on the job site and provide the Town with the minutes of those meetings.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way.

#### **14-02 LANE CLOSURE RESTRICTION**

The Contractor shall maintain a minimum of one (1) lane of traffic in each direction of travel, open at all times in accordance with the hours of work specified in Section 10, "General Construction". The minimum width of a temporary traffic lane shall be ten (10) feet. Flashing Arrow Boards shall be required for all lane closures.

#### **14-03 MAINTAINING ACCESS, PUBLIC CONVENIENCE AND TRAFFIC CONTROL**

The Contractor will be responsible for the safe temporary routing of vehicular and pedestrian traffic within the project area. Pedestrian access to businesses shall be maintained at all times.

The Contractor shall submit to the Engineer for approval the Traffic Control Plan at the pre-construction conference. The Traffic Control Plan shall conform to most current California Manual of Uniform Traffic Control Devices and State Standard Plans. The Traffic Control Plan shall address the following and other concerns as applicable.

- A. If necessary, the Contractor shall provide enhanced traffic control measures, which include "No Parking" barricades. "No Parking" barricades shall be posted at least 72-hours (excluding

weekends and holidays) prior to street work. Unless approved otherwise by the Engineer, "No Parking" barricades shall be placed at a maximum spacing 100'.

- B. Parking may be temporarily prohibited in areas where the temporary traffic lane is shifted into the parking spaces. The Contractor shall post "No Parking" signs with days affected at least three (3) days prior to the closing of street parking. The parking spaces shall be immediately available after removal of the traffic control.
- C. The Contractor shall maintain all existing pedestrian walkways and crosswalks throughout the project limits or provide acceptable temporary pedestrian facilities through the construction zones. The location and details for such temporary facilities shall be submitted with the Traffic Control Plan to the Engineer for approval.
- D. The Contractor shall maintain pedestrian and vehicular access to all properties fronting the project. In the event of a planned driveway access disruption, the Contractor shall notify the property owner or tenant in writing three (3) working days prior to the closure, specifying the date and time of closure, including the start and finish times.
- E. Complete street closure shall not be permitted. The Contractor shall submit a traffic control plan at the preconstruction conference for the Town Engineer's approval. The contractor's traffic control plan shall indicate requested lane closures including duration and detour.
- F. The minimum width of a traffic lane shall be ten (10) feet. Flashing Arrow Boards shall be required for all lane closures.
- G. Traffic Control Plans shall be as per Caltrans standards and shall address among other things, lane closures, material and equipment storage, maintaining of bus stops, accommodating garbage pick-up and street sweeping schedules, maintaining of vehicle and pedestrian access and haul routes. Haul route permits shall be approved by the Town.
- H. The Contractor shall provide appropriate flag persons for traffic control on all streets to allow for the safe passage of vehicles and pedestrians for the duration of construction period.
- I. The Contractor shall not place traffic signals in flashing red operation without prior approval from the Town.

The Contractor shall provide flaggers and shall provide and maintain such fences, barriers, signs, guardrails, red lights, and other safety devices adjacent to and on the site at or near all barriers as may be necessary to control traffic and prevent accidents to the public. The Contractor shall furnish, place and maintain such lights as may be necessary for illuminating the said signs and fences. Signs, flags, lights and other warning and safety devices shall conform to the requirements set forth in the current California Manual on Uniform Traffic Control Devices (CMUTCD), issued by the State of California Department of Transportation.

#### **14-04 PROPERTY ACCESS REQUIREMENTS**

The Contractor shall maintain property access to all businesses at all times unless otherwise approved by the Engineer. Upon approval by the Engineer, access to certain properties may be temporarily closed if all of the following conditions can be met:

- A. No options exist to maintain property access and complete the project.
- B. Contractor has discussed the closure with the business owner in person.
- C. Business owners has been notified, in writing, at least eight (8) calendar days in advance of the time and length of closure.

- D. Businesses owners have been reminded of the closure, in writing, at least two (2) working days prior to the actual closure.
- E. Contractor has provided business with a contractor name and number to call with questions regarding the closure.

#### **14-05 TRAFFIC CONTROL SYSTEM**

If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair said component to its original condition or replace said component and shall restore the component to its original location. During the hours of darkness, as defined in Division 1, Section 289, of the Vehicle Code, portable signs to be illuminated shall be, at the option of the Contractor, either: Illuminated signs in conformance with the provisions in Section 12-3.06B(3), "Portable Signs," of the Standard Specifications; or Reflexite vinyl microprism reflective sheeting signs; or 3M high intensity reflectorized sheeting on aluminum substrate signs or Seibulite Brand Ultralite Grade Series, encapsulated lens retro-reflective sheeting signs; or approved equal.

The Traffic Control System shall be placed, maintained and removed under the direct supervision of a person who is certified by either the Institute of Transportation Engineers (ITE), the American Traffic Safety Services Association (ATSSA), the International Municipal Signal Association (IMSA) or the State of California Department of Transportation (Caltrans) as having successfully completed training in the design and operation of work zone traffic control.

The Contractor shall designate in writing the person who shall have the responsibility for supervising the activities associated with the Traffic Control System. Traffic Control System Plan as per Section 7-13 Public Safety, along with proof of certification, shall be submitted in writing at the Preconstruction meeting to the Engineer for approval. Any changes to plan, shall be provided to the Engineer for his approval, five (5) working days in advance of any planned activity, which requires traffic control. The person designated shall have the authority to stop the work if necessary.

Failure of the designated person to be present at the job site when any part of the Traffic Control is in place shall be considered a failure on the part of Contractor to perform a provision of the contract. The Engineer shall, in accordance with Section 12-4.03, "Closure Schedule and Conditions" of the Standard Specification, suspend all work until such time satisfactory arrangements have been made to have a certified person on the job site at all times when the Traffic Control System is in place.

#### **14-06 TEMPORARY PAVEMENT DELINEATION**

Temporary pavement delineation shall be furnished, placed, maintained and removed in conformance with the provisions in Section 12-1.01, "General," of the Standard Specifications and these special provisions. Nothing in these special provisions shall be construed as reducing the minimum standards specified in the California MUTCD or as relieving the Contractor from his responsibility as provided in Section 7-1.04, "Public Safety," of the Standard Specifications.

##### **General**

Whenever the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place prior to opening the traveled way to public traffic. Lane line or centerline pavement delineation shall be provided at all times for traveled ways open to public traffic.

Work necessary, including required lines or marks, to establish the alignment of temporary pavement delineation shall be performed by the Contractor. Surfaces to receive temporary pavement delineation shall be dry and free of dirt and loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation.

Temporary pavement markers and removable traffic type tape which conflicts with a new traffic pattern or which is applied to the final layer of surfacing or existing pavement to remain in place shall be removed when no longer required for the direction of public traffic, as determined by the Engineer.

### **Temporary STOP Signs and Limit Lines**

Stop location where the stop legend and stop bar are no longer visible will require the placement of temporary STOP signs mounted on Type II barricades along with either a minimum of 5 white floppies to delineate the stop bar, or temporary reflective white tape if the surface has been milled and floppies won't stick.

The STOP sign shall either be a reflective metal sign, or if printed on paper, then flashing (illuminated) beacons shall be attached to the top of the Type II barricade for night time visibility.

### **Temporary Lane Line, Centerline, and Edgeline Delineation**

Whenever lane lines and centerlines are obliterated the minimum lane line and centerline delineation to be provided shall be temporary reflective raised pavement markers placed at longitudinal intervals of not more than 20 feet. The temporary reflective raised pavement markers shall be the same color as the lane line or centerline the markers replace. Temporary reflective raised pavement markers shall be, at the option of the Contractor, one of the temporary pavement markers listed for short term day/night use (14 days or less) or long-term day/night use (6 months or less) in "Approved Traffic Products" of the Standard Plans and Standard Specifications.

Temporary reflective raised pavement markers shall be placed in conformance with the manufacturer's instructions and shall be cemented to the surfacing with the adhesive recommended by the manufacturer, except epoxy adhesive shall not be used to place pavement markers in areas where removal of the markers will be required.

### **Removal of Temporary Pavement Markers Prior to Surface Treatment**

Temporary lane line or centerline delineation consisting of entirely of temporary reflective raised pavement markers placed on longitudinal intervals of not more than 20 feet shall be used on lanes opened to public traffic for a maximum of 14 days. Prior to the end of the 14 days the permanent pavement delineation shall be placed. If the permanent pavement delineation is not placed within the 14 days, the Contractor shall provide, at the Contractor's expense, additional temporary pavement delineation. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent pavement delineation for the area, as determined by the Engineer.

### **Measurement and Payment**

Full compensation for all items mentioned in this section shall be considered as included in the prices paid for the various items of work involved for which there are bid items, and no additional compensation will be made.

## TECHNICAL SPECIFICATIONS



**SECTION 01 56 39**  
**TREE AND PLANT PROTECTION**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- The scope of work includes all labor, materials, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with protection of existing trees and other plants as shown on the drawings and as specified herein.
  1. Provide tree and plant protection fencing.
  2. Provide protection of root zones and above ground tree and plants
  3. Provide pruning of existing trees and plants.
  4. Coordinate with the requirements of Section Planting Soil for modifications to the soil within the root zone of existing trees and plants.
  5. Provide maintenance of existing trees and plants including irrigation during the construction period.
  6. Provide maintenance of existing trees and plants including irrigation during the post construction plant maintenance period.
  7. Remove tree protection fencing and other protection from around and under trees and plants.
  8. Clean up and disposal of all excess and surplus material.

**1.2 CONTRACT DOCUMENTS**

- Shall consist of specifications and general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.
- It is the intent of this section that the requirements apply to all sections of the project specification such that any subcontractor must comply with the restrictions on work within designated Tree and Plant Protection Areas.

**1.3 RELATED DOCUMENTS AND REFERENCES**

- Related Documents:
  1. Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section.
  2. Section – 32 84 00: Irrigation
  3. Section – 32 90 00: Planting
- References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the specification to the extent required by the references thereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail.
  1. ANSI A 300 (Part 5) – Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current editions.

2. Pruning practices shall conform with recommendations "Structural Pruning: A Guide For The Green Industry"; Published by Urban Tree Foundation, Visalia, California; most current edition.
3. Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign IL, most current edition.

#### 1.4 VERIFICATION

- All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Town Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Town Representative.

#### 1.5 PERMITS AND REGULATIONS

- The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Town Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.
- Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.
- In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Town Representative shall determine which shall govern.

#### 1.6 PROTECTION OF WORK, PROPERTY AND PERSON

- The Contractor shall protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

#### 1.7 CHANGES IN THE WORK

- The Town Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

#### 1.8 CORRECTION OF WORK

- The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Town Representative, at the soonest possible time that can be coordinated with other work and seasonal weather demands.

#### 1.9 DEFINITIONS

All terms in this specification shall be as defined in the "Glossary of Arboricultural Terms" or as modified below.

- **Town Representative:** The person appointed by the Town to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Town Representative may appoint other persons to review and approve any aspects of the work.
- **Reasonable and reasonably:** When used in this specification is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that plants are not free of defects, and that plant conditions change with time. This specification also recognizes that some decisions cannot be totally based on measured findings and that profession judgment is required. In cases of differing opinion, the Town Representative expert shall determine when conditions within the plant are judged as reasonable.
- **Shrub:** Woody plants with mature height approximately less than 25 feet.
- **Tree and Shrub Protection Area:** Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and defined by a circle centered on the trunk with each tree with a radius equal to the crown dripline unless otherwise indicated by the Town representative.
- **Tree:** Single and multi-stemmed plants, including palms with anticipated mature height approximately greater than 25 feet or any plant identified on the plans as a tree.

#### 1.10 SUBMITTALS

- **PRODUCT DATA:** Submit manufacturer product data and literature describing all products required by this section to the Town Representative for approval. Provide submittal four weeks before the start of any work at the site.

#### 1.11 OBSERVATION OF THE WORK

- The Town Representative may inspect the work at any time.

#### 1.12 PRE-CONSTRUCTION CONFERENCE

- Schedule a pre - construction meeting with the Town Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.
  1. The following Contractors shall attend the preconstruction conference:
    - a. General Contractor.
    - b. Landscape subcontractor.
    - c. Irrigation subcontractor
- Prior to this meeting, mark all trees and plants to remain and or be removed as described in this specification for review and approval by the Town Representative.

#### 1.13 QUALITY ASSURANCE

- **Contractor qualifications:**
  1. All pruning, branch tie back, tree removal, root pruning, and fertilizing required by this section shall be performed by or under the direct supervision of ISA Certified Arborist. Submit aforementioned individual's qualifications for approval by the Town Representative.
  2. All applications of pesticide or herbicide shall be performed by a person maintaining a current state license to apply chemical pesticides valid in the jurisdiction of the project. Submit copies of all required state licensing certificates including applicable chemical applicator licenses.

## **PART 2 – PRODUCTS**

### **2.1 MULCH**

- Mulch shall be coarse, ground, from tree and woody brush sources. The minimum range of fine particles shall be 3/8 inch or less in size and a maximum size of individual pieces shall be approximately 1 to 1-1/2 inch in diameter and maximum length of approximately 4 to 8 inches. No more than 25% of the total volume shall be fine particles and no more than 20% of total volume be large pieces.
  1. It is understood that Mulch quality will vary significantly from supplier to supplier and region to region. The above requirements may be modified to conform to the source material from locally reliable suppliers as approved by the Town Representative.
- Submit suppliers product data that product meets the requirements and two gallon sample for approval.

### **2.2 TREE PROTECTION FENCING:**

- **PLASTIC MESH FENCE:** Heavy - duty orange plastic mesh fencing fabric 48 inches wide. Fencing shall be attached to metal “U” or “T” post driven into the ground of sufficient depth to hold the fabric solidly in place with out sagging. The fabric shall be attached to the post using attachment ties of sufficient number and strength to hold up the fabric without sagging. The Town Representative may request, at any time, additional post, deeper post depths and or additional fabric attachments if the fabric begins to sag, lean or otherwise not present a sufficient barrier to access.
- Submit suppliers product data that product meets the requirements for approval.

### **2.3 TREE PROTECTION SIGN:**

- Heavy-duty cardboard signs, 8.5 inches x 11 inches, white colored background with black 2 inch high or larger letters block letters. The signs shall be attached to the tree protection fence every 50 feet O.C. The tree protection sign shall read “Tree and Plant Protection Area-Keep Out”.

### **2.4 FILTER FABRIC**

- Filter Fabric shall be nonwoven polypropylene fibers, inert to biological degradation and resistant of naturally occurring chemicals, alkalis and acids.
  1. Mirafi 135 N as manufactured by Ten Cate Nicolon, Norcross, GA.  
<http://www.tencate.com> or approved equal.
- Submit suppliers product data that product meets the requirements for approval.

## **PART 3 – EXECUTION**

### **3.1 SITE EXAMINATION**

- Examine the site, tree, plant and soil conditions. Notify the Town Representative in writing of any conditions that may impact the successful Tree and Plant Protections that is the intent of this section.

### **3.2 COORDINATION WITH PROJECT WORK**

- The Contractor shall coordinate with all other work that may impact the completion of the work.

- Prior to the start of Work, prepare a detailed schedule of the work for coordination with other trades.
- Coordinate the relocation of any irrigation lines currently present on the irrigation plan, heads or the conduits of other utility lines or structures that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Town Representative of any conflicts encountered.

3.3 **TREE AND PLANT PROTECTION AREA:** The Tree and Plant Protection Area is defined as all areas indicated on the tree protection plan. Where no limit of the Tree and Plant Protection area is defined on the drawings, the limit shall be the drip line (outer edge of the branch crown) of each tree.

3.4 **PREPARATION:**

- Prior to the preconstruction meeting, layout the limits of the Tree and Plant Protection Area and then alignments of required Tree and Plant Protection Fencing and root pruning. Obtain the Town Representative's approval of the limits of the protection area and the alignment of all fencing and root pruning.
- Flag all trees and shrubs to be removed by wrapping orange plastic ribbon around the trunk and obtain the Town Representative's approval of all trees and shrubs to be removed prior to the start of tree and shrub removal. After approval, mark all trees and shrubs to be removed with orange paint in a band completely around the base of the tree or shrub 4.5 feet above the ground.
- Prior to any construction activity at the site, install all tree protection fencing, tree protection signs, Filter Fabric and Mulch as shown on the drawings.

3.5 **SOIL MOISTURE**

- Volumetric soil moisture level, in all soils within the Tree and Plant Protection Area shall be maintained above permanent wilt point to a depth of at least 8 inches. No soil work or other activity shall be permitted within the Tree and Plant Protection Area when the volumetric soil moisture is above field capacity. The permanent wilt point and field capacity for each type of soil texture shall be defined as follows (numbers indicate percentage volumetric soil moisture).

<b>Soil type</b>	<b>Permanent wilt point v/v</b>	<b>Field capacity v/v</b>
Sand, Loamy sand, Sandy loam	5-8%	12-18%
Loam, Sandy clay, Sandy clay loam	14-25%	27-36%
Clay loam, Silt loam	11-22%	31-36%
Silty clay, Silty clay loam	22-27%	38-41%

1. Volumetric soil moisture shall be measured with a digital, electric conductivity meter. The meter shall be the Digital Soil Moisture Meter, DSMM500 by General Specialty Tools and Instruments, or approved equivalent meter.
- The Contractor shall confirm the soil moisture levels with a moisture meter. If the moisture is too high, suspend operations until the soil moisture drains to below field capacity.

3.6 **ROOT PRUNING:**

- Prior to any excavating into the existing soil grade within 25 feet of the limit of the Tree and

Plant Protection Area or trees to remain, root prune all existing trees to a depth of 24 inches below existing grade in alignments following the edges of the Tree and Plant Protection Area or as directed by the Town Representative. Root pruning shall be in conformance with ANSI A300 (part 8) latest edition.

1. Using a rock saw, chain trencher or similar trenching device, make a vertical cut within 2 feet of the limit of grading.
2. After completion of the cut, make clean cuts with a lopper, saw or pruner to remove all torn root ends on the tree side of the excavation, and backfill the trench immediately with existing soil, filling all voids.

### 3.7 INSTALLATION OF FILTER FABRIC AND MULCH

- Install Geogrids, Filter Fabric, matting, Wood Chips and or Mulch in areas and depths shown on the plans and details or as directed by the Town representative. In general it is the intent of this specification to provide the following levels of protection:
  1. All areas within the Tree and Plant Protection area provide a minimum of 5 inches of Wood Chips or Mulch.
  2. Areas where foot traffic or storage of lightweight materials is anticipated to be unavoidable provide a layer of Filter Fabric under the 5 inches of Wood Chips or Mulch.
  3. Vehicle traffic within the tree dripline is unacceptable.
- The Town Representative shall approve the appropriate level of protection.
- In the above requirements, light vehicle is defined as a track skid steer with a ground pressure of 4 psi or lighter. A heavy vehicle is any vehicle with a tire or track pressure of greater than 4 psi. Lightweight materials are any packaged materials that can be physically moved by hand into the location. Bulk materials such as soil, or aggregate shall never be stored within the Tree and Plant Protection Area.

### 3.8 PROTECTION:

- Protect the Tree and Plant Protection Area at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Town Representative of any spills, compaction or damage and take corrective action immediately using methods approved by the Town Representative.

### 3.9 GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHIN THE TREE AND PLANT PROTECTION AREA:

- The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Town Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.
- In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Town Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following:
  1. In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

2. When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the Towns representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
3. Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Town Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices (ANSI A300, part 8) and be performed under supervision of the arborist.
4. Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 8 foot long 2 inch x 6 - inch planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.
5. Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.
  - a. Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.
  - b. Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, rewet the soil as necessary to keep soil moisture near field capacity.
  - c. Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.
    - 1.) The air excavation tool shall be "Air-Spade" as manufactured by Concept Engineering Group, Inc., Verona, PA (412) 826-8800, or Air Knife as manufactured by Easy Use Air Tools, Inc. Allison Park, Pa (866) 328-5723 or approved equal.
  - d. Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Town Representative.
  - e. Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.
  - f. Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open over night, mist the roots and cover the excavation with black plastic.
  - g. Dispose of all soil in a manner that meets local laws and regulations.
  - h. Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

- i. Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area.

### 3.10 TREE REMOVAL:

- Remove all trees indicated by the drawings and specifications, as requiring removal, in a manner that will not damage adjacent trees or structures or compacts the soil.
- Do not drop trees with a single cut. No tree to be removed shall be pushed over or up-rooted using a piece of grading equipment.
- Protect adjacent paving, soil, trees, shrubs, ground cover plantings and understory plants to remain from damage during all tree removal operations, and from construction operations. Protection shall include the root system, trunk, limbs, and crown from breakage or scarring, and the soil from compaction.
- Remove stumps and immediate root plate from existing trees to be removed. Grind trunk bases and large buttress roots to a depth of the largest buttress root or at least 18 inches below the top most roots which ever is less and over the area of three times the diameter of the trunk (DBH).
  1. For trees where the stump will fall under new paved areas, grind roots to a total depth of 18 inches below the existing grade. If the sides of the stump hole still have greater than approximately 20% wood visible, continue grinding operation deeper and or wider until the resulting hole has less than 20% wood. Remove all wood chips produced by the grinding operation and back fill in 8 inch layers with controlled fill of a quality acceptable to the site engineer for fill material under structures, compacted to 95% of the maximum dry density standard proctor. The Town Representative shall approve each hole at the end of the grinding operation.
  2. In areas where the tree location is to be a planting bed or lawn, remove all woodchips and backfill stump holes with planting soil as defined in Specification Section Planting Soil, in maximum of 12 inch layers and compact to 80 - 85% of the maximum dry density standard proctor.

### 3.11 PRUNING:

- Prune any low, hanging branches and vines from existing trees and shrubs that overhang walks, as follows:
  1. Walks - within 6 feet vertically of finish grade.
- All pruning shall be done in accordance with ANSI A300 (part 1), ISA BMP Tree Pruning (latest edition, and the "Structural Pruning: A Guide for the Green Industry", Edward Gilman, Brian Kempf, Nelda Matheny and Jim Clark, 2013 Urban Tree Foundation, Visalia CA.
- Perform other pruning task as indicated on the drawings or requested by the Town Representative.
- Where tree specific disease vectors require, sterilize all pruning tools between the work in individual trees.

### 3.12 WATERING

- The Contractor shall be fully responsible to ensure that adequate water is provided to all plants to be preserved during the entire construction period. Adequate water is defined to be maintaining soil moisture above the permanent wilt point to a depth of 8 inches or greater.
- The Contractor shall adjust the automatic irrigation system, if available, and apply additional water, using hoses or water tanks as required.
- Periodically test the moisture content in the soil within the root zone to determine the water content.



### 3.13 WEED REMOVAL

- During the construction period, control any plants that seed in and around the fenced Tree and Plant Protection area at least three times a year.
  1. All plants that are not shown on the planting plan or on the Tree and Plant Protection Plan to remain shall be considered as weeds.
- At the end of the construction period provide one final weeding of the Tree and Plant Protection Area.

### 3.14 CLEAN-UP

- During tree and plant protection work, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.
  1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.
- Once tree protection work is complete, wash all soil from pavements and other structures. Ensure that Mulch is confined to planting beds.
- Make all repairs to grades, ruts, and damage to the work or other work at the site.
- Remove and dispose of all excess Mulch, packaging, and other material brought to the site by the Contractor.

### 3.15 REMOVAL OF FENCING AND OTHER TREE AND PLANT PROTECTION

- At the end of the construction period or when requested by the Town Representative remove all fencing, Mulch, Filter Fabric, trunk protection and or any other Tree and Plant Protection material.

### 3.16 DAMAGE OR LOSS TO EXISTING PLANTS TO REMAIN

- Any trees or plants designated to remain and which are damaged by the Contractor shall be replaced in kind by the Contractor at their own expense. Trees shall be replaced with a tree of similar species and of equal size or 6 inch caliper which ever is less. Shrubs shall be replaced with a plant of similar species and equal size or the largest size plants reasonably available which ever is less. Where replacement plants are to be less than the size of the plant that is damaged, the Town Representative shall approve the size and quality of the replacement plant.
  1. All trees and plants shall be installed per the requirements of Specification Section Planting.
- Plants that are damaged shall be considered as requiring replacement or appraisal in the event that the damage affects more than 25 % of the crown, 25% of the trunk circumference, or root protection area, or the tree is damaged in such a manner that the tree could develop into a potential hazard. Trees and shrubs to be replaced shall be removed by the Contractor at his own expense.
  1. The Town Representative may engage an independent arborist to assess any tree or plant that appears to have been damaged to determine their health or condition.
- Any tree that is determined to be dead, damaged or potentially hazardous by the Town arborist and upon the request of the Town Representative shall be immediately removed by the Contractor at no additional expense to the Town. Tree removal shall include all clean up of all wood parts and grinding of the stump to a depth sufficient to plant the replacement tree or plant, removal of all chips from the stump site and filling the resulting hole with topsoil.
- Any remedial work on damaged existing plants recommended by the consulting arborist shall

be completed by the Contractor at no cost to the Town. Remedial work shall include but is not limited to: soil compaction remediation and vertical mulching, pruning and or cabling, insect and disease control including injections, compensatory watering, additional mulching, and could include application tree growth regulators (TGR).

- Remedial work may extend up to two years following the completion of construction to allow for any requirements of multiple applications or the need to undertake applications at required seasons of the year.

#### **PART 4 – MEASUREMENT AND PAYMENT**

The Contractor is referred to Special Provisions Section 12, “Bid Item Descriptions” for measurement and payment.

END OF SECTION

**SECTION 31 10 00**  
**SITE CLEARING**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- The scope of work includes all labor, materials, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with the clearing and grubbing and miscellaneous demolition of improvements to facilitate the new landscaping and improvements in the plans.
  1. Site clearing of designated site improvements and landscaping

**1.2 CONTRACT DOCUMENTS**

- Shall consist of specifications and general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

**1.3 RELATED DOCUMENTS AND REFERENCES**

- Related Documents:
  1. Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section.
  2. Section – 32 84 00: Irrigation
  3. Section – 32 34 00: Rockery Walls (Under Separate Contract)
  4. Section – 01 56 39: Tree and Plant Protection

**1.4 VERIFICATION**

- All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Town Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Town Representative.

**1.5 PROTECTION OF WORK, PROPERTY AND PERSON**

- The Contractor shall protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

**1.6 CHANGES IN THE WORK**

- The Town Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

**1.7 OBSERVATION OF THE WORK**

- The Town Representative may inspect the work at any time.

**PART 2 – PRODUCTS (NOT APPLICABLE)**

## **PART 3 – EXECUTION**

### **3.1 SITE CLEARING OPERATIONS**

- Protection of existing trees, vegetation, landscaping, and site improvements not scheduled for clearing which might be damaged by construction activities.
- Trimming of existing trees and vegetation as recommended by arborist for protection during construction activities.
- Clearing and grubbing of stumps and vegetation, and removal and disposal of debris, rubbish, designated trees, and site improvements.
- Topsoil stripping and stockpiling.
- Temporary erosion control, siltation control, and dust control.
- Temporary protection of adjacent property, structures, benchmarks, and monuments.
- Temporary relocation of improvements scheduled for reuse.
- Watering of trees and vegetation during construction activities.
- Removal and legal disposal of cleared materials.

### **3.2 CLEARING**

- Prevent damage to existing improvements indicated to remain, including improvements on and off site. Protect existing trees and vegetation indicated to remain. Do not stockpile materials and restrict traffic within drip line of existing trees to remain. Provide and maintain temporary guards to encircle trees or groups of trees to remain; obtain approval before beginning work.
- Water vegetation as required to maintain health. Cover temporarily exposed roots with wet burlap and backfill as soon as possible. Coat cut plant surfaces with approved emulsified asphalt plant coating.
- Repair or replace vegetation, which has been damaged, or pay damages. Remove heavy growths of grass before stripping. Stockpile satisfactory topsoil containing no large stones, foreign matter and weeds on site for reuse.
- Completely remove all improvements including stumps and debris except for those indicated to remain. Remove below grade improvements at least 12" below finish grade and to the extent necessary so as not to interfere with new construction. Remove abandoned mechanical and electrical work as required.
- Prevent erosion and siltation of streets, catch basins and piping. Control windblown dust. Remove waste materials and unsuitable soil from site and dispose of in a legal manner.

## **PART 4 – MEASUREMENT AND PAYMENT**

The Contractor is referred to Special Provisions Section 12, "Bid Item Descriptions" for measurement and payment.

END OF SECTION

**SECTION 32 13 13**  
**CONCRETE PAVING**

**PART 1 – GENERAL**

**1.1 SUMMARY**

The work included in this section includes but is not limited to the furnishing of all labor, tools, materials, appliances, tests, permits, taxes, etc., necessary for the installation of concrete improvements as specified herein and as shown on the drawings, including:

1. Footings and Foundations, as required.

**1.2 CONTRACT DOCUMENTS**

Shall consist of specifications and its general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any part shall be as binding as if called for in all parts.

**1.3 RELATED DOCUMENTS AND REFERENCES**

- Related Documents:

1. Drawings and general provisions of contract, including general and supplementary conditions and Division I specifications, apply to work of this section.
2. Related Specification Sections  
Section – 32 90 00: Planting  
Section – 01 56 39: Tree and Plant Protection

All concrete improvements shall be constructed in accordance with Section 73, "Concrete Curbs and Sidewalks" and Section 90, "Concrete" of the Standard Specifications and as modified in these Special Provisions.

- References:

1. American Society of Testing Materials (ASTM): cited section numbers.

National Sanitation Foundation (NSF): rating system.

Irrigation Association: Turf & Landscape Irrigation Best Management Practices

**1.4 PERMITS AND REGULATIONS**

The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Town Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Town Representative shall determine which shall govern.

**1.5 PROTECTION OF WORK, PROPERTY AND PERSON**

The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the Contractor's actions.

## 1.6 CHANGES IN THE WORK

The Town Representative may order changes in the work, and the contract sum being adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

All changes in the work, notifications and Contractor's request for information (RFI) shall conform to the contract general condition requirements.

## 1.7 CORRECTION OF WORK

The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Town Representative, at the soonest as possible time that can be coordinated with other work, and seasonal weather demands, but not more than 90 (ninety) days after notification.

## 1.8 DEFINITIONS

Town Representative: The person appointed by the Town to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Town Representative may appoint other persons to review and approve any aspects of the work.

## 1.9 SUBMITTALS

Submit concrete mix designs to Town Representative. Obtain approval before placing concrete.

Product data:

Submit complete materials list of items proposed for the work. Identify materials source.

Submit admixture, curing compound, retarder, and accessory item product data, if used.

Submit material certificates for aggregates, reinforcing, and joint fillers.

Submit concrete delivery tickets. Show the following:

Batch number.

Mix by class or sack content with maximum size aggregate.

Admixtures.

Slump.

Time of loading.

Submit concrete test reports.

## 1.10 OBSERVATION OF THE WORK

The Town Representative may inspect the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

## 1.11 SITE CONDITIONS

- It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Town Representative, in writing, of any circumstances that would negatively impact the installation of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

## 1.12 DELIVERY, STORAGE, AND HANDLING

Work notification: Notify Town Representative at least 24 hours prior to installation of concrete.

Establish and maintain required lines and grade elevations. All concrete shall slope to drain with no ponding of water.

Do not install concrete work over wet, saturated, muddy, or frozen subgrade.

Do not install concrete when air temperature is below 40 degrees F. Use of calcium chloride, salt, or any other admixture to prevent concrete from freezing is prohibited.

When temperatures is between 85 and 90 degrees F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when temperatures is above 90 degrees F, reduce mixing and delivery to 60 minutes.

Protect adjacent work.

## **PART 2 – PRODUCTS**

### **PORTLAND CEMENT**

Portland cement concrete used for all concrete structures shall be Minor Concrete in accordance with Section 90, "Concrete" of the Standard Specifications and in accordance with these Special Provisions.

#### **2.2 GLARE REDUCING AGENT**

- Concrete placed in curb, gutter and sidewalks (but not medians) shall contain a coloring compound equivalent to 1/4 pound of lampblack per cubic yard, added to the concrete at the central mixing plant.

#### **2.3 BASE ROCK**

- Class 2 aggregate base shall be used under the concrete improvements, where noted or called out on the plans. In areas that contain the required amount of exiting base rock, or under existing (non-structural) sidewalk that is being removed and replaced, existing material can be recompacted.

#### **2.4 STEEL REINFORCEMENT**

- Dowels: Steel bars of the size or sizes called for on the plans conforming to the requirements of ASTM Designation A615 for Grade 60 bars shall be used when tying into existing concrete. Dowels shall be installed 30-inches on center and be at least 6-inches from the edge of concrete. A minimum of two dowels shall be used within curb and gutter and within sidewalks.
- Reinforcing steelbar: ASTM A615, A616, or A617, Grade 60, new domestic deformed steel bars.
- Slip dowels, where noted or called for on the plans or detail drawings shall be smooth billet-steel bars as designated and conforming to the requirements of ASTM Designation A615 for Grade 60 bars. Ends of bars inserted in new work shall be covered with a cardboard tube sealed with cork; no grease or oil will be used.

#### **2.5 EXPANSION JOINT MATERIAL**

- Material for expANSion joints in Portland cement concrete improvements shall be a pre-molded expANSion joint fillers of the thickness called for on the plans and conforming to the requirements of ASTM Designation D1751. ExpANSion joint material shall be shaped to fit the cross section of the concrete prior to being placed and extend all the way down to the base material.

## 2.6 CURING COMPOUND

- All concrete shall be cured by the curing compound method. The curing compound shall be the clear or translucent type containing a fugitive dye conforming to the requirements of ASTM Designation: C 309, Type I-D, Class A. The loss of water when tested in accordance with California Test 534, shall not be more than 0.03 lb/ft<sup>2</sup> (0.15 kg/m<sup>2</sup>) in 24 hours nor more than 0.09 lb/ft<sup>2</sup> (0.45 kg/m<sup>2</sup>) in 72 hours.

## **PART 3 – EXECUTION**

### CONCRETE INSTALLATION

Curb, gutter, sidewalk, and other concrete improvements shall be constructed in accordance with the project details included in the plans, and/or in accordance with Town Standard Details, and State Standard Specifications, as applicable.

Concrete work shall be completed to have a transverse medium broom finish.

The curing compound shall be applied at the approximate rate of one gallon per 150 square feet of area. The curing compound shall be applied in a manner that will provide a complete coating of all exposed faces of the concrete surface.

## **PART 4 – MEASUREMENT AND PAYMENT**

The Contractor is referred to Special Provisions Section 12, "Bid Item Descriptions" for measurement and payment.

END OF SECTION



**SECTION 32 32 23**  
**CONCRETE SEGMENTAL WALL SYSTEM**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- The scope of work includes all labor, materials, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with construction of a freestanding or retaining Belgard Belair Wall 2.0 wall system in accordance with these specifications and in general conformity with the lines, grades, design, and dimensions shown on the plans.
- Earthwork includes:
  1. Preparing Foundation Soil and Retained Soil to the lines and grades shown on the construction drawings;
  2. Furnishing and installing Leveling Pad, Reinforced Fill (where required) and Low Permeability Soil (where required) to the lines and grades shown on the construction drawings; and,
- Installation work includes:
  1. Furnishing and installing Block Wall Units and Unit Fill to achieve the lines and grades shown on the construction drawings.
  2. Furnishing and installing Subsurface Drainage System, including necessary fittings, of the type, size, and location designated on the construction drawings.

**1.2 CONTRACT DOCUMENTS**

- Shall consist of specifications and general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

**1.3 RELATED DOCUMENTS AND REFERENCES**

- Related Documents:
  1. Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section.
  2. Section – 32 84 00: Irrigation
  3. Section – 32 90 00: Planting
  4. Section – 01 56 39: Tree and Plant Protection
- Related References:
  1. American Association of State Highway Transportation Officials (AASHTO)
    - a)AASHTO M 288 Geotextile Specifications for Highway Applications
    - b)AASHTO M 252 Corrugated Polyethylene Drainage Pipe
    - c)AASHTO National Transportation Product Evaluation Program (NTPEP)
  2. American Society for Testing and Materials (ASTM)
    - a)ASTM C140 Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
    - b)ASTM C1262 Standard Test Method for Evaluating the Freeze-Thaw Durability of Manufactured Concrete Masonry Units and Related Concrete Units
    - c)ASTM C1372 Standard Specification for Segmental Retaining Wall Units
    - d)ASTM D1556 Standard Test Method for Density and Unit Weight of Soil In Place by the Sand Cone Method

- e) ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup>)(2700 kN-m/m<sup>3</sup>)
- f) ASTM D2487 Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
- g) ASTM D2922 Standard Test Methods for Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth)

3. National Concrete Masonry Association (NCMA)

- a) NCMA Design Manual for Segmental Retaining Walls, Third Edition, 2010

#### 1.4 DEFINITIONS

- Segmental Retaining Wall (SRW) Units: Dry-stacked concrete masonry units used as the freestanding or retaining wall fascia.
- Shear/location connectors: Polyester resin-pultruded fiberglass reinforcement rods to provide connection between vertically and horizontally adjacent units
- Unit Fill and Drainage Aggregate: Material used (if applicable) within, between, and directly behind the concrete retaining wall units.
- Geotextile Separation Fabric: Material used for separation and filtration of dissimilar soil types.
- Foundation Soil: Soil mass supporting the leveling pad and reinforced soil zone of the retaining wall system.
- Retained Soil: The soil mass located behind the reinforced soil zone, either undisturbed native soils or compacted fill.
- Leveling Pad: A level surface consisting of crushed stone, sand and gravel or unreinforced concrete placed to provide a working surface for placement of the SRW unit.
- Pre-fabricated Drainage Composite: three-dimensional geosynthetic drainage medium encapsulated in a geotextile filter, used to transport water.
- Subsurface Drainage System: horizontal pipe encapsulated within drainage aggregate at or near the base of the reinforced soil to facilitate removal of water from the wall system.

#### 1.5 SUBMITTALS/CERTIFICATION

A. Product Data

1. Product Data: Material description and installation instructions for each manufactured product specified
2. Name and address of the production facility where the proposed facing units will be manufactured. All units shall be manufactured at the same facility.

B. Samples:

1. Contractor shall submit to the owner for approval, and retain for the balance of the project, a minimum of one SRW unit that represents the range of texture and color permitted.

#### 1.6 DELIVERY, STORAGE AND HANDLING

- A. SRW Units and Accessories: Deliver, store, and handle materials in accordance with manufacturer's recommendations, in such a manner as to prevent damage. Check the materials upon delivery to assure that proper material has been received. Store SRW units above ground on wood pallets or blocking. Remove damaged or otherwise unsuitable material, when so determined, from the site.
- B. Exposed faces of wall units shall be relatively free of chips, cracks, stains, and other

imperfections detracting from their appearance, when viewed from a distance of 20 feet under diffused lighting.

- C. Prevent mud, wet cement, adhesives and similar materials that may harm appearance of SRW units, from coming in contact with system components.
- D. Geosynthetics (including geotextile filter) shall be delivered, stored, and handled in accordance with ASTM D4873.

#### 1.7 VERIFICATION

- All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Town Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Town Representative.

#### 1.8 PROTECTION OF WORK, PROPERTY AND PERSON

- The Contractor shall protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

#### 1.9 CHANGES IN THE WORK

- The Town Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

#### 1.10 OBSERVATION OF THE WORK

- The Town Representative may inspect the work at any time.

### **PART 2 – PRODUCTS**

#### 2.1 MATERIALS

- A. SRW Units: Anchor Sterling Retaining Wall Units as manufactured under license from Anchor Wall Systems.
  - 1. Physical Requirements
    - a. Meet requirements of ASTM C1372, except the unit height dimensions shall not vary more than plus or minus 1/16 inch from that specified in the ASTM reference, not including textured face.
    - b. Unit Face Area: Not less than 1.0 square foot.
    - c. Color: Selected by the [Architect] [Engineer] [Owner] from manufacturer's full range of standard colors.
    - d. Face Pattern Geometry: Straight
    - e. Texture: Split Rock Face.
    - f. Batter: Include a shear connection locator to provide a 1/4 inch setback for each wall course.
- B. Shear Connectors: Shear connectors shall be 5 inches long and have a 1/2-inch diameter and consist of polyester resin-pultruded fiberglass reinforcement rods specifically supplied to work with the system, in order to provide connection between vertically and horizontally adjacent units with the following requirements:
  - 1. Flexural Strength in accordance with ASTM D4476: 128,000 psi minimum;
  - 2. Short Beam Shear in accordance with ASTM D4475: 6,400 psi minimum
- C. Leveling Pad
  - 1. Aggregate Base: Crushed stone or granular fill meeting the following gradation as

determined in accordance with ASTM D448:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch	100
No. 4	35 to 70
No. 40	10 to 35
No. 200	3 to 10

a. Base Thickness: 6 inches (minimum compacted thickness).

2. Concrete Base: Non-reinforced lean concrete base.

a. Compressive Strength: 3,000 psi (maximum).

b. Base Thickness: At least 2 inches.

D. Unit Fill and Drainage Aggregate: Clean crushed stone or granular fill meeting the following gradation as determined in accordance with ASTM D448:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch	100
3/4 inch	75 to 100
No. 4	0 to 60
No. 40	0 to 50
No. 200	0 to 5

E. Reinforced Fill: Soil free of organics and debris and consisting of either GP, GW, SP, SW, or SM type, classified in accordance with ASTM D2487 and the USCS classification system and meeting the following gradation as determined in accordance with ASTM D448:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch	100
No. 4	20 to 100
No. 40	0 to 60
No. 200	0 to 35

a. Plasticity Index (PI) < 6 per ASTM D4318.

b. Maximum particle size for backfill is 1 inch unless field tests have been performed to evaluate potential strength reduction to the geosynthetic reinforcement due to damage during construction per ASTM D5818.

c. Unsuitable soils are organic soils and those soils classified as SC, CL, ML, CH, OH, MH, OL, or PT.

F. Drainage Pipe: Perforated or slotted PVC or corrugated HDPE pipe manufactured in accordance with D3034 and/or ASTM F405. All connectors and fittings shall match the piping material.

G. Geotextile Separation Fabric: Geotextile Separation fabric shall be minimum 4.0 oz/sy, polypropylene, needle-punched nonwoven fabric.

H. Construction Adhesive: Exterior grade adhesive as recommended by the retaining wall unit manufacturer.

### **PART 3 – EXECUTION**

#### **3.1 EXAMINATION**

A. Prior to commencing work, the retaining wall contractor shall examine the areas and conditions under which the wall system is to be erected, and notify the Town Representative in writing of conditions detrimental to the proper and timely completion of the work. Do not

proceed with the work until unsatisfactory conditions have been corrected.

- B. Promptly notify the wall design engineer of site conditions which may affect wall performance, soil conditions observed other than those assumed, or other conditions that may require a reevaluation of the wall design.
- C. Verify the location of existing structures and utilities prior to excavation.

### 3.2 PREPARATION

- A. Ensure surrounding structures are protected from the effects of wall excavation.
- B. Excavation support, if required, is the responsibility of the Contractor, including the stability of the excavation and its influence on adjacent properties and structures.

### 3.3 EXCAVATION

- A. Excavate to the lines and grades shown or implied on the Drawings. Over-excavation not approved by the Town Representative will not be paid for by the Town. Replacement of these soils with compacted fill and/or wall system components will be required at the Contractor's expense. Use care in excavating to prevent disturbance of the base beyond the lines shown.

### 3.4 FOUNDATION PREPARATION

- A. Excavate foundation soil as required for footing or base dimension shown or implied on the Drawings.
- B. Fill over-excavated areas with suitable compacted backfill, as required.

### 3.5 LEVELING PAD PREPARATION

- A. Place base materials to the depths and widths shown or implied on the Drawings, upon undisturbed soils, or foundation soils prepared in accordance with Article 3.04.
  - 1. Extend the leveling pad laterally at least 6 inches in front and behind the lowermost SRW unit.
  - 2. Provide aggregate base compacted to 6 inches thick (minimum) or as shown on the drawings.
  - 3. The Contractor may at their option, provide a concrete leveling pad as specified in Subparagraph 2.01.C.2, in lieu of the aggregate base.
  - 4. Where a reinforced footing is required by local code official, place footing below frost depth.
- B. Compact aggregate base material to provide a level, hard surface on which to place the first course of SRW units.
- C. Prepare base materials to ensure complete contact with SRW units. Gaps are not allowed.

### 3.6 ERECTION

- A. General: Erect SRW units in accordance with manufacturer's instructions and recommendations, and as specified herein.
- B. Place first course of concrete wall units on the prepared base material. Check units for level and alignment. Maintain the same elevation at the top of each unit within each section of the

base course.

- C. Ensure that foundation units are in full contact with the leveling pad.
- D. Place concrete wall units side-by-side for full length of wall alignment. Alignment may be done by using a string line measured from the back of the block. Gaps are not allowed between the foundation concrete wall units.
- E. Place drainage aggregate between and directly behind the SRW. Fill any voids in SRW units with drainage aggregate. Provide a drainage zone behind the SRW units a minimum of 12 inches wide to within 8 inches of the final grade. Cap the backfill and drainage aggregate zone with separation fabric and then 8 inches of low permeability soil.
- F. Install drainage pipe at the lowest elevation possible to maintain gravity flow of water to outside of the reinforced zone. Slope the main collection drainage pipe 2 percent (minimum) to provide gravity flow to the daylighted areas. Daylight the main collection drainage pipe through the face of the wall, and/or to an appropriate location away from the wall system at each low point or at 50 foot (maximum) intervals along the wall. Alternately, the drainage pipe can be connected to a storm sewer system at 50 foot (maximum) intervals.
- G. Remove excess fill from top of SRW units, place shear/location devices and install next course. Ensure drainage aggregate and backfill are compacted before installation of next course.
- H. Check each course for level and alignment. Adjust SRW units as necessary to maintain level and alignment prior to proceeding with each additional course.
- I. Install each succeeding course. Backfill as each course is completed. Pull the SRW units forward until the locating surface of the SRW unit contacts the shear connector in the preceding course. Interlock wall segments that meet at corners by overlapping successive courses. Attach SRW units at exterior corners with adhesive specified.

### 3.7 BACKFILL PLACEMENT

- A. Place reinforced fill, spread and compact in a manner that will minimize slack in the reinforcement.
- B. Place fill within the reinforced zone and compact in lifts not exceeding 6 inches (loose thickness) where hand-operated compaction equipment is used, and not exceeding 12 inches (loose thickness) where heavy, self-propelled compaction equipment is used.
  - 1. Only lightweight hand-operated compaction equipment is allowed within 3 feet of the back of the retaining wall units. If the specified compaction cannot be achieved within 3 feet of the back of the retaining wall units, replace the reinforced soil in this zone with drainage aggregate material.
- C. Compaction testing shall be done in accordance with ASTM D1556 or ASTM D2922.
- D. Minimum Compaction Requirements for Fill Placed in the Reinforced and Retained Zone.
  - 1. The minimum compaction requirement shall be determined by the project geotechnical engineer testing the compaction. At no time shall the soil compaction requirements be less than 95 percent of the soil's standard Proctor maximum dry density (ASTM D698) [modified Proctor maximum dry density (ASTM D1557)] for the entire wall height.
  - 2. Utility Trench Backfill: Compact utility trench backfill in or below the reinforced soil zone to 98 percent of the soil's standard Proctor maximum dry density (ASTM D698) [modified Proctor maximum dry density (ASTM D1557)], or as recommended by the

Project geotechnical engineer. If the height from the utility to finish grade is higher than 30 feet, increase compaction to 100 percent of the standard Proctor density [modified Proctor density].

- a. Utilities must be properly designed (by others) to withstand all forces from the retaining wall units, reinforced soil mass, and surcharge loads, if any.
3. Moisture Content: Within 2 percentage points of the optimum moisture content for all wall heights.
4. These specifications may be changed based on recommendations by the Project geotechnical engineer.
  - a. If changes are required, the Contract Sum will be adjusted by written Change Order.
- E. At the end of each day's operation, slope the last level of compacted backfill away from the interior (concealed) face of the wall to direct surface water runoff away from the wall face.
  1. The General Contractor is responsible for ensuring that the finished site drainage is directed away from the retaining wall system.
  2. In addition, the General Contractor is responsible for ensuring that surface water runoff from adjacent construction areas is not allowed to enter the retaining wall area of the construction site.

### 3.8 CAP UNIT INSTALLATION

- A. Apply adhesive to the top surface of the SRW unit below and place the cap unit into desired position.
- B. Cut cap SRW units as necessary to obtain the proper fit.
- C. Backfill and compact to top of SRW unit.

### 3.9 SITE CONSTRUCTION TOLERANCES

- A. Site Construction Tolerances
  1. Vertical Alignment: Plus or minus 1-1/2 inches over any 10-foot distance, with a maximum differential of 3 inches over the length of the wall.
  2. Horizontal Location Control from Grading Plan
    - a. Straight Lines: Plus or minus 1-1/2 inches over any 10-foot distance.
    - b. Corner and Radius Locations: Plus or minus 12 inches.
    - c. Curves and Serpentine Radii: Plus or minus 2 feet.
  3. Immediate Post Construction Wall Batter: Within 2 degrees of the design batter of the concrete retaining wall units.
  4. Bulging: Plus or minus 1-1/4 inches over any 10-foot distance.

### 3.10 FIELD QUALITY CONTROL

- A. Installer is responsible for quality control of installation of system components.
- B. Correct work which does not meet these specifications or the requirements shown on the Drawings at the installer's expense.
- C. Perform compaction testing of the reinforced backfill placed and compacted in the reinforced backfill zone.
  1. Testing Frequency
    - a. One test for every 2 feet (vertical) of fill placed and compacted, for every 50

- lineal feet of retaining wall.
- b. Vary compaction test locations to cover the entire area of the reinforced soil zone, including the area compacted by the hand-operated compaction equipment.

### 3.11 ADJUSTING AND CLEANING

- A. Replace damaged SRW units with new units as the work progresses.
- B. Remove debris caused by wall construction and leave adjacent paved areas broom clean.

## **PART 4 – MEASUREMENT AND PAYMENT**

The Contractor is referred to Special Provisions Section 12, "Bid Item Descriptions" for measurement and payment.

END OF SECTION



## **SECTION 32 84 00**

### **IRRIGATION**

#### **PART 1 – GENERAL**

##### **1.1 SUMMARY**

- A. Irrigation system required for this work includes but is not limited to the furnishing of all labor, tools, materials, appliances, tests, permits, taxes, etc., necessary for the installation of a landscape irrigation system as herein specified and shown on the drawings, and the removal of all debris from the site.
  - 1. Locate, purchase, deliver and install piping, conduit, sleeves, 120 volt and low voltage electrical and water connections, valves, backflow preventer devices, controllers, rain sensors, spray and bubbler heads, drip irrigation lines, and associated accessories for a fully operational automatic irrigation system.
  - 2. Trenching and water settling of backfill material.
  - 3. Testing and startup of the irrigation system.
  - 4. Prepare an as built record set of drawings.
  - 5. Training of the town maintenance personnel in the operational requirements of the irrigation system.
  - 6. Clean up and disposal of all excess and surplus material.
  - 7. Maintenance of the irrigation system during the proscribed maintenance period.
- B. The system shall efficiently and evenly irrigate all areas and be complete in every respect and shall be left ready for operation to the satisfaction of the town representative.
- C. Coordinate with other trades, as needed to complete work, including but not limited to water meter, point of connection (poc) and backflow preventer device (bfpd) location and electrical hookups.

##### **1.2 CONTRACT DOCUMENTS**

- A. Shall consist of specifications and its general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any part shall be as binding as if called for in all parts.

##### **1.3 RELATED DOCUMENTS AND REFERENCES**

- A. Related documents:
  - 1. Drawings and general provisions of contract, including general and supplementary conditions and division i specifications, apply to work of this section.
  - 2. Related specification sections
    - a. Section – 32 90 00: planting
    - b. Section – 01 56 39: tree and plant protection
- B. References:
  - 1. American society of testing materials (ASTM): cited section numbers.
  - 2. National sanitation foundation (NSF): rating system.
  - 3. Irrigation association: turf & landscape irrigation best management practices

##### **1.4 VERIFICATION**

- A. Irrigation piping and related equipment are drawn diagrammatically. Scaled dimensions are

approximate only. Before proceeding with work, carefully check and verify dimensions and immediately notify the town representative of discrepancies between the drawings or specifications and the actual conditions. Although sizes and locations of plants and or irrigation equipment are drawn to scale wherever possible, it is not within the scope of the drawings to show all necessary offsets, obstructions, or site conditions. The contractor shall be responsible to install the work in such a manner that it will be in conformance to site conditions, complete, and in good working order.

- B. Piping and equipment is to be located within the designated planting areas wherever possible unless specifically defined or dimensioned otherwise.

#### 1.5 PERMITS AND REGULATIONS

- A. The contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the contractor shall promptly notify the town representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.
- B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.
- C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or town representative shall determine which shall govern.

#### 1.6 PROTECTION OF WORK, PROPERTY AND PERSON

- A. The contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to the contractor's actions.

#### 1.7 CHANGES IN THE WORK

- A. The town representative may order changes in the work, and the contract sum being adjusted accordingly. All such orders and adjustments plus claims by the contractor for extra compensation must be made and approved in writing before executing the work involved.
- B. All changes in the work, notifications and contractor's request for information (rfi) shall conform to the contract general condition requirements.

#### 1.8 CORRECTION OF WORK

- A. The contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the town representative, at the soonest as possible time that can be coordinated with other work, and seasonal weather demands, but not more than 90 (ninety) days after notification.

#### 1.9 DEFINITIONS

- A. Town representative: the person appointed by the owner to represent their interest in the review and approval of the work and to serve as the contracting authority with the contractor. The town representative may appoint other persons to review and approve any aspects of the work.
- B. Substantial completion acceptance: the date at the end of the planting, planting soil, and irrigation installation where the town representative accepts that all work in these sections is complete and the warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project.
- C. Final acceptance: the date when the town representative accepts that the plants and work in this section meet all the requirements of specification. It is intended that the materials and

workmanship warranty for planting, planting soil, and irrigation work run concurrently.

#### 1.10 SUBMITTALS

- A. See the contract general conditions for policy and procedures related to submittals.
- B. Product data
  - 1. Submit a minimum of (3) complete lists of all irrigation equipment to be used, manufacturer's brochures, maintenance manuals, warranties and operating instructions, within 15 days after the notice to proceed.
    - a. This submission may be done digitally and all documents shall be submitted in one pdf document.
  - 2. The submittals shall be packaged and presented in an organized manner, in the quantity described in division 1 of the specifications. Provide a table of contents of all submitted items.
  - 3. Clearly identify on each submitted sheet by underlining or highlighting (on each copy) the specific product being submitted for approval. Failure to clearly identify the specific product being submitted will result in a rejection for the entire submittal. No substitutions of material or procedures shall be made concerning these documents without the written consent of an accepted equivalent by the town representative.
  - 4. Equipment or materials installed or furnished without prior approval of the town representative, may be rejected by the town representative and the contractor shall be required to remove such materials from the site at their own expense.
  - 5. Approval of substitution of material and/or products, other than those specified shall not relieve the contractor from complying with the requirements of the contract documents and specifications. The contractor shall be responsible, at their own expense, for all changes that may result from the approved substitutions, which affect the installation or operations other items of their own work and/or the work of other contractors.
- C. Samples: samples of the equipment may be required at the request of the town representative if the equipment is other than that specified.
- D. Other submittals: submit for approval:
  - 1. Documentation of the installer's qualifications.
  - 2. As built record set of drawings.
  - 3. Testing data from all required pressure testing.
  - 4. Irrigation controller certification: certification from the manufacturer or an authorized distributor that the controller has been installed correctly according to the manufactures requirements.

#### 1.11 OBSERVATION OF THE WORK

- A. The town representative may inspect the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the contractor's expense. The cost of testing materials not meeting specifications shall be paid by the contractor.
- B. The town representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The town representative shall be afforded sufficient time to schedule visit to the site. Failure of the town representative to make field observations shall not relieve the contractor from meeting all the requirements of this specification.
  - 1. Trenching, directional boring, and sleeving review.

2. Hydrostatic pressure testing.
3. Adjustment and coverage test.
4. Pre-maintenance observation.
5. Final acceptance / system malfunction corrections.

#### 1.12 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre-construction meeting with the town representative at least seven (7) days before beginning work to review any questions the contractor may have regarding the work, administrative procedures during construction and project work schedule.

#### 1.13 QUALITY ASSURANCE

- A. It is the intention of this specification to accomplish the work of installing an automatic irrigation system, which will operate in an efficient and satisfactory manner. The irrigation system shall be installed and made operational according to the workmanlike standards established for landscape installation and sprinkler irrigation operation as set forth by the most recent best management practices (bmp) of the irrigation association.
- B. The specification can only indicate the intent of the work to be performed rather than a detailed description of the performance of the work. It shall be the responsibility of the contractor to install said materials and equipment in such a manner that they shall operate efficiently and evenly and support optimum plant growth and health.
- C. The town representative shall be the sole judge of the true intent of the drawings and specifications and of the quality of all materials furnished in performance of the contract.
- D. The contractor shall keep one copy of all drawings and specifications on the work site, in good order. The contractor shall make these documents available to the town representative when requested.
- E. In the event of any discrepancies between the drawings and the specification, the final decision as to which shall be followed, shall be made by the town representative.
- F. In the event the installation is contradictory to the direction of the town representative, the installation shall be rectified by the contractor at no additional cost to the owner. The contractor shall immediately bring any such discrepancies to the attention of the town representative.
- G. It shall be distinctly understood that no oral statement of any person shall be allowed in any manner to modify any of the contract provisions. Changes shall be made only on written authorization of the town representative.
- H. Installer qualifications: the installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the work.
  - a. Installer field supervision: the installer shall maintain on site an experienced full-time supervisor who can communicate in english with the town representative.
  - b. Submit the installer's qualifications for approval.

#### 1.14 IRRIGATION SYSTEM WARRANTY:

- A. The contractor shall warrantee all workmanship and materials for a period of 1 year following the acceptance of the work.
  1. Any parts of the irrigation work that fails or is defective shall be replaced or reconstructed at no expense to the owner including but not limited to: restoring grades that have settled in trenches and excavations related to the work. Reconstruction shall include any plantings, soil, mulch or other parts of the constructed landscape that may be damaged during the repair or that results from soil settlement.
- B. The date of acceptance of the work and start of the guarantee period shall be determined by the town representative, upon the finding that the entire irrigation system is installed as

designed and specified, and found to be operating correctly, supplying water evenly to all planting and/or lawn areas.

- C. The system controller shall be warranted by the equipment manufacturer against equipment malfunction and defects for a period of at least 1 year, following the acceptance of the work.
- D. Neither the final acceptance nor any provision in the contract documents shall relieve the contractor of responsibility for faulty materials or workmanship. The contractor shall remedy any defects within a period of 7 days (s) from the date of notification of a defect.

#### 1.15 SITE CONDITIONS

- A. It is the responsibility of the contractor to be aware of all surface and sub-surface conditions, and to notify the town representative, in writing, of any circumstances that would negatively impact the installation of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

#### 1.16 DELIVERY, STORAGE, AND HANDLING

- A. All materials and equipment shall be stored properly and protected as required by the contractor. The contractor shall be entirely responsible for damages or loss by weather or other cause to work under the contract. Materials shall be furnished in ample quantities and at such times as to ensure uninterrupted progress of the work.
- B. Deliver the products to the job site in their original unopened container with labels intact and legible at time of use.
- C. Store in accordance with the manufacturers' recommendations.

#### 1.17 PROTECTION

- A. The contractor shall continuously maintain adequate protection of all their work from damage, destruction, or loss, and shall protect the town property from damage arising in connection with this contract. Contractor shall make good any such damage, destruction, loss or injury. Contractor shall adequately protect adjacent property as provided by law and the contract documents.
- B. The contractor shall maintain sufficient safeguards, such as railings, temporary walks, lights, etc., against the occurrence of accidents, injuries or damage to any person or property resulting from their work, and shall alone be responsible for the same if such occurs.
- C. All existing paving, structures, equipment or plant material shall be protected at all times, including the irrigation system related to plants, from damage by workers and equipment. The contractor shall follow all protection requirements including plant protection provision of the general contract documents. All damages shall be repaired or replaced at the contractor's expense. Repairs and or replacement shall be to the satisfaction of the town representative, including the selection of a contractor to undertake the repair or maintenance. Repairs shall be at no cost to the owner.
  - 1. For trees damaged to the point where they will not be expected to survive or which are severely disfigured and that are too large to replace, the cost of damages shall be as determined by the town arborist using accepted tree value evaluation methods.
- D. The contractor shall refrain from trenching within the drip line of any existing tree to remain. The town representative may require the contractor to relocate proposed irrigation work, bore lines beneath roots or use air spade technology to dig trenches through and under the root system to avoid damage to existing tree root areas.

#### 1.18 EXCAVATING AROUND UTILITIES

- A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.
  - 1. Do not begin any excavation until all underground utilities have been located and marked.

Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain stakes and or markings set by others until parties concerned mutually agree to their removal.

- B. Notification of *UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA, 1-800-227-2600*, is required for all planting areas: the contractor is responsible for knowing the location and avoiding utilities whether located or not by underground service alert.
- C. Section 4216/4217 of the government code requires a dig-alert identification number be issued before a "permit to excavate" will be valid. For your dig-alert identification number call underground service alert toll free 1-800-422-4133 two working days before beginning construction.

#### 1.19 POINT OF CONNECTION

- A. The point of connection of the irrigation system to its electrical power sources shall be provided by the irrigation installer. All connections shall be made by a licensed electrical contractor per governing codes at the location shown on the drawings.
- B. The point of connection of the irrigation system to its potable and or non-potable water sources, including the main shutoff valve and backflow preventer shall be provided by the irrigation installer. All connections shall be made by a licensed contractor per governing codes, at the location shown on the drawings.

#### 1.20 TEMPORARY UTILITIES

- A. All temporary piping, wiring, meters, panels and other related appurtenances required between source of supply and point of use shall be provided by the contractor and coordinated with the town representative. Existing utilities may be used with the written permission of the owner.

#### 1.21 CUTTING, PATCHING, TRENCHING AND DIGGING

- A. The contractor shall do all cutting, fitting, trenching or patching of their work that may be required to make its several parts come together as shown upon, or implied by, the drawings and specifications for the completed project.
- B. Digging and trenching operations shall be suspended when the soil moisture is above field capacity.

#### 1.22 USE OF PREMISES

- A. The contractor shall confine their apparatus; the storage of materials, and the operations of their workers to limits indicated by the law, ordinances, or permits and shall not unreasonably encumber the premises with their materials.
- B. Contractor parking, and material and equipment storage shall in areas approved by the town representative.

#### 1.23 AS BUILT RECORD SET OF DRAWINGS

- A. Immediately upon the installation of any buried pipe or equipment, the contractor shall indicate on the progress record drawings the locations of said pipe or equipment. The progress record drawings shall be made available at any time for review by the town representative.
- B. Before final acceptance of work, the contractor shall provide an as built record set of drawings showing the irrigation system work as built. The drawings shall be transmitted to the town representative in paper format and as a pdf file of each document on compact disk or flash drive. The drawings shall include all information shown on the original contract document and revised to reflect all changes in the work. The drawings shall include the

following additional information

1. All valves shall be numbered by station and corresponding numbers shall be shown on the as built record set of drawings.
2. All main line pipe or irrigation equipment including sleeves, valves, controllers, irrigation wire runs which deviate from the mainline location, backflow preventers, remote control valves, grounding rods, shut-off valves, rain sensors, wire splice locations, and quick coupling valves shall be located by two (2) measured dimensions, to the nearest one-half foot. Dimensions shall be given from permanent objects such as buildings, sidewalks, curbs, walls, structures and driveways. All changes in direction and depth of main line pipe shall be noted exactly as installed. Dimensions for pipes shall be shown at no greater than a 50 ft. Maximum interval.
3. As built record set of drawings shall be signed and dated by the contractor attesting to and certifying the accuracy of the as built record set of drawings. As built record set of drawings shall have "as built record set of drawings", company name, address, phone number and the name of the person who created the drawing and the contact name (if different).

C. The owner shall make the original contract drawing files available to the contractor.

#### 1.24 CONTROLLER CHARTS:

- A. Provide one controller chart for each automatic controller installed.
  1. On the inside surface of the cover of each automatic controller, prepare and mount a color-coded chart showing the valves, main line, and systems serviced by that particular controller. All valves shall be numbered to match the operation schedule and the drawings. Only those areas controlled by that controller shall be shown. This chart shall be a plot plan, entire or partial, showing building, walks, roads and walls. The plan, reduced as necessary and legible in all details, shall be made to a size that will fit into the controller cover. This print shall be approved by the town representative and shall be protected in laminated in a plastic cover and be secured to the inside back of the controller cabinet door.
  2. The controller chart shall be completed and approved prior to acceptance of the work.

#### 1.25 TESTING

- A. Provide all required system testing with written reports as described in part 3.

#### 1.26 OPERATION AND MAINTENANCE MANUALS AND GUARANTEES

- A. Prepare and deliver to the town representative within ten calendar days prior to completion of construction, two 3-ring hard cover binders containing the following information:
  1. Index sheet stating contractor's address and telephone number, list of equipment with name and addresses of local manufacturers' representatives.
  2. Catalog and parts sheets on all material and equipment.
  3. Guarantee statement. The start of the guarantee period shall be the date the irrigation system is accepted by the owner.
  4. Complete operating and maintenance instruction for all major equipment.
  5. Irrigation product manufacturers warranties.
- B. In addition to the above-mentioned maintenance manuals, provide the town maintenance personnel with instructions for maintaining major equipment and show evidence in writing to the town representative at the conclusion of the project that this has been rendered.

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS GENERAL**

- A. All materials shall be of standard, approved and first grade quality and shall be new and in perfect condition when installed and accepted.
- B. The use of a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and configuration desired only. Other manufacturer's equipment may be submitted for approval with written approval by the town representative. Substituted equipment shall not substantially alter the operations of the system.
- C. Approval of any items or substitutions indicates only that the product(s) apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted. The contractor shall be responsible for the performance of substituted items. If the substitution proves to be unsatisfactory or not compatible with other parts of the system, the contractor shall replace said items with the originally specified items, including all necessary work and modifications to replace the items, at no cost to the owner.

### **2.2 PIPING MATERIAL**

- A. Individual types of pipe and fittings supplied are to be of compatible manufacturer unless otherwise approved. Pipe sizes shown are nominal inside diameter unless otherwise noted.
- B. Plastic pipe:
  - 1. All pipe shall be free of blisters, internal striations, cracks, or any other defects or imperfections. The pipe shall be continuously and permanently marked with the following information: manufacturer's name or trade mark, size, class and type of pipe pressure rating, quality control identifications, date of extrusion, and national sanitation foundation (NSF) rating.
  - 2. Pressure main line for piping upstream of remote control valves and quick coupling valves:
    - a. Pipe smaller than 2 inch diameter shall be plastic pipe for use with solvent weld or threaded fittings. Shall be manufactured rigid virgin polyvinyl chloride (PVC) 1220, type 1, grade 2 conforming to ASTM D 1785, designated as schedule 40.
    - b. Pipe 2 - 3 inch diameter shall be manufactured rigid virgin polyvinyl chloride (PVC), type 1, grade 2 conforming to ASTM D 1785, designated as bell gasket class 315.
    - c. Pipe larger than 3 inch diameter shall be manufactured rigid virgin polyvinyl chloride (PVC), type 1, grade 2 conforming to ASTM D 1785, designated as bell gasket class 200 PVC.
  - 3. Non-pressure lateral line for piping downstream of remote control valves: plastic pipe for use with solvent weld or threaded fittings. Shall be manufactured rigid virgin polyvinyl chloride PVC 1220 (type 1, grade 2) conforming to ASTM D 1785, designated as class 200, 3/4" minimum size.
- C. Galvanized pipe shall be used for above ground connections to, backflow prevention device assemblies, hose bibs, and booster pumps and as shown on the plans and details.
  - 1. Pipe shall be hot dip galvanized continuous welded, seamless, schedule 40 conforming to applicable current ASTM standards.

### **2.3 FITTINGS AND CONNECTIONS:**

- A. Polyvinyl chloride pipe fittings and connections: type ii, grade 1, schedule 40, high impact molded fittings, manufactured from virgin compounds as specified for piping tapered socket or molded thread type, suitable for either solvent weld or screwed connections. Machine threaded fittings and plastic saddle and flange fittings are not acceptable. Furnish fittings permanently marked with following information: nominal pipe size, type and schedule of



material, and national sanitation foundation (NSF) seal of approval. PVC fittings shall conform to ASTM D2464 and D2466.

- B. Brass pipe fittings, unions and connections: standard 125 pound class 85% red brass fittings and connections, ips threaded.
- C. PVC schedule 80 threaded risers and nipples: type i, grade 1, schedule 80, high impact molded, manufactured from virgin compounds as specified for piping and conforming to ASTM d-2464. Threaded ends shall be molded threads only. Machined threads are not acceptable.
- D. Galvanized pipe fittings shall be galvanized malleable iron ground joint schedule 40 conforming to applicable current ASTM standards.

#### 2.4 SOLVENT CEMENTS AND THREAD LUBRICANT

- A. Solvent cements shall comply with ASTM D2564. Socket joints shall be made per recommended procedures for joining PVC plastic pipe and fittings with PVC solvent cement and primer by the pipe and fitting manufacturer and procedures outlined in the appendix of ASTM D2564.
- B. Thread lubricant shall be teflon ribbon-type, or approved equal, suitable for threaded installations as per manufacturer's recommendations.
- C. Pipe joint compound (pipe dope) shall be used on all galvanized threaded connections. Pipe joint compound is a white colored, non-separating thread sealant compound designed to seal threaded connections against leakage due to internal pressure. It shall contain PTFE (polytetrafluoroethylene) to permit a tighter assembly with lower torque, secure permanent sealing of all threaded connections and allow for easy disassembly without stripping or damaging threads.

#### 2.5 BACKFLOW PREVENTION DEVICES

- A. Existing to remain.

#### 2.6 PRESSURE REGULATOR

- A. Pressure regulator shall certified to NSF/ANSI 372, consisting of low lead bronze body bell housing, a separate access cap shall be threaded to the body and shall not require the use of ferrous screws.
- B. The main valve body shall be cast bronze (ASTM B 584).
- C. The access covers shall be bronze (ASTM B 584 or brass ASTM B 16)
- D. The assembly shall be of the balanced piston design and shall reduce the pressure in both flow and no flow conditions.
- E. Pressure regulator shall be as indicated on the drawings.

#### 2.7. WYE STRAINER

- A. Strainer shall conform to mil -s-16293, and be ANSI 3<sup>rd</sup> party certified to comply with the states lead plumbing law 0.25% maximum weighted average lead content.
- B. The main body shall be low lead bronze (ASTM B 584)
- C. The access covers shall be yellow brass or cast bronze (ASTM B 16 or ASTM B 584)
- D. Strainer screen shall be 300 series stainless steel available in 20, 40, 60, 80, or 100 mesh.
- F. Wye strainer shall be as indicated on the plans.

#### 2.7 BACKFLOW PREVENTER CAGE

- A. Existing to remain.
- 2.8 BOOSTER PUMP
  - A. Not required.
- 2.9 BALL VALVES
  - A. Ball valves for 3/4 inch through 2-1/2 inch shall be of PVC, block, tru-union design with EDPDM seals and o-ring.
  - B. Ball valves for 3 inch and larger shall be gate design and shall be iron body, brass or bronze mounted AWWA gate valves, and shall have a clear waterway equal to the full nominal diameter of the valve, and shall be rubber gasket, flanged or mechanical joint only, and shall be able to withstand a continuous working pressure of 150 psi. Valve shall be equipped with a square-operating nut.
  - C. All ball valves located in a valve manifold shall be the same size as the main line (1-1/2 inch size minimum). Provide pipe-reducing adapters down stream of valves, as required. All ball valves in line shall be the same size as the pipe.
  - D. Ball valves shall be as indicated on the drawings.
- 2.10 CHECK VALVES
  - A. Swing check valves 2 inch and smaller shall be 200 lbs., w.o.g., bronze construction with replaceable composition, neoprene or rubber disc and shall meet or exceed federal specification ww-v- 5ld, class a, type iv.
  - B. Anti-drain valves shall be of heavy-duty virgin PVC construction with female iron pipe thread inlet and outlet. Internal parts shall be stainless steel and neoprene. Anti-drain valves shall be field adjustable against draw out from 5 to 40 feet of head.
  - C. Check valves shall be as indicated on the drawings.
- 2.11 REMOTE CONTROL VALVES
  - A. Remote control valves shall be electrically operated, single seat, normally closed configuration, equipped with flow control adjustment and capability for manual operation.
  - B. Valves shall be actuated by a normally closed low wattage solenoid using 24 volts, 50/60 cycle solenoid power requirement. Solenoid shall be epoxy encased. A union shall be installed on the discharge end.
  - C. Remote control valves shall be wired to controller in same numerical sequence as indicated on drawings.
  - D. Remote control valves shall be as indicated on the drawings.
- 2.12 MASTER CONTROL VALVES
  - A. Master control valve shall be compatible with the irrigation controller.
  - B. Master control valves shall be as indicated on the drawings.
- 2.13 FLOW SENSOR
  - A. Flow sensor shall be compatible with the irrigation controller.
  - B. Flow sensor shall be as indicated on the drawings.
- 2.14 QUICK COUPLER VALVES
  - A. Quick coupler valves shall be a one or two piece, heavy-duty brass construction with a working pressure of 150 psi with a built in flow control and a self-closing valve.

- B. Quick coupler shall be equipped with locking red brass cap covered with durable yellow thermo-plastic rubber cover. Key size shall be compatible with quick coupler and of same manufacturer.
- C. Quick coupler valves shall be as indicated on the drawings.

#### 2.15 AUTOMATIC CONTROLLER

- A. Controller shall be housed in a sturdy, locking, weather-resistant case, furnished for maximum exterior protection.
- B. Controller shall be equipped with evapo-transpiration (et) sensor, which adjusts the controller programming based on local climatic conditions. The sensor shall also have a rain sensing shut-off switch, wind sensing shut off switch, and freeze sensing shut-off of switch.
  - 1. If a moisture sensor is used in lieu of an evapo-transpiration sensor an additional sensor, which has a rain-sensing shut-off switch, wind sensing shut-off switch, and freeze sensing shut-off switch shall be provided.
- C. Automatic controller shall be as indicated on the drawings.

#### 2.16 CONTROLLER DECODERS

- A. All decoders shall be per the controller manufacturer's specifications.
- B. Decoder model number shall be as shown on the drawings.

#### 2.17 ELECTRICAL CONTROL WIRING

- A. Low voltage
  - 1. The electrical control wire shall be direct burial type uf, no. 14 awg, solid, single conductor, copper wire ul approved or larger, if required to operate system as designed.
  - 2. For 2-wire controllers all irrigation wire for the controller, flow sensor, master valve, hydrometer, remote control valves and moisture sensors shall be per the controller manufacturer's specifications and recommendations.
  - 3. Color code wires to each valve. Common wire shall be white.
  - 4. If multiple controllers are being utilized, and wire paths of different controllers cross each other, both common and control wires from each controller to be of different colors.
  - 5. Control wire splices: splices are when required shall be placed in splice boxes.
  - 6. Wire connections shall be per the controller manufacturer's specifications and recommendations.
- B. High voltage
  - 1. Shall be of type as required by local codes and ordinances.
  - 2. Shall be of proper size to accommodate needs of equipment it is to serve.

#### 2.18 VALVE BOXES AND MATERIALS

- A. Valve boxes: valve boxes shall be constructed of abs (acrylonitrile butadiene styrene) plastic, green in color, with rigid base and sides and shall be supplied with bolt lock cover secured with stainless steel bolts. Cover shall be identified as shown on drawings. Provide box extensions as required.
  - 1. Master valves, flow sensors, remote control irrigation valves, gate valves, and ball valves 3 inch or less in size shall use a 14 inch x 19 inch x 12 inch rectangular box.
  - 2. Quick coupler valves, wire splices, and grounding rods shall use a 10 inch circular box.

2.19 CONCRETE THRUST BLOCKS

- A. Concrete thrust blocks shall be sized per the pipe manufactures requirement or as indicated on the drawings.

2.20 VALVE IDENTIFICATION TAGS

- A. Valve identification tags shall be 2.25 inch x 2.65 inch polyurethane. Color: potable water; yellow / non-potable water; purple. Tags shall be permanently attached to each remote control valve with tamper proof seals as indicated on the drawings.

2.21 EQUIPMENT TO BE FURNISHED TO OWNER

- A. Two (2) sets of keys for each automatic controller.
- B. Two (2) 48 inch tee wrenches for operating the gate valves.
- C. Three (3) sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.
- D. Five (5) extra sprinkler heads, nozzles, shrub adapters, nozzle filter screens, for each type used on the project.
- E. Two (2) quick coupler keys to match manufacturer type of quick coupler.

2.22 INCIDENTAL MATERIALS AND EQUIPMENT

- A. Furnish all materials and equipment not specified above, but which are necessary for completion of the work as intended.

2.23 MAIN LINE LOCATOR TAPE

- A. 3 - inch wide plastic detectable locator tape.

2.24 MAIN LINE AND LATERAL LINE BEDDING SAND

- A. Sand shall consist of natural or manufactured granular material, free of organic material, mica, loam, clay or other substances not suitable for the intended purpose.
- B. Sand shall be masonry sand ASTM c 144 or coarse concrete sand, ASTM c 33.

**PART 3 – EXECUTION**

3.1 GENERAL REQUIREMENTS

- A. Code requirements shall be those of state and municipal codes and regulations locally governing this work, providing that any requirements of the drawings and specifications, not conflicting therewith, but exceeding the code requirements, shall govern unless written permission to the contrary is granted by the town representative.
- B. Extreme care shall be exercised at all times by the contractor in excavating and working in the project area due to existing utilities and irrigation systems to remain. Contractor shall be fully responsible for expenses incurred in the repair of damages caused by their operation.
  - 1. The contractor is responsible for identifying and maintaining existing irrigation main lines that supply water to areas on the site as noted on the drawings and outside of the proposed limit of work. The contractor shall relocate or replace existing irrigation main line piping as required to provide a continuous supply of water to all areas of existing irrigation on site.
    - a. Providing continuous water supply shall include hand watering and or the use of watering trucks to provide adequate water.
- C. Plan locations of backflow preventers, valves, controllers, irrigation lines, sleeves, spray heads and other equipment are diagrammatic and indicate the spacing and relative locations

of all installations. Final site conditions and existing and proposed plantings shall determine final locations and adjusted as necessary and as directed to meet existing and proposed conditions and obtain complete water coverage. Minor changes in locations of the above from locations shown shall be made as necessary to avoid existing and proposed trees, piping, utilities, structures, etc. At the contractor's expense or when directed by the town representative.

1. The contractor shall be held responsible for relocation of any items without first obtaining the town representative's approval. The contractor shall remove and relocate such items at their expense if so directed by the town representative.
- D. Prior to any work the contractor shall stake out locations of all pipe, valves, equipment and irrigation heads and emitters using an approved staking method and maintain the staking of the approved layout in accordance with the drawings and any required modifications. Verify all horizontal and vertical site dimensions prior to staking of heads. Do not exceed spacing shown on drawings for any given area. If such modified spacing demand additional or less material than shown on the drawings, notify the town representative before beginning any work in the adjacent area.
- E. Stub out main line at all end runs and as shown on drawings. Stub out wires for future connection where indicated on plan and as directed.
- F. Point of connection shall be approximately as shown on drawings. Connect new underground piping and valves and provide all flanges, adapters or other necessary fittings for connection.
- G. Permission to shut off any existing in-use water line must be obtained 48 hours in advance, in writing from the owner. The contractor shall receive instructions from the town representative as to the exact length of time of each shut-off.
- H. No fittings shall be installed on pipe underneath pavement or walls.
- I. Prior to starting any work, contractor shall obtain a reading of existing static water pressure (no flow condition) at the designated point of connection and immediately submit written verification of pressure with date and time of recording to town representative.

### 3.2 TRENCHING, DIRECTIONAL BORING AND SLEEVING

- A. Perform all trenching, directional boring, sleeving and excavations as required for the installation of the work included under this section, including shoring of earth banks to prevent cave-ins.
- B. The contractor may directional bore lines where it is practical or where required on the plans.
  1. Extend the bore 1' past the edge of pavement unless noted differently on the plans
  2. Cap ends of each bore and locate ends at finished grade using metal stakes.
  3. All boring and sleeving shall have detectable locator tape placed at the ends of the pipe.
- C. Make trenches for mains, laterals and control wiring straight and true to grade and free of protruding stones, roots or other material that would prevent proper bedding of pipe or wire.
- D. Excavate trenches wide enough to allow a minimum of 4 - inch between parallel pipelines and 8 inch from lines of other trades. Maintain 3 - inch vertical clearance between irrigation lines. Minimum transverse angle is 45 degrees. All pipes shall be able to be serviced or replaced without disturbing the other pipes.
- E. Trenches for pipelines shall be made of sufficient depth to provide the minimum cover from finished grade as follows:
  1. Pressure main line: 18 inches below finish grade and 24-30 inches below paved areas in schedule 40 PVC sleeves.

2. Lateral lines: 12 inches below finish grade and 18 inches below paved areas in schedule 40 PVC sleeves.
  3. Control wiring: to the side of pressure main line and 24 inches below paved areas in schedule 40 PVC sleeves.
- F. When trenching through areas of imported or modified soil, deposit imported or modified soils on one side of trench and subsoil on opposite side.
- G. Backfill the trench per the requirements in paragraphs "backfilling and compacting" below.

### 3.3 PIPE INSTALLATION

#### A. General pipe installation

1. Exercise caution in handling, loading and storing, of plastic pipe and fittings to avoid damage.
  - a. The pipe and fittings shall be stored under cover until using, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point.
  - b. All pipe that has been dented or damaged shall be discarded unless such dent or damaged section is cut out and pipe rejoined with a coupling.
2. Trench depth shall be as specified above from the finish grade to the top of the pipe.
3. Install a detectable pipe locator tape 6 to 8 inches above all main line pipes.

#### B. Polyvinyl chloride pipe (PVC) installation

1. Under no circumstance is pipe to rest on concrete, rock, wood blocks, construction debris or similar items.
2. No water shall be permitted in the pipe until a period of at least 24 hours has elapsed for solvent weld setting and curing.
3. Install assemblies and pipe to conform to respective details and where shown diagrammatically on drawings, using first class workmanship and best standard practices as approved. All fittings that are necessary for proper connections such as swing joints, offsets, and reducing bushings that are not shown on details shall be installed as necessary and directed as part of the work.
4. Dielectric bushings shall be used in any connections of dissimilar metals.
5. Gasketed plastic pipe: pipe-to-pipe joints or pipe to fittings shall be made in accordance with manufacturer's specifications.
6. Solvent weld or threaded plastic pipe:
  - a. Installation of all pipe and fittings shall be in strict accordance with manufacturer's specifications.
  - b. Pipe shall be cut using approved PVC pipe cutters only. Sawed joints are disallowed. All field cuts shall be beveled to remove burrs and excess before gluing.
  - c. Welded joints shall be given a minimum of 15 minutes to set before moving or handling. Excess solvent on the exterior of the joint shall be wiped clean immediately after assembly.
  - d. Plastic to metal connections shall be made with plastic adapters and if necessary, short (not close) brass threaded-nipples. Connection shall be made with two (2) wraps of teflon tape and hand tightened plus one turn with a strap wrench.
  - e. Snake pipe horizontally in trench to allow one (1) foot of expansion and contraction per 100 feet of straight run.
  - f. Threaded pipe joints shall be made using teflon tape. Solvent shall not be used with threaded joints. Pipe shall be protected from tool damage during assembly. All damaged pipe shall be removed and replaced. Take up threaded joints with light

wrench pressure.

- g. No close nipples or risers are allowed. Cross connections in piping is disallowed.
- h. Center load pipe at 10 feet on center intervals with small amount of backfill to prevent arching and slipping under pressure. Other than this preliminary backfill all pipe joints, fittings and connections are to remain uncovered until successful completion of hydrostatic testing and written approval of the testing report.
- i. Concrete thrust blocks shall be constructed behind all pipe fittings 1-1/2 inch diameter and larger at all changes of direction of 45 degrees or more.

C. Galvanized pipe installation

- 1. All joints shall be threaded with pipe joint compound used on all threads.
- 2. Dielectric bushings shall be used in any connections of dissimilar metals.

3.4 TRENCHING, DIRECTIONAL BORING, AND SLEEVING REVIEW:

- A. Upon completion and installation of all trenching, directional boring, and sleeving, all installed irrigation control wiring, lines and fittings shall be visually observed by the town representative unless otherwise authorized. Do not cover any wires, lines or fittings until they have been tested and observed by the town representative.

3.5 FLUSHING

- A. Openings in piping system during installation are to be capped or plugged to prevent dirt and debris from entering pipe and equipment. Remove plugs when necessary to flush or complete system.
- B. After completion and prior to the installation of any terminal fittings, the entire pipeline system shall be thoroughly flushed to remove dirt, debris or other material.

3.6 HYDROSTATIC PRESSURE TESTING

- A. After flushing, and the installation of valves the following tests shall be conducted in the sequence listed below. The contractor shall furnish all equipment; materials and labor necessary to perform the tests and all tests shall be conducted in the presence of the town representative.
- B. Water pressure tests shall be performed on all pressure main lines before any couplings, fittings, valves and the like are concealed.
- C. Immediately prior to testing, all irrigation lines shall be purged of all entrapped air or debris by adjusting control valves and installing temporary caps forcing water and debris to be discharged from a single outlet.
- D. Test all pressure main line at 150 psi. For a minimum of four (4) hours with an allowable loss of 5 psi. Pressure and gauges shall be read in psi, and calibrated such that accurate determination of potential pressure loss can be ascertained.
- E. Re-test as required until the system meets the requirements. Any leaks, which occur during test period, will be repaired immediately following the test. All pipe shall be re-tested until final written acceptance.
- F. The contractor is responsible for proving documentation stating the weather conditions, date, the start time and initial water pressure readings, the finish time and final water pressure readings and the type of equipment used to perform the test. The documentation must be signed by a witness acceptable to the owner, verifying all of the above-mentioned conditions.
- G. Submit a written report of the pressure testing results with the other above required information to the town representative for approval.

3.7 BACKFILLING AND COMPACTING

- A. Irrigation trenches shall be carefully backfilled with material approved for backfilling and free of rocks and debris one (1) inch in diameter and larger. When back filling trenches in areas of imported or modified planting soil, replace any excavated subsoil at the bottom and the imported soil or modified planting soil at the top of the trench.
- B. Backfill shall be compacted with approved equipment to the following densities
  - 1. Backfill under pavement and within 2 feet of the edge of pavement: compact to 95% or greater of maximum dry density standard proctor.
  - 2. Backfill of subsoil under imported planting mixes or modified existing planting soil: between 85 and 90% of maximum dry density standard proctor.
  - 3. Backfill of imported planting mixes or modified existing planting soil: compact to the requirements of the adjacent planting mix or planting soil as specified in section "planting soil".
- C. Finish grade of all trenches shall conform to adjacent grades without dips or other irregularities. Dispose of excess soil or debris off site at contractor's expense.
- D. Any settling of backfill material during the maintenance or warranty period shall be repaired at the contractor's expense, including any replacement or repair of soil, lawn, and plant material or paving surface.

### 3.8 RESURFACING PAVING OVER TRENCHES

- A. Restore all surfaces and repair existing underground installations damaged or cut as a result of the excavation to their original condition, satisfactory to the town representative.
- B. Trenches through paved areas shall be resurfaced with same materials quality and thickness as existing material. Paving restoration shall be performed by the project paving sub-contractor or an approved contractor skilled in paving work.
- C. The cost of all paving restoration work shall be the responsibility of the irrigation contractor unless the trenching thru the paving was, by previous agreement, part of the general project related construction.

### 3.9 INSTALLATION OF EQUIPMENT

- A. General:
  - 1. All equipment shall be installed to meet all installation requirements of the product manufacturer. In the event that the manufactures requirements cannot be implemented due to particular condition at the site or with other parts of the design, obtain the town representative's written authorization and approval for any modifications.
  - 2. Install all equipment at the approximately at the location(s) and as designated and detailed on the drawings. Verify all locations with the town representative.
  - 3. Install all valves within a valve box of sufficient size to accommodate the installation and servicing of the equipment. Group valves together where practical and locate in shrub planting areas.
  - 4. All sprinkler irrigation systems that are using water from potable water systems shall require backflow prevention. All backflow prevention devices shall meet and be installed in accordance with requirements set forth by local codes and the health department.
- B. Pressure regulator:
  - 1. Set regulator for required psi per manufacturer's specifications.
- C. Check valve:
  - 1. Install check valves approximately at the locations necessary to prevent low head run off.
- D. Remote control valves:
  - 1. Install one remote control valve per valve box.



2. Remote control valve manifolds and quick coupler valves shall be separate allowing use of a quick coupler with all remote control valves shut off.
  3. Install boxes no farther than 12 inches from edge of paving and perpendicular to edge of paving and parallel to each other. Allow 12 inches clearance between adjacent valve boxes.
- E. Quick coupler valve:
1. Install each quick coupler valve in its own valve box.
  2. Install thrust blocks on quick couplers.
  3. Place no closer than 12 inches to adjacent paving.
  4. Install 18 inches off set from main line.
- F. Irrigation controllers:
1. Remote control valves shall be connected to controller in numerical sequence as shown on the drawings.
  2. Controller shall be tested with complete electrical connections. The contractor shall be responsible for temporary power to the controller for operation and testing purposes.
  3. Connections to control wiring shall be made within the pedestal of the controller. All wire shall follow the pressure main insofar as possible.
  4. Electrical wiring shall be in a rigid gray PVC plastic conduit from controller to electrical outlet. The electrical contractor shall be responsible for installing all wiring to the controller, in order to complete this installation. A disconnect switch shall be included.
- G. Wiring:
1. Low voltage
    - a. Control wiring between controller and electrical valves shall be installed in the same trench as the main line where practical. The wire shall be bundled and secured to the lower quadrant of the trench at 10 foot intervals with plastic electrical tape.
    - b. When the control wiring cannot be installed in the same main line trench it shall be installed a minimum of 18 inches below finish grade and a bright colored plastic ribbon with suitable markings shall be installed in the trench 6 inches below grade directly over the wire.
    - c. An expansion loop shall be provided every 500 feet in a box and inside each valve box. expansion loop shall be formed by wrapping wire at least eight (8) times around a  $\frac{3}{4}$  inch pipe and withdrawing pipe.
    - d. Provide one control wire to service each valve in system.
    - e. Provide 1 common wire(s) per controller.
    - f. Run two (2) spare #14-1 wires from controller along entire main line to last electric remote control valve on each and every leg of main line. Label spare wires at controller and wire stub to be located in a box.
    - g. All control wire splices not occurring at control valve shall be installed in a separate splice valve box.
    - h. Wire markers (sealed, 1 inch to 3 inch square) are to identify control wires at valves and at terminal strips of controller. At the terminal strip mark each wire clearly indicating valve circuit number.
  2. High voltage
    - a. All electrical work shall conform to local codes, ordinances and any authorities having jurisdiction. All high voltage electrical work to be performed by licensed electrician.
    - b. The contractor shall provide 120-volt power connection to the automatic controller unless noted otherwise on drawings.
- H. Valve boxes:
1. Install one valve box for each type of valve installed as per the details.

2. Gravel sump shall be installed after compaction of all trenches. Final portion of gravel shall be placed inside valve box after valve is backfilled and compacted.
3. Permanently label valve number and or controller letter on top of valve box lid using a method approved by the owners representative.

I. Tracer wire:

1. Tracer wire shall be installed with non-metallic plastic irrigation main lines where controller wires are not buried in the same trench as the main line.
2. The tracer wire shall be placed on the bottom of the trench under the vertical projection of the pipe with spliced joints soldered and covered with insulation type tape.
3. Tracer wire shall be of a color not used for valve wiring. Terminate wire in a valve box. Provide enough length of wire to make a loop and attach wire marker with the designation "tracer wire".

J. Drip installation:

1. Clamp fittings with oetiker clamps or approved equal when operating pressure exceeds specific drip tubing fitting requirements.
2. When installing drip tubing, install soil staples as listed below:
  - a. Sandy soil - one staple every three (3') feet and two (2) staples on each change of direction (tee, elbow, or cross).
  - b. Loam soil - one staple every four (4') feet and two (2) staples on each change of direction (tee, elbow, or cross).
  - c. Clay soil - one staple every five (5') feet and two (2) staples on each change of direction (tee, elbow, or cross).
3. Cap or plug all openings as soon as lines have been installed to prevent the intrusion of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.
4. Thoroughly flush all water lines before installing valves and other hydrants.

### 3.10 ADJUSTMENT AND COVERAGE TEST

A. Adjustment:

1. The contractor shall flush and adjust all sprinkler heads, valves and all other equipment to ascertain that they function according to the manufacturer's data.
2. Adjust all sprinkler heads not to overspray onto walks, roadways and buildings when under maximum operating pressure and during times of normal prevailing winds.

B. Coverage test:

1. The contractor shall perform the coverage test in the presence of the town representative after all sprinkler heads have been installed, flushed and adjusted. Each section is tested to demonstrate uniform and adequate coverage of the planting areas serviced.
2. Any systems that require adjustments for full and even coverage shall be done by the contractor prior to final acceptance at the direction of the town representative at no additional cost. Adjustments may also include realignment of pipes, addition of extra heads, and changes in nozzle type or size.
3. The contractor at no additional cost shall immediately correct all unauthorized changes or improper installation practices.
4. The entire irrigation system shall be operating properly with written approval of the installation by the town representative prior to beginning any planting operations.

### 3.11 REPAIR OF PLANTING SOIL

- A. Any areas of planting soil including imported or existing soils or modified planting soil which

become compacted or disturbed or degraded as a result of the installation of the irrigation system shall be restored to the specified quality and compaction prior to beginning planting operations at no additional expense to the owner. Restoration methods and depth of compaction remediation shall be approved by the town representative.

### 3.12 CLEAN-UP

- A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.
  - a. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the contractor from all surfaces within the project or on public right of ways and neighboring property.
- B. Once installation is complete, wash all soil from pavements and other structures.
  - 1. Make all repairs to grades ruts, and damage to the work or other work at the site.
  - 2. Remove and dispose of all excess soil, packaging, and other material brought to the site by the contractor.

### 3.13 PROTECTION

- A. The contractor shall protect installed irrigation work from damage due to operations by other contractors or trespassers.
  - 1. Maintain protection during installation until acceptance. Treat, repair or replace damaged work immediately. The town representative shall determine when such treatment, replacement or repair is satisfactory.

### 3.14 PRE-MAINTENANCE OBSERVATION:

- A. Once the entire system shall be completely installed and operational and all planting is installed, the town representative shall observe the system and prepare a written punch list indicating all items to be corrected and the beginning date of the maintenance period.
- B. This is not final acceptance and does not relieve the contractor from any of the responsibilities in the contract documents.

### 3.15 GENERAL MAINTENANCE AND THE MAINTENANCE PERIOD

- A. General maintenance shall begin immediately after installation of irrigation system. The general maintenance and the maintenance period shall include the following:
  - 1. On a weekly basis the contractor shall keep the irrigation system in good running order and make observations on the entire system for proper operation and coverage. Repair and cleaning shall be done to keep the system in full operation.
  - 2. Records of all timing changes to control valves from initial installation to time of final acceptance shall be kept and turned over to the town representative at the time of final acceptance.
  - 3. During the last week of the maintenance period, provide equipment familiarization and instruction on the total operations of the system to the personnel who will assume responsibility for running the irrigation system.
  - 4. At the end of the maintenance period, turn over all operations logs, manuals, instructions, schedules, keys and any other equipment necessary for operation of the irrigation system to the town representative who will assume responsibility for the operations and maintenance of the irrigation system.
- B. The maintenance period for the irrigation system shall coincide with the maintenance period for the planting. (see specification section "planting")

### 3.16 SUBSTANTIAL COMPLETION ACCEPTANCE

- A. Upon written notice from the contractor, the owners representative shall review the work and make a determination if the work is substantially complete.
- B. The date of substantial completion of the irrigation shall be the date when the town representative accepts that all work in planting, planting soil, and irrigation installation sections is complete.

### 3.17 FINAL ACCEPTANCE / SYSTEM MALFUNCTION CORRECTIONS

- A. At the end of the plant warrantee and maintenance period, (see specification section "planting") the town representative shall inspect the irrigation work and establish that all provisions of the irrigation system are complete and the system is working correctly.
  - 1. Restore any soil settlement over trenches and other parts of the irrigation system.
  - 2. Replace, repair or reset any malfunctioning parts of the irrigation system.
- B. The contractor shall show all corrections made from punch list. Any items deemed not acceptable shall be reworked and the maintenance period will be extended.
- C. The contractor shall show evidence that the town representative has received all charts, records, drawings, and extra equipment as required before final acceptance.
- D. Failure to pass review: if the work fails to pass final review, any subsequent observations must be rescheduled as per above. The cost to the owner for additional observations will be charged to the contractor at the prevailing hourly rate of the reviewer.

## **PART 4 – MEASUREMENT AND PAYMENT**

The contractor is referred to special provisions section 12, "bid item descriptions" for measurement and payment.

End of section

## **SECTION 32 90 00**

### **PLANTING**

#### **PART 1 – GENERAL**

##### **1.1 SUMMARY**

- A. The scope of work includes all labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with furnishing, delivery, and installation of plant (also known as "landscaping") complete as shown on the drawings and as specified herein.
- B. The scope of work in this section includes, but is not limited to, the following:
  - 1. Locate, purchase, deliver and install all specified plants.
  - 2. Water all specified plants.
  - 3. Mulch, fertilize, stake, and prune all specified plants.
  - 4. Maintenance of all specified plants until the beginning of the warranty period.
  - 5. Plant warranty.
  - 6. Clean up and disposal of all excess and surplus material.
  - 7. Maintenance of all specified plants during the warranty period.

##### **1.2 CONTRACT DOCUMENTS**

- A. Shall consist of specifications and general conditions and the construction drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

##### **1.3 RELATED DOCUMENTS AND REFERENCES**

- A. Related Documents:
  - 1. Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section
  - 2. Related Specification Sections
    - a. Section – 32 84 00: Irrigation
    - b. Section – 01 56 39: Tree and Plant Protection
- B. References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the specification to the extent required by the references thereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail or as determined by the Towns Representative.
  - 1. State of California, Department of Food and Agriculture, Regulations for Nursery Inspections, Rules and Grading.
  - 2. ANSI Z60.1 American Standard for Nursery Stock, most current edition.
  - 3. ANSI A 300 – Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current edition and parts.
  - 4. Interpretation of plant names and descriptions shall reference the following documents. Where the names or plant descriptions disagree between the several documents, the

most current document shall prevail.

- a. USDA - The Germplasm Resources Information Network (GRIN) <http://www.ars-grin.gov/npgs/searchgrin.html>
  - b. Manual of Woody Landscape Plants; Michael Dirr; Stipes Publishing, Champaign, Illinois; Most Current Edition.
  - c. The New Sunset Western Garden Book, Oxmoor House, most current edition.
5. Pruning practices shall conform to recommendations "Structural Pruning: A Guide For The Green Industry" most current edition; published by Urban Tree Foundation, Visalia, California.
  6. Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign IL, most current edition.
  7. ASTM: American Society of Testing Materials cited section numbers.
  8. U.S. Department of Agriculture, Natural Resources Conservation Service, 2003. National Soil Survey Handbook, title 430-VI. Available Online.
  9. US Composting Council [www.compostingcouncil.org](http://www.compostingcouncil.org) and [http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/191/LandscapeArch\\_Specs.pdf](http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/191/LandscapeArch_Specs.pdf).
  10. *Methods of Soil Analysis*, as published by the Soil Science Society of America (<http://www.soils.org/>).
  11. Up by Roots: healthy soils and trees in the built environment. 2008. J. Urban. International Society of Arboriculture, Champaign, IL.

#### 1.4 VERIFICATION

- A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Town Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Town Representative.
- B. In the case of a discrepancy in the plant quantities between the plan drawings and the plant call outs, list or plant schedule, the number of plants or square footage of the planting bed actually drawn on the plan drawings shall be deemed correct and prevail.

#### 1.5 PERMITS AND REGULATIONS

- A. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Town Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.
- B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.
- C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Town Representative shall determine which shall govern.

#### 1.6 PROTECTION OF WORK, PROPERTY AND PERSON

- A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

## 1.7 CHANGES IN THE WORK

- A. The Town Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.
- B. All changes in the work, notifications and contractor's request for information (RFI) shall conform to the contract general condition requirements.

## 1.8 CORRECTION OF WORK

- A. The Contractor, at their own cost, shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Town Representative, at the soonest as possible time that can be coordinated with other work and seasonal weather demands.

## 1.9 DEFINITIONS

All terms in this specification shall be as defined in the "Glossary of Arboricultural Terms" or as modified below.

- A. Boxed trees: A container root ball package made of wood in the shape of a four-sided box.
- B. Container plant: Plants that are grown in and/or are currently in a container including boxed trees.
- C. Defective plant: Any plant that fails to meet the plant quality requirement of this specification.
- D. End of Warranty Final Acceptance: The date when the Town Representative accepts that the plants and work in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrent with each other.
- E. Healthy: Plants that are growing in a condition that expresses leaf size, crown density, color; and with annual growth rates typical of the species and cultivar's horticultural description, adjusted for the planting site soil, drainage and weather conditions.
- F. Kinked root: A root within the root package that bends more than 90 degrees.
- G. Maintenance: Actions that preserve the health of plants after installation and as defined in this specification.
- H. Maintenance period: The time period, as defined in this specification, which the Contractor is to provide maintenance.
- I. Normal: the prevailing protocol of industry standard(s).
- J. Town Representative: The person appointed by the Town to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Town Representative may appoint other persons to review and approve any aspects of the work.
- K. Reasonable and reasonably: When used in this specification relative to plant quality, it is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that it is not possible to produce plants free of all defects, but that some accepted industry protocols and standards result in plants unacceptable to this project.

When reasonable or reasonably is used in relation to other issues such as weeds, diseased, insects, it shall mean at levels low enough that no treatment would be required when applying recognized Integrated Plant Management practices.

This specification recognizes that some decisions cannot be totally based on measured findings and that professional judgment is required. In cases of differing opinion, the Town Representative's expert shall determine when conditions are judged as reasonable.

- L. Root ball: The mass of roots including any soil or substrate that is shipped with the tree within the root ball package.
- M. Root ball package. The material that surrounds the root ball during shipping. The root package may include the material in which the plant was grown, or new packaging placed around the root ball for shipping.
- N. Root collar (root crown, root flare, trunk flare, flare): The region at the base of the trunk where the majority of the structural roots join the plant stem, usually at or near ground level.
- O. Shrub: Woody plants with mature height approximately less than 15 feet.
- P. Stem: The trunk of the tree.
- Q. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Town Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project.
- R. Stem girdling root: Any root more than ¼ inch diameter currently touching the trunk, or with the potential to touch the trunk, above the root collar approximately tangent to the trunk circumference or circling the trunk. Roots shall be considered as Stem Girdling that have, or are likely to have in the future, root to trunk bark contact.
- S. Structural root: One of the largest roots emerging from the root collar.
- T. Tree: Single and multi-stemmed plants with mature height approximately greater than 15 feet.
- U. Acceptable drainage: drainage rate is sufficient for the plants to be grown. Not too fast and not too slow. Typical rates for installed planting soil are between 1 - 5 inches per hour. Turf soils are often higher, but drainage rates above 2 - 3 inches per hour will dry out very fast. In natural undisturbed soil a much lower drainage rate, as low as 1/8<sup>th</sup> inch per hour can still support good plant growth. Wetland plants can grow on top of perched water layers or even within seasonal perched water layers, but could become unstable in high wind events.
- V. Amendment: material added to topsoil to produce planting soil mix. Amendments are classified as general soil amendments, fertilizers, biological, and ph amendments.
- W. Biological amendment: amendments such as mycorrhizal additives, compost tea or other products intended to change the soil biology.
- X. Compacted soil: soil where the density of the soil is greater than the threshold for root limiting, and further defined in this specification.
- Y. Compost: well decomposed stable organic material as defined by the us composting council and further defined in this specification.
- Z. Drainage: the rate at which soil water moves through the soil transitioning the soil from saturated condition to field capacity. Most often expressed as saturated hydraulic conductivity (ksat; units are inches per hour).
- AA. End of establishment period acceptance: the date when the Town representative accepts that the plants and work in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for planting, and irrigation (if applicable) work run concurrent with each other, and further defined in this specification.
- BB. Existing soil: mineral soil existing at the locations of proposed planting after the majority of the construction within and around the planting site is completed and just prior to the start of work to prepare the planting area for soil modification and/or planting, and further defined in this specification.
- CC. Fertilizer: amendment used for the purpose of adjusting soil nutrient composition and



balance.

- DD. Fine grading: the final grading of the soil to achieve exact contours and positive drainage, often accomplished by hand rakes or drag rakes other suitable devices, and further defined in this specification, and further defined in this specification.
- EE. Finished grade: surface or elevation of planting soil after final grading and 12 months of settlement of the soil, and further defined in this specification.
- FF. Graded soil: soil where the a horizon has been stripped and relocated or re-spread; cuts and fills deeper than 12 inches, and further defined in this specification.
- GG. Installed soil: planting soil and existing site soil that is spread and or graded to form a planting soil, and further defined in this specification.
- HH. Minor disturbance: minor grading as part of agricultural work that only adjusts the a horizon soil, minor surface compaction in the top 6 inches of the soil, applications of fertilizers, installation of utility pipes smaller than 18 inches in diameter thru the soil zone.
- II. Town representative: the person or entity, appointed by the Town to represent their interest in the review and approval of the work and to serve as the contracting authority with the contractor. The Town representative may appoint other persons to review and approve any aspects of the work.
- JJ. Ped: a clump or clod of soil held together by a combination of clay, organic matter, and fungal hyphae, retaining the original structure of the harvested soil.
- KK. Planting soil: topsoil, or planting soil mixes which are imported or existing at the site, or made from components that exist at the site, or are imported to the site; and further defined in this specification.
- LL. *Poor drainage: soil drainage that is slower than that to which the plants can adapt. This is a wide range of metrics, but generally if the soil is turning grey in color it is reasonable preferable to either to plant moisture adaptive plants at smaller sizes that are young in age with shallow root balls or look at options to improve the drainage*
- MM. Scarify: loosening and roughening the surface of soil and sub soil prior to adding additional soil on top, and further defined in this specification.
- NN. Soil fracturing: deep loosening the soil to the depths specified by using a back hoe, and further defined in this specification.
- OO. Soil horizons: as defined in the usda national soil survey handbook  
[Http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242).
- PP. Soil ripping: loosening the soil by dragging a ripping shank or chisel thru the soil to the depths and spacing specified, and further defined in this specification.
- QQ. Soil tilling: loosening the surface of the soil to the depths specified with a **rotary tine tilling machine, roto tiller, (or spade tiller)**, and further defined in this specification.
- RR. Soil trenching: cutting narrow trenches thru the soil at the depths and spacing specified to loosen the soil profile, and further defined in this specification.
- SS. Subgrade: surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.
- TT. Substantial completion acceptance: the date at the end of the planting, planting soil, and irrigation installation (if applicable) where the Town representative accepts that all work in these sections is complete and the warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project, and further defined in this specification.
- UU. Topsoil: naturally produced and harvested soil from the A horizon or upper layers or the soil as further defined in this specification.

VV. Undisturbed soil: soils with the original a horizon intact that have not been graded or compacted. Soils that have been farmed, subjected to fire or logged but not graded, and natural forested land will be considered as undisturbed.

#### 1.10 SUBMITTALS

- A. See contract general conditions for policy and procedure related to submittals.
- B. Submit all product submittals 2 weeks prior to installation of planting and soil work.
- C. Soil Product data and certificates: For each type of manufactured product, submit data and certificates that the product meets the specification requirements, signed by the product manufacturer, and complying with the following:
  - 1. Submit manufacturers or supplier's product data and literature certified analysis for standard products and bulk materials, complying with testing requirements and referenced standards and specific requested testing.
    - a. For each Compost product submit the following analysis by a recognized laboratory:
      - 1.) pH
      - 2.) Salt concentration (electrical conductivity)
      - 3.) Moisture content %, wet weight basis
      - 4.) Particle size % passing a selected mesh size, dry weight basis
      - 5.) Stability carbon dioxide evolution rate mg CO<sub>2</sub>-C per g OM per day
      - 6.) Solvita maturity test
      - 7.) Physical contaminants (inerts) %, dry weight basis
      - 8.) US EPA Class A standard, 40CFR § 503.13, Tables 1 and 3 levels Chemical Contaminants mg/kg (ppm)
- D. Samples: Submit samples of each product and material, where required by Part 2 of the specification, to the Town Representative for approval. Label samples to indicate product, characteristics, and locations in the work. Samples will be reviewed for appearance only.
  - 1. Submit samples a minimum of 8 weeks prior to the anticipated date of the start of soil installation.
  - 2. Samples of all Topsoil, Coarse Sand, Compost and Planting Soil shall be submitted at the same time as the particle size and physical analysis of that material.
- E. Soil testing for Existing Topsoil, existing site soil to be modified as Planting Soil and Planting Soil Mixes.
  - 1. Topsoil, existing site soil and Planting Soil Mix testing: Submit soil test analysis report for each sample of Topsoil, existing site soil and Planting Soil from an approved soil-testing laboratory and where indicated in Part 2 of the specification as follows:
    - a. Submit Topsoil, Planting Soil, Compost, and Coarse Sand for testing at least 8 weeks before scheduled installation of Planting Soil Mixes. Submit Planting Soil Mix test no more than 2 weeks after the approval of the Topsoil, Compost and Coarse Sand. Do not submit to the testing laboratory, Planting Soil Mixes, for testing until all Topsoil, Compost and Coarse Sand have been approved.
    - b. If tests fail to meet the specifications, obtain other sources of material, retest and resubmit until accepted by the Town Representative.
    - c. All soil testing will be at the expense of the Contractor.
  - 2. Provide a particle size analysis (% dry weight) and USDA soil texture analysis. Soil testing of Planting Soil Mixes shall also include USDA gradation (percentage) of gravel, coarse sand, medium sand, and fine sand in addition to silt and clay.
  - 3. Provide the following other soil properties:
    - a. pH and buffer pH.
    - b. Percent organic content by oven dried weight.

- c. Nutrient levels by parts per million including: phosphorus, potassium, magnesium, manganese, iron, zinc and calcium. Nutrient test shall include the testing laboratory recommendations for supplemental additions to the soil for optimum growth of the plantings specified.
  - d. Soluble salt by electrical conductivity of a 1:2 soil water sample measured in Milliohm per cm.
  - e. Cation Exchange Capacity (CEC).
- F. Product data: Submit manufacturer product data and literature describing all products required by this section to the Town Representative for approval. Provide submittal two weeks before the installation of plants.
- G. Plant sources: Submit sources of all plants as required by Article – “Selection of Plants” to the Town Representative for approval.
- H. Warranty period site visit record: If there is no maintenance during the warranty period, after each site visit during the warranty period, by the Contractor, as required by this specification, submit a written record of the visit, including any problems, potential problems, and any recommended corrective action to the Town Representative for approval.

#### 1.11 OBSERVATION OF THE WORK

- A. The Town Representative may observe the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.
- B. The Town Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Town Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Town Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.
- 1. SITE CONDITIONS PRIOR TO THE START OF PLANTING: review the soil and drainage conditions.
  - 2. COMPLETION OF THE PLANT LAYOUT STAKING: Review of the plant layout.
  - 3. PLANT QUALITY: Review of plant quality prior to installation. Review tree quality prior to planting. This site review may be combined with review of plant layout and review of soil and drainage conditions at the discretion of the Town Representative.
  - 4. COMPLETION OF THE PLANTING: Review the completed planting.

#### 1.12 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre-construction meeting with the Town Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

#### 1.13 QUALITY ASSURANCE

- A. Substantial Completion Acceptance - Acceptance of the work prior to the start of the warranty period:
- 1. Once the Contractor completes the installation of all items in this section, the Town Representative will observe all work for Substantial Completion Acceptance upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date of the observation.

2. Substantial Completion Acceptance by the Town Representative shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.
  3. Any plants that are deemed defective as defined under the provisions below shall not be accepted.
- B. The Town Representative will provide the Contractor with written acknowledgment of the date of Substantial Completion Acceptance and the beginning of the plant establishment maintenance period (if plant maintenance is included).
- C. Contractor's Quality Assurance Responsibilities: The Contractor is solely responsible for quality control of the work.
- D. Installer Qualifications: The installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the work. The same firm shall install planting soil (where applicable) and plant material.
1. The bidders list for work under this section shall be approved by the Town Representative.
  2. Installer Field Supervision: When any planting work is in progress, installer shall maintain, on site, a full-time supervisor who can communicate in English with the Town Representative.
  3. Installer's field supervisor shall have a minimum of five years experience as a field supervisor installing plants and trees of the quality and scale of the proposed project, and can communicate in English with the Town Representative.
  4. The installer's crew shall have a minimum of 3 years experienced in the installation of Planting Soil, Plantings, and Irrigation (where applicable) and interpretation of soil plans, planting plans and irrigation plans.
  5. Submit references of past projects, employee training certifications that support that the Contractors meets all of the above installer qualifications and applicable licensures.
- E. Soil testing laboratory qualifications: an independent laboratory, with the experience and capability to conduct the testing indicated and that specializes in USDA agricultural soil testing, planting soil mixes, and the types of tests to be performed. Geotechnical engineering testing labs shall not be used.
- F. All delivered and installed planting soil shall conform to the approved submittals sample color, texture and approved test analysis.
1. The Town representative may request samples of the delivered or installed soil be tested for analysis to confirm the planting soil conforms to the approved material.
  2. All testing shall be performed by the same soil lab that performed the original planting soil testing.
  3. Testing results shall be within 10% plus or minus of the values measured in the approved planting soil mixes.
  4. Any planting soil that fails to meet the above criteria, if requested by the Town representative, shall be removed and new soil installed.
- G. Soil compaction testing: following installation or modification of soil, test soil compaction with a penetrometer.
1. Maintain at the site at all times a soil cone penetrometer with pressure dial and a soil moisture meter to check soil compaction and soil moisture.
    - a. Penetrometer shall be Agratronix soil compaction meter distributed by ben meadows, [www.benmeadows.com](http://www.benmeadows.com) or approved equal.
    - b. Moisture meter shall be "general digital soil moisture meter" distributed by ben meadows, [www.benmeadows.com](http://www.benmeadows.com) or approved equal.

2. Prior to testing the soil with the penetrometer check the soil moisture and penetrometer readings in the mockup soils. Penetrometer readings are impacted by soil moisture and excessively wet or dry soils will read significantly lower or higher than soils at optimum moisture.
3. The penetrometer readings shall be within 20% plus or minus of the readings in the approved mockup when at similar moisture levels.

#### 1.14 PLANT WARRANTY

##### A. Plant Establishment Maintenance Period

1. The Contractor agrees to replace defective work and defective plants. The Town Representative shall make the final determination if plants meet these specifications or that plants are defective.

Plant establishment maintenance period shall begin on the date of Substantial Completion Acceptance and continue for a period of 90 days.

2. When the work is accepted in parts, the warranty periods shall extend from each of the partial Substantial Completion Acceptances to the terminal date of the last warranty period. Thus, all warranty periods for each class of plant warranty, shall terminate at one time.
3. All plants shall be warrantied to meet all the requirements for plant quality at installation in this specification. Defective plants shall be defined as plants not meeting these requirements. The Town representative shall make the final determination that plants are defective.
4. Plants determined to be defective shall be removed immediately upon notification by the Town Representative and replaced without cost to the Town, as soon as weather conditions permit and within the specified planting period.
5. Any work required by this specification or the Town Representative during the progress of the work, to correct plant defects including the removal of roots or branches, or planting plants that have been bare rooted during installation to observe for or correct root defects shall not be considered as grounds to void any conditions of the warranty. In the event that the Contractor decides that such remediation work may compromise the future health of the plant, the plant or plants in question shall be rejected and replaced with plants that do not contain defects that require remediation or correction.
6. The Contractor is exempt from replacing plants, after Substantial Completion Acceptance and during the warranty period, that are removed by others, lost or damaged due to occupancy of project, lost or damaged by a third party, vandalism, or any natural disaster.
7. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification. Make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the Town.
8. The warranty of all replacement plants shall extend for an additional one-year period from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of the said extended warranty period, the Town Representative may elect one more replacement items or credit for each item. These tertiary replacement items are not protected under a warranty period.
9. During and by the end of the plant establishment maintenance period, remove all tree wrap, ties, and guying unless agreed to by the Town Representative to remain in place. All trees that do not have sufficient caliper to remain upright, or those requiring additional anchorage in windy locations, shall be staked or remain staked, if required by the Town

Representative.

- B. End of Warranty Final Acceptance - Acceptance of plants at the end of the warranty period.
  - 1. At the end of the warranty period, the Town Representative shall observe all warranted work, upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date for final observation.
  - 2. End of Warranty Final Acceptance will be given only when all the requirements of the work under this specification and in specification sections Planting Soil and Irrigation have been met.

#### 1.15 SELECTION AND OBSERVATION OF PLANTS

- A. The Town Representative may review all plants subject to approval of size, health, quality, character, etc. Review or approval of any plant during the process of selection, delivery, installation and establishment period shall not prevent that plant from later rejection in the event that the plant quality changes or previously existing defects become apparent that were not observed.
- B. Plant Selection: The Town Representative reserves the right to select and observe all plants at the nursery prior to delivery and to reject plants that do not meet specifications as set forth in this specification. If a particular defect or substandard element can be corrected at the nursery, as determined by the Town Representative, the agreed upon remedy may be applied by the nursery or the Contractor provided that the correction allows the plant to meet the requirements set forth in this specification. Any work to correct plant defects shall be at the contractor's expense.
  - 1. The Town Representative may make invasive observation of the plant's root system in the area of the root collar and the top of the root ball in general in order to determine that the plant meets the quality requirements for depth of the root collar and presence of roots above the root collar. Such observations will not harm the plant.
  - 2. Corrections are to be undertaken at the nursery prior to shipping.
- C. The Contractor shall bear all cost related to plant corrections.
- D. All plants that are rejected shall be immediately removed from the site and acceptable replacement plants provided at no cost to the Town.
- E. Submit to the Town Representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. The plant list shall include the botanical and common name and the size at the time of selection. Observe all nursery materials to determine that the materials meet the requirements of this section.
- F. Trees shall be purchased from the growing nursery. Re-wholesale plant suppliers shall not be used as sources unless the Contractor can certify that the required trees are not directly available from a growing nursery. When Re-wholesale suppliers are utilized, the Contractor shall submit the name and location of the growing nursery from where the trees were obtained by the re-wholesale seller. The re-wholesale nursery shall be responsible for any required plant quality certifications.
- G. The Contractor shall require the grower or re-wholesale supplier to permit the Town Representative to observe the root system of all plants at the nursery or job site prior to planting including random removal of soil or substrate around the base of the plant. Observation may be as frequent and as extensive as needed to verify that the plants meet the requirements of the specifications and conform to requirements.
- H. Where requested by the Town Representative, submit photographs of plants or representative samples of plants. Photographs shall be legible and clearly depict the plant specimen. Each submitted image shall contain a height reference, such as a measuring stick. The approval of plants by the Town Representative via photograph does not preclude the

Town Representative's right to reject material while on site.

#### 1.16 PLANT SUBSTITUTIONS FOR PLANTS NOT AVAILABLE

- A. Submit all requests for substitutions of plant species, or size to the Town Representative, for approval, prior to purchasing the proposed substitution. Request for substitution shall be accompanied with a list of nurseries contacted in the search for the required plant and a record of other attempts to locate the required material. Requests shall also include sources of plants found that may be of a smaller or larger size, or a different shape or habit than specified, or plants of the same genus and species but different cultivar origin, or which may otherwise not meet the requirements of the specifications, but which may be available for substitution.

#### 1.17 SOIL COMPACTION – GENERAL REQUIREMENTS

- A. Except where more stringent requirements are defined in this specification. The following parameters shall define the general description of the threshold points of soil compaction in existing, modified or installed soil and subsoil.
- B. The following are threshold levels of compaction as determined by each method.
  - 1. Acceptable Compaction: Good rooting anticipated, but increasing settlement expected as compaction is reduced and/or in soil with a high organic matter content.
    - a. Bulk Density Method – Varies by soil type see Chart on page 32 in Up By Roots.
    - b. Standard Proctor Method – 75-85%; soil below 75% is unstable and will settle excessively.
    - c. Penetration Resistance Method – about 75-250 psi, below 75 psi soil becomes increasingly unstable and will settle excessively.
  - 2. Root limiting Compaction: Root growth is limited with fewer, shorter and slower growing roots.
    - a. Bulk Density Method – Varies by soil type see Chart on page 32 in Up By Roots.
    - b. Standard Proctor Method – above approximately 85%.
    - c. Penetration Resistance Method – about 300 psi.
  - 3. Excessive Compaction: Roots not likely to grow but can penetrate soil when soil is above field capacity.
    - a. Bulk Density Method – Varies by soil type see Chart on page 32 in Up By Roots.
    - b. Standard Proctor Method – Above 90%.
    - c. Penetration Resistance Method – Approximately above 400 psi

#### 1.18 SITE CONDITIONS

- A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Town Representative, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.
  - 1. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Town Representative in writing, stating the conditions and submit a proposal covering cost of corrections. If the Contractor fails to notify the Town Representative of such conditions, he/she shall remain responsible for plant material under the warranty clause of the specifications.
- B. It is the responsibility of the Contractor to be familiar with the local growing conditions, and if any specified plants will be in conflict with these conditions. Report any potential conflicts, in writing, to the Town Representative.

- C. This specification requires that all Soil and Irrigation work be completed and accepted prior to the installation of any plants.
  - 1. Planting operations shall not begin until such time that the irrigation system is completely operational for the area(s) to be planted, and the irrigation system for that area has been preliminarily observed and approved by the Town Representative.
- D. Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practices.
  - 1. Do not install plants into saturated soils. Do not install plants during inclement weather, such as rain or during extremely hot, cold or windy conditions.

#### 1.19 WORKING AROUND UTILITIES

- A. Contractor shall become fully acquainted with the existing underground conditions before digging.
- B. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.
- C. Notification of *Underground Service Alert of Northern California*, 1-800-227-2600, is required for all planting areas: The Contractor is responsible for knowing the location and avoiding utilities whether located or not by Underground Service Alert.

### PART 2 – PRODUCTS

#### 2.1 PLANTS: GENERAL

- A. Standards and measurement: Provide plants of quantity, size, genus, species, and variety or cultivars as shown and scheduled in contract documents.
  - 1. All plants including the root ball dimensions or container size to trunk caliper ratio shall conform to ANSI Z60.1 “American Standard for Nursery Stock” latest edition, unless modified by provisions in this specification. When there is a conflict between this specification and ANSI Z60.1, this specification section shall be considered correct.
  - 2. Plants larger than specified may be used if acceptable to the Town Representative. Use of such plants shall not increase the contract price. If larger plants are accepted the root ball size shall be in accordance with ANSI Z-60.1. Larger plants may not be acceptable if the resulting root ball cannot be fit into the required planting space.
- B. Proper Identification: All trees shall be true to name as ordered or shown on planting plans and shall be labeled individually or in groups by genus, species, variety and cultivar.
- C. Compliance: All trees shall comply with federal and state laws and regulations requiring observation for plant disease, pests, and weeds. Observation certificates required by law shall accompany each shipment of plants.
- D. Plant Quality:
  - 1. **General:** Provide healthy stock, grown in a nursery and reasonably free of die-back, disease, insects, eggs, bores, and larvae. At the time of planting all plants shall have a root system, stem, and branch form that will not restrict normal growth, stability and health for the expected life of the plant
  - 2. **Plant quality above the soil line:**
    - a. Plants shall be healthy with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified.
      - 1.) Leaves: The size, color, and appearance of leaves shall be typical for the time of



year and stage of growth of the species or cultivar. Trees shall not show signs of prolonged moisture stress or over watering as indicated by wilted, shriveled, or dead leaves.

- 2.) Branches: Shoot growth (length and diameter) throughout the crown should be appropriate for the age and size of the species or cultivar. Trees shall not have dead, diseased, broken, distorted, or otherwise injured branches.
  - a.) Main branches shall be distributed along the central leader not clustered together. They shall form a balanced crown appropriate for the cultivar/species.
  - b.) Branch diameter shall be no larger than two-thirds (one-half is preferred) the diameter of the central leader measured 1 inch above the branch union.
  - c.) The attachment of the largest branches (scaffold branches) shall be free of included bark.
- 3.) Trunk: The tree trunk shall be relatively straight, vertical, and free of wounds that penetrate to the wood (properly made pruning cuts, closed or not, are acceptable and are not considered wounds), sunburned areas, conks (fungal fruiting bodies), wood cracks, sap leakage, signs of boring insects, galls, cankers, girdling ties, or lesions (mechanical injury).
- 4.) Temporary branches, unless otherwise specified, can be present along the lower trunk below the lowest main (scaffold) branch, particularly for trees less than 1 inch in caliper. These branches should be no greater than 3/8-inch diameter. Clear trunk should be no more than 40% of the total height of the tree.

- b. Trees shall have one central leader. If the leader was headed, a new leader (with a live terminal bud) at least one-half the diameter of the pruning cut shall be present.
  - 1.) All trees are assumed to have one central leader trees unless a different form is specified in the plant list or drawings.
- c. All graft unions, where applicable, shall be completely closed without visible sign of graft rejection. All grafts shall be visible above the soil line.
- d. Trunk caliper and taper shall be sufficient so that the lower five feet of the trunk remains vertical without a stake. Auxiliary stake may be used to maintain a straight leader in the upper half of the tree.

**3. Plant quality at or below the soil line:**

- a. Plant roots shall be normal to the plant type specified. Root observations shall take place without impacting tree health. Root quality at or below the soil line shall comply with the project Root Acceptance details and the following:
  - 1.) The roots shall be reasonably free of scrapes, broken or split wood.
  - 2.) The root system shall be reasonably free of injury from biotic (e.g., insects and pathogens) and abiotic (e.g., herbicide toxicity and salt injury) agents. Wounds resulting from root pruning used to produce a high quality root system are not considered injuries.
  - 3.) A minimum of three structural roots reasonably distributed around the trunk (not clustered on one side) shall be found in each plant. Root distribution shall be uniform throughout the root ball, and growth shall be appropriate for the species.
    - a.) Plants with structural roots on only one side of the trunk (J roots) shall be rejected.
  - 4.) The root collar shall be within the upper 2 inches of the substrate/soil. Two structural roots shall reach the side of the root ball near the top surface of the root ball. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that the grower removes all stem girdling roots above the structural roots across the top of the root ball.
  - 5.) The root system shall be reasonably free of stem girdling roots over the root collar or kinked roots from nursery production practices.
  - 6.) At time of observations and delivery, the root ball shall be moist throughout. Roots shall not show signs of excess soil moisture conditions as indicated by stunted, discolored, distorted, or dead roots.

2.2 ROOT BALL PACKAGE OPTIONS: The following root ball packages are permitted. Specific root ball packages shall be required where indicated on the plant list or in this specification. Any type of root ball packages that is not specifically defined in this specification shall not be permitted.

A. CONTAINER (INCLUDING ABOVE-GROUND FABRIC CONTAINERS AND BOXES) PLANTS

1. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the Town Representative.
2. Provide plants shall be established and well rooted in removable containers.
3. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.

2.3 COMPOST

A. Compost: blended and ground leaf, wood and other plant based material, composted for a minimum of 9 months and at temperatures sufficient to break down all woody fibers, seeds and leaf structures, free of toxic material at levels that are harmful to plants or humans. Source material shall be yard waste trimmings blended with other plant or manure based material designed to produce compost high in fungal material.

1. Compost shall be commercially prepared Compost and meet US Compost Council STA/TMECC criteria or as modified in this section for "Compost as a Landscape Backfill Mix Component".

[http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/191/LandscapeArch\\_Specs.pdf](http://compostingcouncil.org/admin/wp-content/plugins/wp-pdfupload/pdf/191/LandscapeArch_Specs.pdf)

2. Compost shall comply with the following parameters:
  - a. pH: 5.5 - 8.0.
  - b. Soil salt (electrical conductivity): maximum 5 dS/m (mmhos/cm).
  - c. Moisture content %, wet weight basis: 30 – 60.
  - d. Particle size, dry weight basis: 98% pass through 3/4 inch screen or smear.
  - e. Stability carbon dioxide evolution rate: mg CO<sub>2</sub>-C/ g OM/ day < 2.
  - f. Solvita maturity test: > 6.
  - g. Physical contaminants (inerts), %, dry weight basis: <1%.
  - h. Chemical contaminants, mg/kg (ppm): meet or exceed US EPA Class A standard, 40CFR § 503.13, Tables 1 and 3 levels.
  - i. Biological contaminants select pathogens fecal coliform bacteria, or salmonella, meet or exceed US EPA Class A standard, 40 CFR § 503.32(a) level requirements.

B. Provide a two gallon sample with manufacturer's literature and material certification that the product meets the requirements.

2.4 LIME

A. ASTM c 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:

1. Class: Class T, with a minimum 99 percent passing through No. 8 (2.36-mm) sieve and a minimum 75 percent passing through No. 60 (0.25-mm) sieve.
2. Provide lime in form of dolomitic limestone.

B. Provide manufacturer's literature and material certification that the product meets the requirements.

2.5 EXISTING SOIL (ACCEPTABLE FOR PLANTING WITH MINIMUM MODIFICATIONS)

- A. General definition of existing soil: surface soil that is not altered, compacted to root limiting density, graded or contaminated before or during the construction process and considered acceptable for planting and long term health of the plants specified either as it exists or with only minor modification.
  - 1. The Town Representative shall verify that the soil in the designated areas is suitable at the beginning of planting bed preparation work in that area. In the event that the work of this project construction has damaged the existing soil in areas designated for use as Planting Soil to the point where the soil is no longer suitable to support the plants specified, the Town Representative may require modification of the damaged soil up to and including removal and replacement with soil of equal quality to the soil that existed prior to construction. Examples of damage include further compaction, contamination, grading, creation of hard pan or drainage problems, and loss of the O, and or A horizon.
    - a. Do not begin work on additional modifications until changes to the contract price are approved by Town Representative.
- B. Protect existing soil from compaction, contamination, and degradation during the construction process.
- C. Unless otherwise instructed, remove all existing plants, root thatch, and non-soil debris from the surface of the soil using equipment that does not increase compaction of soil to root limiting levels.
- D. MODIFICATIONS:
  - 1. When results of soil tests recommend chemical adjustments, till surface soil to six inches or greater after chemical adjustments have been applied.
  - 2. Remove existing turf thatch, ground cover plants and weeds.
  - 3. Provide pre-emergent weed control if indicated.
  - 4. Make chemical adjustment as recommended by the soil test.
- E. MODIFIED EXISTING SOIL – COMPACTED SURFACE SOIL (RADIAL TRENCHING OPTION)
  - 1. Description of condition to be modified: Surface soil compaction to a maximum of 24 inches deep from traffic or light grading. Original A horizon may be previously removed or graded but lower profile below 24 inches intact with acceptable compaction levels and limited grading. The soil organic matter, pH and chemistry in the A horizon may not be suitable for the proposed plants and may need to be modified as required.
  - 2. Modifications:
    - a. Using a trenching machine, dig trenches to the extent and depth shown on the plans and details.
    - b. Backfill the trench with the soil removed from the trench. Add additional site soil if needed to fill the trench to be flush to the existing grade after the soil settlement.
- F. MODIFIED EXISTING SOIL – COMPACTED SUBSOIL
  - 1. Description of condition to be modified: Deep soil compaction the result of previous grading, filling and dynamic or static compaction forces. Original A horizon likely removed or buried. The soil organic matter, pH and chemistry in the A horizon is likely not suitable for the proposed plants and should be modified as required.
  - 2. Soil Ripping:
    - a. Step one: After grading and removing all plants and debris from the surface, using a tracked dozer or similar large grading equipment, loosen the soil by dragging a ripping shank or chisel thru the soil to depths of 24 inches with ripping shanks spaced 18 inches or less apart in two directions. The number of shanks per pull is dependent on the degree of soil compaction and the size of the dozer.
    - b. Step 2: Spread 3-4 inches of Compost over the ripped area and till into the top 6

inches of the soil surface.

3. Following soil ripping the average penetration resistance should be less than 250 psi to the depth of the ripping or fracturing.
4. Do not start planting into ripped soil until soil has been settled or leave grades sufficiently high to anticipate settlement of 10 – 15% of ripped soil depth.

G. MODIFIED EXISTING SOIL – LOW ORGANIC MATTER

1. Description of condition to be modified: Low soil organic matter and/or missing A horizon but soil is not compacted except for some minor surface compaction. The soil organic matter, pH and/or chemistry are likely not suitable for the proposed plants and should be modified as required.
2. Modifications:
  - a. Spread 3 - 4 inches of Compost over the surface of the soil and make chemical adjustment as recommended by the soil test.
  - b. Till Compost into the top 6 inches of the soil.

H. Modified existing soil – soil within the root zone of existing established trees

1. Description of condition to be modified: Surface compaction near or above root limited levels in the upper soil horizon the result of traffic or other mechanical compaction.
2. Modifications:
  - a. Remove the tops of all plants to be removed from the root zone. Remove sod with a walk behind sod cutter. Do not grub out the roots of plants to be removed.
  - b. Use a pneumatic air knife to loosen the top 9 – 12 inches of the soil. Surface roots may move and separate from soil during this process but the bark on roots should not be broken
    - 1.) Pneumatic air knife shall be as manufactured by:  
Concept Engineering Group, Inc., Verona, PA (412) 826-8800  
or  
Supersonic Air Knife, Inc., Allison Park, PA (866) 328 5723
  - c. Make chemical adjustment as recommended by the soil test and add 2 - 3 inches of Compost over the soil.
  - d. Using the pneumatic air knife, mix the Compost into the top 6 – 8 inches of the loosened soil.
  - e. Work in sections such that the entire process - including irrigation - can be completed in one day. Apply approximately one inch of water over the loosened soil at the completion of each day's work. Apply mulch or turf as indicated on the drawings within one week of the completion of work.

2.6 PLANTING SOIL MIXES

- A. General definition: mixes of existing soil or imported topsoil, and or compost to make a new soil that meets the project goals for the indicated planting area. These may be mixed off site or onsite, and will vary in mix components and proportions as indicated.
- B. Soil Mix for Backfill of Shrubs, Trees and Ground Covers: The following ingredients shall be tumbled to achieve a homogeneous mix:
  - a. Organic amendment 1 cubic yard
  - b. Topsoil 3 cubic yards
2. Final tested organic matter between 2.75 and 4% (by dry weight).
3. At the time of final grading, add fertilizer if required to the Planting Soil at rates recommended by the testing results for the plants to be grown.
4. Provide a two gallon sample with testing data that includes recommendations for chemical additives for the types of plants to be grown. Samples and testing data shall be

submitted at the same time.

## 2.7 FERTILIZER

1. Turf and groundcover areas:
  - a. 6N-20P-20K, 25 lbs. per 1,000 square feet or 6N-24P-24P, 15 lbs per 1,000 square feet.
  - b. Starting one month after planting, on a monthly basis until start of Maintenance Period, apply 12N-8P-16K fertilizer. 7 lbs. per 1,000 square feet.
2. Shrubs and trees:
  - a. 21 gram tablet 20N-10P-5K slow release fertilizer tablets as manufactured by Agriform or approved equal. Apply according to Manufacturer's instructions and as follows:
    - 1.) 36" Box shall receive 36 tablets
    - 2.) 24" Box shall receive 24 tablets
    - 3.) 15 Gallon shall receive 10 tablets
    - 4.) 5 Gallon shall receive 3 tablets
    - 5.) 1&2 Gallon shall receive 2 tablets
  - b. Starting one month after planting, on a monthly basis until start of maintenance Period, apply 12N-8P-16K fertilizer 7 lbs. per 1,000 square feet.

## 2.8 PRE-EMERGENT HERBICIDES

- A. Chemical herbicides are designed to prevent seeds of selective plants from germinating. Exact type of herbicide shall be based on the specific plants to be controlled and the most effective date of application.
- B. Submit report of expected weed problems and the recommendation of the most effective control for approval by Town representative. Provide manufacturer's literature and material certification that the product meets the requirements.

## 2.9 MULCH

- A. Mulch shall be "Walk on" grade, coarse, ground, from tree and woody brush sources. The size range shall be a minimum (less than 25% or less of volume) fine particles 3/8 inch or less in size, and a maximum size of individual pieces (largest 20% or less of volume) shall be approximately 1 to 1-1/2 inch in diameter and maximum length approximately 4 to 8". Pieces larger than 8 inch long that are visible on the surface of the mulch after installation shall be removed.
- B. Submit supplier's product specification data sheet and a one gallon sample for approval.

## 2.10 TREE SUPPORT POLES

- A. Peeled, lodge pole pine logs, treated with Chemonite or ACQ or approved equal, clean, smooth, new, and sized as follows:
  1. Three inch (3") diameter by ten (10') long for trees greater than 8 feet high and 1 inch caliper.

## 2.11 TREE GUYING

- A. For trees up to 3 inch caliper, 1/16 inch galvanized steel cable, with rubber tree collar, 12 inch minimum long, and secured with cable clamp, and attached to anchor for below-grade location, Duckbill Model 40 DTS, or approved equal.

- B. For trees 3 inches to 6 inches caliper, 1/8 inch galvanized steel cable with rubber tree collar, 21 inches minimum long, and secured with cable clamp, 3 inches take-up eye to eye turnbuckle, and attached to anchor for below-grade location, Duckbill Model 68 DTS, or approved equal.
- C. Each guy wire shall be installed with 1 inch VC pipe, 3 foot long sleeve, as warning device.

## 2.12 TREE TIES

- A. Flexible strap, 24 inch minimum length without sharp edges adjacent to trunk, V.I.T. cinch-ti, or approved equal.

## 2.13 EROSION CONTROL NETTING

- A. New, with a uniform, open plain-weave, flame-retardant mesh. The mesh shall be [natural brown-tan] and made from unbleached single jute yarn. The yarn shall be of loosely twisted construction and shall not vary in thickness by more than one-half its normal diameter. Furnish jute mesh in rolled strips to meet the following requirements:
  - 1. Width: 48 inches, with tolerance of one-inch wider or narrower.
  - 2. Not less than 78 warp ends per width.
  - 3. Not less than 41 weft ends per yard.
  - 4. Weight shall average 1.22 pounds per liner yard, with tolerance of 5 percent heavier or lighter.
- B. Install jute mesh loosely up and down the slope in accordance with manufacturer's specifications and as follows. Fit the soil surface contour and hold in place with 12 inch long, 11-gauge (minimum) steel wire staples driven vertically into the soil at 18-24 inch spacing, Jute mesh strips shall overlap along all edges at least 6 inches. Ends of side stripes shall be buried into the soil at least 6 inches. Drive staples along to securely anchor mesh to ground.

## PART 3 – EXECUTION

### 3.1 SITE EXAMINATION

- A. Prior to installation of planting soil, examine site to confirm that existing conditions are satisfactory for the work of this section to proceed.
  - 1. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope toward the under drain lines as shown on the drawings.
  - 2. Confirm that surface all areas to be filled with planting soil are free of construction debris, refuse, compressible or biodegradable materials, stones greater than 2 inches diameter, soil crusting films of silt or clay that reduces or stops drainage from the planting soil into the subsoil; and/or standing water. Remove unsuitable material from the site.
  - 3. Confirm that no adverse drainage conditions are present.
  - 4. Confirm that no conditions are present which are detrimental to plant growth.
  - 5. Confirm that utility work has been completed per the drawings.
  - 6. Confirm that irrigation work, which is shown to be installed below prepared soil levels, has been completed.
- B. If unsatisfactory conditions are encountered, notify the Town representative immediately to determine corrective action before proceeding.

### 3.2 DELIVERY, STORAGE AND HANDLING

- A. Weather: do not mix, deliver, place or grade soils when frozen or with moisture above field

capacity.

- B. Protect soil and soil stockpiles, including the stockpiles at the soil blender's yard, from wind, rain and washing that can erode soil or separate fines and coarse material, and contamination by chemicals, dust and debris that may be detrimental to plants or soil drainage. Cover stockpiles with plastic sheeting or fabric at the end of each workday.
- C. All manufactured packaged products and material shall be delivered to the site in unopened containers and stored in a dry enclosed space suitable for the material and meeting all environmental regulations. Biological additives shall be protected from extreme cold and heat. All products shall be freshly manufactured and dated for the year in which the products are to be used.
- D. Deliver all chemical amendments in original, unopened containers with original labels intact and legible, which state the guaranteed chemical analysis. Store all chemicals in a weather protected enclosure.
- E. Bulk material: coordinate delivery and storage with Town representative and confine materials to neat piles in areas acceptable to Town representative.
- F. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind or extremes of heat and cold temperatures. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind. Provide adequate water to the root ball package during the shipping and storage period.
  - 1. All plant materials must be available for observation prior to planting.
  - 2. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered. Volumetric soil moisture shall be maintained above wilting point and below field capacity for the root ball substrate or soil.
- G. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote staging area for plants and other supplies.
  - 1. The Town Representative or Contractor shall approve the duration, method and location of storage of plants.
- H. Provide protective covering over all plants during transporting.

### 3.3 PLANTING CONDITIONS

- A. Planting shall only be performed when weather and soil conditions are suitable for planting the materials specified in accordance with locally accepted practice.

### 3.4 ADVERSE WEATHER CONDITIONS

- A. No planting shall take place during extremely hot, dry, windy or freezing weather.

### 3.5 COORDINATION WITH PROJECT WORK

- A. The Contractor shall coordinate with all other work that may impact the completion of the work.
- B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.
- C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Town Representative of any conflicts encountered.

### 3.6 EXISTING SOIL MODIFICATION

- A. Follow the requirements for modifying existing soil as indicated in part 2 for the different types of soil modifications.

### 3.7 FINE GRADING

- A. The owner's representative shall approve all rough grading prior to the installation of compost, fine grading, planting, and mulching.
- B. Grade the finish surface of all planted areas to meet the grades shown on the drawings, allowing the finished grades to remain higher (10 – 15% of depth of soil modification) than the grades on the grading plan, as defined in paragraph planting soil installation, to anticipate settlement over the first year.
- C. Utilize hand equipment, small garden tractors with rakes, or small garden tractors with buckets with teeth for fine grading to keep surface rough without further compaction. Do not use the flat bottom of a loader bucket to fine grade, as it will cause the finished grade to become overly smooth and or slightly compressed.
- D. Provide for positive drainage from all areas toward the existing inlets, drainage structures and or the edges of planting beds. Adjust grades as directed to reflect actual constructed field conditions of paving, wall and inlet elevations. Notify the owner's representative in the event that conditions make it impossible to achieve positive drainage.
- E. Provide smooth, rounded trAnSlitions between slopes of different gradients and direction. Modify the grade so that the finish grade before adding mulch and after settlement is one or two inches below all paving surfaces or as directed by the drawings.
- F. Fill all dips and remove any bumps in the overall plane of the slope. The tolerance for dips and bumps in shrub and ground cover planting areas shall be a 2 inch deviation from the plane in 10 feet. The tolerance for dips and bumps in lawn areas shall be a 1 inch deviation from the plane in 10 feet.

### 3.8 COMPACTION REQUIREMENTS FOR INSTALLED OR MODIFIED PLANTING SOIL

- A. Compact installed planting soil to the compaction rates indicated and using the methods approved for the soil mockup. Compact each soil lift as the soil is installed.
- B. Existing soil that is modified by tilling, ripping or fracturing shall have a density to the depth of the modification, after completion of the loosening, such that the penetrometer reads approximately 75 to 250 psi at soil moisture approximately the mid-point between wilting point and field capacity. This will be approximately between 75 and 82% of maximum dry density standard proctor.
- C. Installed planting soil mix and re-spread existing soil shall have a soil density through the required depth of the installed layers of soil, such that the penetrometer reads approximately 75 to 250 psi at soil moisture approximately the mid-point between wilt point and field capacity. This will be approximately between 75 and 82% of maximum dry density standard proctor.
- D. Planting soil compaction shall be tested at each lift using a penetrometer calibrated to the mockup soil and its moisture level. The same penetrometer and moisture meter used for the testing of the mockup shall be used to test installed soil throughout the work.
- E. Maintain moisture conditions within the planting soil during installation or modification to allow for satisfactory compaction. Suspend operations if the planting soil becomes wet. Apply water if the soil is overly dry.
- F. Provide adequate equipment to achieve consistent and uniform compaction of the planting soils. Use the smallest equipment that can reasonably perform the task of spreading and



compaction. Use the same equipment and methods of compaction used to construct the planting soil mockup.

- G. Do not pass motorized equipment over previously installed and compacted soil except as authorized below.
  - 1. Light weight equipment such as trenching machines or motorized wheel barrows is permitted to pass over finished soil work.
  - 2. If work after the installation and compaction of soil compacts the soil to levels greater than the above requirements, follow the requirements of the paragraph "over compaction reduction" below.

### 3.9 OVER COMPACTION REDUCTION

- A. Any soil that becomes compacted to a density greater than the specified density and/or the density in the approved mockup shall be dug up and reinstalled. This requirement includes compaction caused by other sub-contractors after the planting soil is installed and approved.
- B. Surface roto tilling shall not be considered adequate to reduce over compaction at levels 6 inches or greater below finished grade.

### 3.10 PLANTING SOIL AND PLANTING SOIL MIX INSTALLATION

- A. All equipment utilized to install or grade planting soils shall be wide track or balloon tire machines rated with a ground pressure of 4 psi or less. All grading and soil delivery equipment shall have buckets equipped with 6 inch long teeth to scarify any soil that becomes compacted.
- B. In areas of soil installation above existing subsoil, scarify the subgrade material prior to installing planting soil.
  - 1. Scarify the subsoil of the subgrade to a depth of 3 – 6 inches with the teeth of the back hoe or loader bucket, tiller or other suitable device.
  - 2. Immediately install the planting soil. Protect the loosened area from traffic. Do not allow the loosened subgrade to become compacted.
  - 3. In the event that the loosened area becomes overly compacted, loosen the area again prior to installing the planting soil.
- C. Install the planting soil in 12 - 18 inch lifts to the required depths. Apply compacting forces to each lift as required to attain the required compaction. Scarify the top of each lift prior to adding more planting soil by dragging the teeth of a loader bucket or backhoe across the soil surface to roughen the surface.
- D. Phase work such that equipment to deliver or grade soil does not have to operate over previously installed planting soil. Work in rows of lifts the width of the extension of the bucket on the loader. Install all lifts in one row before proceeding to the next. Work out from the furthest part of each bed from the soil delivery point to the edge of the each bed area.
- E. Installing soil with soil or mulch blowers or soil slingers shall not be permitted due to the over mixing and soil ped breakdown cause by this type of equipment.
- F. Where travel over installed soil is unavoidable, limit paths of traffic to reduce the impact of compaction in planting soil. Each time equipment passes over the installed soil it shall reverse out of the area along the same path with the teeth of the bucket dropped to scarify the soil. Comply with the paragraph "compaction reduction" (section 3.9) in the event that soil becomes over compacted.
- G. Hold finish grade and/or mulch surface in planting areas 1/2-inch below adjacent pavement surfaces, tops of curbs, manholes, etc.

### 3.11 LAYOUT AND PLANTING SEQUENCE

- A. Relative positions of all plants and trees are subject to approval of the Town Representative.
- B. Notify the Town Representative, one (1) week prior to layout. Layout all individual tree and shrub locations. Place plants above surface at planting location or place a labeled stake at planting location. Layout bed lines with paint for the Town Representative's approval. Secure the Town Representative's acceptance before digging and start of planting work.
- C. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent until some or all of the plants are installed. Make adjustments as required by the Town Representative including relocating previously installed plants.

### 3.12 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION

- A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.
  - 1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and tilling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.
  - 2. Till to a depth of 6 inches, all soil that has been driven over during the installation of plants.

### 3.13 SOIL MOISTURE

- A. Volumetric soil moisture level, in both the planting soil and the root balls of all plants, prior to, during and after planting shall be above permanent wilting point and below field capacity for each type of soil texture within the following ranges.

Soil type	Permanent wilting point	Field capacity
Sand, Loamy sand, Sandy loam	5-8%	12-18%
Loam, Sandy clay, Sandy clay loam	14-25%	27-36%
Clay loam, Silt loam	11-22%	31-36%
Silty clay, Silty clay loam	22-27%	38-41%

- 1. Volumetric soil moisture shall be measured with a digital moisture meter. The meter shall be the Digital Soil Moisture Meter, DSMM500 by General Specialty Tools and Instruments, or approved equivalent.
- B. The Contractor shall confirm the soil moisture levels with a moisture meter. If the moisture is too high, suspend planting operations until the soil moisture drains to below field capacity.

### 3.14 INSTALLATION OF PLANTS: GENERAL

- A. Observe each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant. Notify the Town Representative of any condition observed.
- B. No more plants shall be distributed about the planting bed area than can be planted and watered on the same day.
- C. The root system of each plant, regardless of root ball package type, shall be observed by the Contractor, at the time of planting to confirm that the roots meet the requirements for plant root quality in Part 2 Products: Plants General: Plant Quality. The Contractor shall undertake at the time of planting, all modifications to the root system required by the Town

Representative to meet these quality standards.

1. Modifications, at the time of planting, to meet the specifications for the depth of the root collar and removal of stem girdling roots and circling roots may make the plant unstable or stress the plant to the point that the Town Representative may choose to reject the plant rather than permitting the modification.
  2. Any modifications required by the Town Representative to make the root system conform to the plant quality standards outlined in Part 2 Products: Plants General: Quality, or other requirements related to the permitted root ball package, shall not be considered as grounds to modify or void the plant warranty.
  3. The resulting root ball may need additional staking and water after planting. The Town Representative may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty.
  4. The Contractor remains responsible to confirm that the grower has made all required root modifications noted during any nursery observations.
- D. Container and Boxed Root Ball Shaving: The outer surfaces of ALL plants in containers and boxes, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one inch of root mat or up to 2 inches as required to remove all root segments that are not growing reasonably radial to the trunk.
- E. Exposed Stem Tissue after Modification: The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping with a white filter fabric. Secure the fabric with biodegradable masking tape. DO NOT USE string, twine, green nursery ties or any other material that may girdle the trunk if not removed.
- F. Excavation of the Planting Space: Using hand tools or tracked mini-excavator, excavate the planting hole into the Planting Soil to the depth of the root ball measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing or as noted below.
1. For trees and shrubs planted in soil areas that are NOT tilled or otherwise modified to a depth of at least 12 inches over a distance of more than 10 feet radius from each tree, or 5 feet radius from each shrub, the soil around the root ball shall be loosened as defined below or as indicated on the drawings.
    - a. The area of loosening shall be a minimum of 3 times the diameter of the root ball at the surface sloping to 2 times the diameter of the root ball at the depth of the root ball.
    - b. Loosening is defined as digging into the soil and turning the soil to reduce the compaction. The soil does not have to be removed from the hole, just dug, lifted and turned. Lifting and turning may be accomplished with a tracked mini excavator, or hand shovels.
  2. If an auger is used to dig the initial planting hole, the soil around the auger hole shall be loosened as defined above for trees and shrubs planted in soil areas that are NOT tilled or otherwise modified.
  3. The measuring point for root ball depth shall be the average height of the outer edge of the root ball after any required root ball modification.
  4. If motorized equipment is used to deliver plants to the planting area over exposed planting beds, or used to loosen the soil or dig the planting holes, all soil that has been driven over shall be tilled to a depth of 6 inches.
- G. For trees to be planted in prepared Planting Soil that is deeper than the root ball depth,

compact the soil under the root ball using a mechanical tamper to assure a firm bedding for the root ball. If there is more than 12 inches of planting soil under the root ball excavate and tamp the planting soil in lifts not to exceed 12 inches.

- H. Set top outer edge of the root ball at the average elevation of the proposed finish. Set the plant plumb and upright in the center of the planting hole. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.
- I. The Town Representative may request that plants orientation be rotated when planted based on the form of the plant.
- J. Backfill the space around the root ball with the same planting soil or existing soil that was excavated for the planting space.
- K. Brace root ball by tamping Planting Soil around the lower portion of the root ball. Place additional Planting Soil around base and sides of ball in six-inch (6") lifts. Lightly tamp each lift using foot pressure or hand tools to settle backfill, support the tree and eliminate voids. DO NOT over compact the backfill or use mechanical or pneumatic tamping equipment. Over compaction shall be defined as greater than 85% of maximum dry density, standard proctor or greater than 250 psi as measured by a cone penetrometer when the volumetric soil moisture is lower than field capacity.
  - 1. When the planting hole has been backfilled to three quarters of its depth, water shall be poured around the root ball and allowed to soak into the soil to settle the soil. Do not flood the planting space. If the soil is above field capacity, allow the soil to drain to below field capacity before finishing the planting. Air pockets shall be eliminated and backfill continued until the planting soil is brought to grade level.
- L. Where indicated on the drawings, build a 4 inch high, level berm of Planting Soil around the outside of the root ball to retain water. Tamp the berm to reduce leaking and erosion of the saucer.
- M. Thoroughly water the Planting Soil and root ball immediately after planting.
- N. Remove all nursery plant identification tags and ribbons as per Town Representative instructions. The Town Representative's seals are to remain on plants until the end of the warranty period.
- O. Remove corrugated cardboard trunk protection after planting.
- P. Follow additional requirements for the permitted root ball packages.

### 3.15 PERMITTED ROOT BALL PACKAGES AND SPECIAL PLANTING REQUIREMENTS

- A. The following are permitted root ball packages and special planting requirements that shall be followed during the planting process in addition to the above General planting requirements.
- B. CONTAINER (INCLUDES BOXED AND ABOVE-GROUND FABRIC CONTAINERS) PLANTS
  - 1. This specification assumes that most container plants have significant stem girdling and circling roots, and that the root collar is too low in the root ball.
  - 2. Remove the container.
  - 3. Perform root ball shaving as defined in Installation of Plants: General above.
  - 4. Remove all roots and substrate above the root collar and the main structural roots.
  - 5. Remove all substrate at the bottom of the root ball that does not contain roots.
  - 6. Using a hose, power washer or air excavation device, wash out the substrate from around the trunk and top of the remaining root ball and find and remove all stem girdling roots within the root ball above the top of the structural roots.

### 3.16 GROUND COVER, PERENNIAL AND ANNUAL PLANTS

- A. Assure that soil moisture is within the required levels prior to planting. Irrigation, if required, shall be applied at least 12 hours prior to planting to avoid planting in muddy soils.
- B. Assure that soil grades in the beds are smooth and as shown on the plans.
- C. Plants shall be planted in even, triangularly spaced rows, at the intervals called out for on the drawings, unless otherwise noted. The first row of Annual flower plants shall be 6 inches from the bed edge unless otherwise directed.
- D. Dig planting holes sufficiently large enough to insert the root system without deforming the roots. Set the top of the root system at the grade of the soil.
- E. Schedule the planting to occur prior to application of the mulch. If the bed is already mulched, pull the mulch from around the hole and plant into the soil. Do not plant the root system in the mulch. Pull mulch back so it is not on the root ball surface.
- F. Press soil to bring the root system in contact with the soil.
- G. Spread any excess soil around in the spaces between plants.
- H. Apply mulch to the bed being sure not to cover the tops of the plants with or the tops of the root ball with mulch.
- I. Water each planting area as soon as the planting is completed. Apply additional water to keep the soil moisture at the required levels. Do not over water.

### 3.17 TREE STAKING

- A. Stake trees as indicated on the Drawings. Drive stake until solid and remove excess stake protruding above top tree tie to prevent rubbing against branches. Allow 1 to 3 inches sway in trunk or branches; do not pull tight.
- B. Tying: Find the proper support height by holding the trunk in one hand and pulling the top to one side and releasing it. The lowest height, at which the trunk will return to the upright position when the top is released, is the height at which to attach tree ties.

### 3.18 STRAIGHTENING PLANTS

- A. Maintain all plants in a plumb position throughout the warranty period. Straighten all trees that move out of plumb including those not staked. Plants to be straightened shall be excavated and the root ball moved to a plumb position, and then re-backfilled.
- B. Do not straighten plants by pulling the trunk with guys.

### 3.19 INSTALLATION OF FERTILIZER AND OTHER CHEMICAL ADDITIVES

- A. Do not apply any soluble fertilizer to plantings during the first year after transplanting unless soil test determines that fertilizer or other chemical additives is required. Apply chemical additives only upon the approval of the Town Representative.
- B. Controlled release fertilizers shall be applied according to the manufacturer's instructions and standard horticultural practices.

### 3.20 PRUNING OF TREES AND SHRUBS

- A. Prune plants as directed by the Town Representative. Pruning trees shall be limited to addressing structural defects as shown in details; follow recommendations in "Structural Pruning: A Guide For The Green Industry" published by Urban Tree Foundation, Visalia CA.
- B. All pruning shall be performed by a person experienced in structural tree pruning.
- C. Except for plants specified as multi-stemmed or as otherwise instructed by the Town Representative, preserve or create a central leader.

- D. Pruning of large trees shall be done using pole pruners or if needed, from a ladder or hydraulic lift to gain access to the top of the tree. Do not climb in newly planted trees. Small trees can be structurally pruned by laying them over before planting. Pruning may also be performed at the nursery prior to shipping.
- E. Remove and replace excessively pruned or malformed stock resulting from improper pruning that occurred in the nursery or after.
- F. Pruning shall be done with clean, sharp tools.
- G. No tree paint or sealants shall be used.

#### 3.21 MULCHING OF PLANTS

- A. Apply 3 inches of mulch before settlement, covering the entire planting bed area. Install no more than 1 inch of mulch over the top of the root balls of all plants. Taper to 2 inches when abutting pavement.
- B. Lift all leaves, low hanging stems and other green portions of small plants out of the mulch if covered.

#### 3.22 PLANTING BED FINISHING

- A. After planting, smooth out all grades between plants before mulching.
- B. Separate the edges of planting beds and lawn areas with a smooth, formed edge cut into the turf with the bed mulch level slightly lower, 1 and 2 inches, than the adjacent turf sod or as directed by the Town Representative. Bed edge lines shall be as depicted on the drawings.

#### 3.23 WATERING

- A. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants from the point of installation until the date of Substantial Completion Acceptance. The Contractor shall adjust the automatic irrigation system, if available, and apply additional or adjust for less water using hoses as required.
- B. Hand water root balls of all plants to assure that the root balls have moisture above wilt point and below field capacity. Test the moisture content in each root ball and the soil outside the root ball to determine the water content.

#### 3.24 CLEAN-UP

- A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.
  - 1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.
- B. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Town Representative's seals are to remain on the trees and removed at the end of the warranty period.
- C. Make all repairs to grades, ruts, and damage by the plant installer to the work or other work at the site.
- D. Remove and dispose of all excess planting soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.

#### 3.25 PROTECTION DURING CONSTRUCTION

- A. The Contractor shall protect planting and related work and other site work from damage due

to planting operations, operations by other Contractors or trespassers. Maintain protection during installation until Substantial Completion Acceptance. Treat, repair or replace damaged work immediately.

- B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including roots, trunk or branches of large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Town. The Town Representative shall determine when such cleaning, replacement or repair is satisfactory.

### 3.26 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE

- A. During the project work period and prior to Substantial Completion Acceptance, the Contractor shall maintain all plants.
- B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds, grass.

### 3.27 SUBSTANTIAL COMPLETION ACCEPTANCE

- A. Upon written notice from the Contractor, the Towns Representative shall review the work and make a determination if the work is substantially complete.
  - 1. Notification shall be at least 7 days prior to the date the contractor is requesting the review.
- B. The date of substantial completion of the planting shall be the date when the Town Representative accepts that all work in Planting and Irrigation installation sections is complete.
- C. The Plant Establishment Maintenance Period begins at date of written notification of substantial completion from the Town Representative. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.

### 3.28 MAINTENANCE DURING THE PLANT ESTABLISHMENT MAINTENANCE PERIOD BY THE PLANT INSTALLER

- A. The plant establishment maintenance period shall be for a period of 90 days after substantial completion acceptance.
- B. During the establishment period, provide all maintenance for all plantings to keep the plants in a healthy state and the planting areas clean and neat.
- C. General requirements:
  - 1. All work shall be undertaken by trained planting crews under the supervision of a foreman with a minimum of 5 years experience supervising commercial plant maintenance crews.
  - 2. All chemical and fertilizer applications shall be made by licensed applicators for the type of chemicals to be used. All work and chemical use shall comply with all applicable local, provincial and federal requirements.
  - 3. Assure that hoses and watering equipment and other maintenance equipment does not block paths or be placed in a manner that may create tripping hazards. Use standard safety warning barriers and other procedures to maintain the site in a safe manner for visitors at all times.

4. All workers shall wear required safety equipment and apparel appropriate for the tasks being undertaken.
  5. The Contractor shall not store maintenance equipment at the site at times when they are not in use unless authorized in writing by the Town Representative.
  6. Maintenance vehicles shall not park on the site including walks and lawn areas at any time without the Town Representative's written permission.
  7. Maintain a detailed log of all maintenance activities including types of tasks, date of task, types and quantities of materials and products used, watering times and amounts, and number of each crew. Periodically review the logs with the Town Representative, and submit a copy of the logs at the end of each year of the maintenance agreement.
- D. Provide the following maintenance tasks:
1. Watering; Provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.
    - a. Maintain all watering systems and equipment and keep them operational.
    - b. Monitor soil moisture to provide sufficient water. Check soil moisture and root ball moisture with a soil moisture meter on a regular basis and record moisture readings. Do not over water.
  2. Soil nutrient levels: Take a minimum of 4 soil samples from around the site in the spring and fall and have them tested by an accredited agricultural soil testing lab for chemical composition of plant required nutrients, pH, salt and % organic matter. Test results shall include laboratory recommendations for nutrient applications. Apply fertilizers at rates recommended by the soil test.
    - a. Make any other soil test and/or plant tissue test that may be indicated by plant conditions that may not be related to soil nutrient levels such as soil contaminated by other chemicals or lack of chemical uptake by the plant.
  3. Plant pruning: Remove cross over branching, shorten or remove developing co dominant leaders, dead wood and winter-damaged branches. Unless directed by the Town Representative, do not shear plants or make heading cuts.
  4. Restore plants: Reset any plants that have settled or are leaning as soon as the condition is noticed.
  5. Guying and staking: Maintain plant guys in a taught position. Remove tree guys and staking after the first full growing season unless directed by Town Representative.
  6. Weed control: Keep all beds free of weeds. Hand-remove all weeds and any plants that do not appear on the planting plan. Chemical weed control is permitted only with the approval of the Town Representative. Schedule weeding as needed but not less *12 times per year*.
  7. Trash removal: Remove all trash and debris from all planting beds and maintain the beds in a neat and tidy appearance. The number of trash and debris removal visits shall be no less than 12 times per year and may coincide with other maintenance visits.
  8. Plant pest control: Maintain disease, insects and other pests at manageable levels. Manageable levels shall be defined as damage to plants that may be noticeable to a professional but not to the average person. Use least invasive methods to control plant disease and insect outbreaks.
    - a. The Town Representative must approve in advance the use of all chemical pesticide applications.
  9. Plant replacement: Replace all plants that are defective as defined in the warranty provisions, as soon as the plant decline is obvious and in suitable weather and season for planting as outlined in above sections. Plants that become defective during the maintenance period shall be covered and replaced under the warranty provisions.
  10. Mulch: Refresh mulch once a year to maintain complete coverage but do not over mulch. At no time shall the overall mulch thickness be greater than 4 inches. Do not apply mulch within 6 inches of the trunks or stems of any plants. Replacement mulch shall meet the requirements of the original approved material. Mulch shall be no more than one inch on top of the root ball surface.
  11. Bed edging: Check and maintain edges between mulch and lawn areas in smooth neat lines as originally shown on the drawings.
  12. Leaf, fruit and other plant debris removal: Remove fall leaf, spent flowers, fruit and plant



part accumulations from beds and paved surfaces. Maintain all surface water drains free of debris. Debris removal shall be undertaken at each visit to weed or pick up trash in beds.

13. Damage from site use: Repair of damage by site visitors and events, beyond normal wear, are not part of this maintenance. The Town Representative may request that the Contractor repair damage beds or plantings for an additional cost. All additional work shall be approved in advance by the Town Representative.

### 3.29 END OF ESTABLISHMENT PERIOD FINAL ACCEPTANCE

- A. At the end of the 90 day plant establishment Maintenance period the Town Representative shall observe the work and establish that all provisions of the contract are complete and the work is satisfactory.
  1. If the work is satisfactory, the maintenance period will end on the date of the final observation.
  2. If the work is deemed unsatisfactory, the maintenance period will continue at no additional expense to the Town until the work has been completed, observed, and approved by the Town Representative.
- B. FAILURE TO PASS OBSERVATION: If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Town for additional observations will be charged to the Contractor at the prevailing hourly rate of the Town's Representative.

### 3.30 1 YEAR WARRANTY GUARANTEE AND REPLACEMENT

- A. Guarantee period shall be extended for a period of one year from the date of Final Written Acceptance.
- B. All plants shall be guaranteed to be alive and healthy as determined by the Town's Representative at the end of the guarantee period.
- C. Plant materials supplied by Owner shall be under similar warranty against defective workmanship during the planting operations. Plant material exhibiting conditions which are determined by the Town's Representative as being unacceptable, due to workmanship by the Contractor, shall be replaced at no additional cost to the Town.
- D. The Contractor shall replace, in accordance with the Drawings and Specifications throughout the guarantee period, any plants that die, or in opinion of the Town's Representative, are in an unhealthy or unsightly condition, and or have lost their natural shape due to dead branches, excessive pruning, inadequate or improper maintenance, or any other causes due to the Contractor's negligence. The Contractor shall not be held responsible for acts of vandalism occurring after the beginning of the guarantee period.

## PART 4 – MEASUREMENT AND PAYMENT

The Contractor is referred to Special Provisions Section 12, "Bid Item Descriptions" for measurement and payment.

END OF SECTION