

# **INVITATION FOR BIDS**



**FOR CONSTRUCTING**

## **SANTA ROSA AVENUE CORRIDOR IMPROVEMENTS**

CONTRACT NUMBER

**C01620**

ISSUED BY

**CAPITAL PROJECTS ENGINEERING DIVISION**

**CITY OF SANTA ROSA, CALIFORNIA**

**2022**

ATTENTION  
Prebid Conference  
See Page 1



STATE OF CALIFORNIA

INVITATION FOR BIDS

CONTAINING:

NOTICE TO BIDDERS

SPECIAL PROVISIONS

BID FORMS

CONTRACT

FOR

**SANTA ROSA AVENUE CORRIDOR IMPROVEMENTS**

**Contract No. C01620**

# SANTA ROSA AVENUE CORRIDOR IMPROVEMENTS

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CITY OF SANTA ROSA  
STATE OF CALIFORNIA

**NOTICE TO BIDDERS**

➤	For technical questions regarding this project, contact Lisa Welsh at (707) 543-3909 or email <a href="mailto:lwelsh@srcity.org">lwelsh@srcity.org</a> .
➤	For direct access to plans, specifications and planholders' lists, go to <a href="http://www.srcity.org/bids">www.srcity.org/bids</a> and click on <u>Bid/Proposal Opportunities</u> or call (707) 543-3800.
➤	For direct access to bid results, go to <a href="http://www.srcity.org/bids">www.srcity.org/bids</a> . Under Link to Capital Projects, click on <u>Capital Projects Contracts</u> .

**- IMPORTANT -  
REVISED BIDDING PROCEDURES**

All bids shall be submitted and opened according to the following procedure:

**Bid Acceptance Deadline**

Sealed bids will be accepted at the Transportation and Public Works Department, 69 Stony Circle, Santa Rosa, California 95401 until 2:00 p.m., January 31, 2023, for Santa Rosa Avenue Corridor Improvements, Contract No. C01620. (Engineer's Estimate: \$1,514,000.00).

**Bids tendered after this deadline will not be accepted.** The official time clock for accepting bids will be an electric date and time stamping clock, located in the Transportation and Public Works Department, 69 Stony Circle, Santa Rosa, California. In order to be accepted, bids must be received prior to 2:00 p.m. Therefore, a bid stamped in at 1:59 p.m. will be accepted, but one delivered at or after 2:00 p.m. is late and will not be accepted.

**Bid Opening**

Prospective bidders, subcontractors, and materials suppliers are invited to attend the Bid opening via Zoom video/teleconference or in person at 69 Stony Circle, Santa Rosa, California. The bid opening is scheduled to be held at 2:00 p.m., January 31, 2023.

The Zoom video/teleconference can be accessed at:

<https://srcity-org.zoom.us/j/82101997535?pwd=UWpoOUd0VEVtU1REaFF3MVZPSmJyUT09>

Phone: 1-833-548-0282

Meeting ID: 821 0199 7535

Passcode: 937332

Find your local number: <https://srcity-org.zoom.us/j/82101997535?pwd=UWpoOUd0VEVtU1REaFF3MVZPSmJyUT09>

## **Project Description/Scope of Work**

The corridor is defined as the stretch of Santa Rosa Avenue between Sonoma Avenue and Maple Avenue. This project will make improvements to existing pedestrian, bike, transit and vehicle facilities along the corridor.

### **Pre-Bid Meeting Teleconference Call**

Prospective bidders, subcontractors, and materials suppliers are invited to attend a pre-bid meeting via Zoom video/teleconference or in person at 69 Stony Circle, Santa Rosa, California. The pre-bid meeting is scheduled to be held at 10:30 a.m., January 19, 2023.

The teleconference can be accessed at:

<https://srcity-org.zoom.us/j/82166965443?pwd=dWlhSEczelIDWWxWNzhEczZvU25Wdz09>

Phone: 1-833-548-0282

Meeting ID: 821 6696 5443

Passcode: 284342

Find your local number: <https://srcity-org.zoom.us/u/kdROreN2JL>

### **Subcontractor Information; Department of Industrial Relations Registration**

Bidders shall provide the names, business addresses and license numbers of all subcontractors listed on bidder's List of Subcontractors. No contractor or subcontractor may be listed on a bid for this public works project unless registered with the Department of Industrial Relations (DIR) pursuant to Labor Code section 1725.5. No contractor or subcontractor may be awarded a contract for this public works project unless registered with the DIR pursuant to Labor Code section 1725.5. This public works project is subject to compliance monitoring and enforcement by the DIR.

**CITY OF SANTA ROSA  
C01620 SANTA ROSA AVENUE CORRIDOR IMPROVEMENTS  
ESTIMATED QUANTITIES**

<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit</b>
1	MOBILIZATION AND DEMOBILIZATION (MAX 3% OF BID)	1	LS
2	TRAFFIC CONTROL	1	LS
3	WATER POLLUTION CONTROL	1	LS
4	ADJUST EXISTING MANHOLES TO GRADE	2	EA
5	REPLACE ADVANCED TRAFFIC LOOP DETECTORS	2	EA
6	DIG-OUT REPAIR	2,200	SY
7	ROADWAY EXCAVATION (F)	250	CY
8	1 GALLON PLANTS	575	EA
9	TREES (24" BOX)	20	EA
10	IMPORTED PLANTING SOIL	603	CY
11	ROOT BARRIER	400	LF
12	MULCH AND SHEET MULCH CARDBOARD	5,425	SF
13	COBBLE PAVERS	1,405	SF
14	6" WIDE FLUSH CONCRETE CURB	60	LF
15	BENCH	9	EA
16	BICYCLE RACK	15	EA
17	IRRIGATION SYSTEM	1	LS
18	PLANT ESTABLISHMENT	1	LS
19	HIGH TRAFFIC SLURRY SEAL	140	TON
20	PREPARATION FOR HIGH VOLUME TRAFFIC SLURRY SEAL	128,349	SF
21	BITUMINOUS CHIPSEAL	7,600	SY
22	ASPHALT CONCRETE SURFACE	55	TON
23	ASPHALT CONCRETE BASE	90	TON
24	PERMANENT TRENCH PAVING	35	TON
25	STORM DRAIN MANHOLE	4	EA
26	CATCH BASIN	7	EA
27	CATCH BASIN/MANHOLE LID REPLACEMENT	1	EA
28	INSTALL SIGN	45	EA
29	INSTALL 2-INCH SIGN POST	31	EA
30	REMOVE SIGN	8	EA
31	REMOVE SIGN POST	8	EA
32	18" REINFORCED CONCRETE PIPE	298	LF
33	TRENCH BRACING AND SHORING - REINFORCED CONCRETE PIPE	1	LS

34	REMOVE AND REPLACE CURB AND GUTTER	1,000	LF
35	MEDIAN CURB	2,541	LF
36	MEDIAN PASSAGEWAY	460	SF
37	CURB RAMP	1,600	SF
38	REMOVE AND REPLACE SIDEWALK	6,620	SF
39	REMOVE AND REPLACE DRIVEWAY	680	SF
40	4" THERMOPLASTIC PAVEMENT MARKING	2,900	LF
41	6" THERMOPLASTIC PAVEMENT MARKING	4,600	LF
42	8" THERMOPLASTIC PAVEMENT MARKING	400	LF
43	12" THERMOPLASTIC PAVEMENT MARKING	1,600	LF
44	THERMOPLASTIC CONTINENTAL CROSSWALK	640	SF
45	THERMOPLASTIC LEGEND PAVEMENT MARKING	260	SF
46	PAINTED RED CURB	15	LF
47	THERMOPLASTIC TURN ARROW PAVEMENT MARKING	24	EA
48	THERMOPLASTIC LANE MERGE ARROW PAVEMENT MARKING	6	EA
49	GREEN THERMOPLASTIC BIKE LANE	690	SF
50	PAVEMENT MARKERS (REFLECTIVE)	1,700	EA
51	PAVEMENT MARKERS (NON-REFLECTIVE)	40	EA
52	TRAFFIC SIGNAL MODIFICATION - SANTA ROSA AVE/MAPLE ST	1	LS
53	TRAFFIC SIGNAL MODIFICATION - SANTA ROSA AVE/SONOMA AVE	1	LS
54	STREET LIGHT REMOVAL AND RELOCATION	1	LS
55	RAPID RECTANGULAR FLASHING BEACON SYSTEM	1	LS
56	WATER MAIN LOWERING/OVERSTRUCTURE	3	EA
57	1-1/2-INCH WATER SERVICE PLUMBED FOR 1-INCH METER	1	EA



The foregoing quantities are approximate only, being given as a basis for the comparison of bids, and the City of Santa Rosa does not expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, as may be deemed necessary or expedient by the Engineer.

Bids shall be made in accordance with the prevailing hourly rate of per diem wages for this locality and project as determined by the Director of the DIR pursuant to Labor Code sections 1770 *et seq.*

Contractor shall be responsible for compliance with the Immigration Reform Control Act of 1986.

If the project requires the employment of workers in any apprenticeable craft or trade, once awarded, Contractor and subcontractors must apply to the Joint Apprenticeship Council unless already covered by local apprentice standards (see Labor Code section 1777.5).

All bids are to be compared on the basis of the Engineer's estimate of the quantities of work to be performed. No bid will be awarded to a contractor who is not licensed in accordance with the provisions of Chapter 9 of Division 3 of the Business and Professions Code. Contractor must hold a Class A license for this project.

Project plans, bid and contract forms for C01620 Santa Rosa Avenue Corridor Improvements may be obtained through PlanetBids at [www.srcity.org/bids](http://www.srcity.org/bids). These documents can no longer be obtained at the Transportation and Public Works Department.

No bid will be accepted unless it is made on the contract bid forms furnished by the Transportation and Public Works Department through PlanetBids. The original of the completed bid forms bearing original signatures must be submitted. A bid will not be accepted unless the bidder registers as a vendor through PlanetBids at [www.srcity.org/bids](http://www.srcity.org/bids), downloads documents/attachments, and is added to the prospective bidders list for this project. If there is an addendum, bidders must log into PlanetBids and acknowledge the addendum to be eligible for bidding.

The successful bidder will be required to hold a current City of Santa Rosa business tax certificate issued pursuant to Chapter 6.04 of the Santa Rosa City Code before commencing work on this project. For information regarding the business tax, contact Revenue and Collections at (707) 543-3170.

For any moneys earned by Contractor and withheld by the City of Santa Rosa to ensure the performance of the Contract, Contractor may, at its request and expense, substitute securities equivalent to the amount withheld in the form and manner and subject to the conditions provided in Section 22300 of the California Public Contract Code.

The City of Santa Rosa reserves the right to reject any or all bids and the right to waive minor irregularities or informalities in any bid or bonds.

*Lisa Welsh*  
Lisa Welsh (Dec 15, 2022 13:44 PST)

Dec 15, 2022

LISA WELSH  
Acting Supervising Engineer

Date

# **SPECIAL PROVISIONS**

## **General Specifications**

### **CITY OF SANTA ROSA, CALIFORNIA**

#### **SANTA ROSA AVENUE CORRIDOR IMPROVEMENTS**

##### **1 GENERAL**

The work described herein shall be done in accordance with the "Contract Documents," which are the:

1. Special Provisions
2. Project Plans, consisting of 30 sheets entitled Santa Rosa Avenue Corridor Improvements, 2022-0013
3. City of Santa Rosa Design and Construction Standards (City Standards)
4. City of Santa Rosa Construction Specifications for Public improvements (City Specifications)
5. State of California Department of Transportation Standard Specifications 2010 (Standard Specifications), and
6. State of California Department of Transportation Standard Plans 2010 (Standard Plans).

In the event of a conflict in any of these documents, the order of precedence shall be determined by Section 5-1.02 of these Special Provisions.

Whenever the Standard Specifications use the terms State of California, Department of Transportation, Director, Engineer, or Laboratory, the following terms shall be substituted therefor, and any reference to any of the foregoing terms shall be understood and interpreted to mean and refer to such substituted terms as follows:

For State of California - the City of Santa Rosa;

For Department - the City of Santa Rosa Department of Transportation and Public Works or the City of Santa Rosa Water Department;

For Director - the City Engineer of the City of Santa Rosa;

For Engineer - the City Engineer of the City of Santa Rosa or the City Engineer's authorized agents;

For Laboratory – Materials Engineering of the City of Santa Rosa Transportation and Public Works Department, or such other laboratory as may be authorized by the City.

Unless otherwise provided, whenever in these Special Provisions attention is directed to specific provisions in the Standard Specifications, such direction shall not be interpreted as excluding other applicable provisions of the Standard Specifications.

Unless otherwise provided, when sections and subsections of the Standard Specifications are used in these Special Provisions, such use is not exclusive and shall not be interpreted as excluding other applicable provisions of said sections and subsections but is only intended to add to or modify such sections or subsections.

Unless otherwise provided, full compensation for compliance with these Special Provisions is included in the contract price and no additional allowance will be made to Contractor therefor.

The Standard Specifications are hereby modified to delete any reference or incorporation of provisions providing for or requiring arbitration of any and all claims and disputes arising under this contract.

## 2 BIDDING

**2-1.06 Bid Documents:** Prospective bidders will be furnished with an Invitation for Bids which will state the location and description of the contemplated public works project and will show the approximate estimate of the various quantities and kinds of work to be performed and materials to be furnished with a schedule of items for which unit prices are requested.

**2-1.07 Approximate Estimate:** The quantities given in the Contract Documents are approximate only, being given as a basis for the comparison of bids, and the City does not, expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or part of the work or to omit parts of the work, as may be deemed necessary or advisable by the Engineer.

**2-1.31 Examination of Project Plans, Specifications, City Standards, Invitation for Bids and Work Site:** Prior to submitting a bid, the bidder shall carefully examine the Project Plans, Invitation for Bids, City Standards and the proposed work site. If any person contemplating submitting a bid for this public works project is in doubt as to the meaning of any part of the Contract Documents, or finds discrepancies in or omissions from the Contract Documents, he or she may submit a written request for interpretation or correction to the Engineer. The written request must be received by the Engineer a minimum of 96 hours prior to bid opening. Any interpretation or correction of the Contract Documents prior to bid opening will be made only by written addendum issued by the City. A copy of such addendum will be mailed or faxed to each Planholder. The City will not be bound by any other explanations or interpretations of the Contract Documents.

**2-1.33 Bid Document Completion:** Any references to Opt Out of Payment Adjustments for Price Index Fluctuations in the Standard Specifications are deleted in their entirety.

**2-1.33A Bid Forms:** All bids shall be made on bid forms obtained from PlanetBids at [www.srcity.org/bids](http://www.srcity.org/bids). The bidder shall submit its bid on the original bid forms furnished by the City. Bids submitted on forms other than the forms furnished to the bidder by the City will not be considered.

The bid forms to be submitted at the time of and with the bid are:

1. Unit Price Schedule
2. List of Subcontractors
3. List of Previous Similar Jobs
4. Noncollusion Declaration
5. Bid Guaranty Information and Bidder's Information and Signature
6. Bid Guaranty (Bid Bond or alternate security)

All bids shall give the proposed prices and must bear the original signature of the bidder. Bidders shall fill in all blanks on the bid forms where required. A bid will not be accepted unless the bidder registers as a vendor through PlanetBids at [www.srcity.org/bids](http://www.srcity.org/bids), downloads documents/attachments, and is added to the prospective bidders list for this project. If there is an addendum, bidders must log into PlanetBids and acknowledge the addendum to be eligible for bidding.

**2-1.33B Registration with DIR:** No contractor or subcontractor may be listed on a bid for this public works project unless registered with the Department of Industrial Relations (DIR) pursuant to Labor Code section 1725.5. No contractor or subcontractor may be awarded a contract for this public works project unless registered with the DIR pursuant to Labor Code section 1725.5. This public works project is subject to compliance monitoring and enforcement by the DIR.

**2-1.33C Subcontractors:** The Subletting and Subcontracting Fair Practices Act, Public Contract Code sections 4100-4113, inclusive (the "Act") shall apply to all subcontracts in excess of one-half of one percent of the total amount of a bid. The Act requires subcontractors, if used for such work, to be listed in the contractor's bid and prohibits the substitution of subcontractors, except as authorized by the Act. Each bidder shall, with respect to the work of any subcontractor in excess of one-half of one percent of the total amount of the bid, include as part of the bid on the bid form provided:

1. The name, business address and DIR registration number of each subcontractor who will perform work or labor or render services to the Contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the Contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the Project Plans or other Contract Documents in an amount in excess of one-half of one percent of the Contractor's total bid; and
2. The portion of the work that will be done by each subcontractor. Only one subcontractor shall be listed for each portion.

The purchase of sand, gravel, crushed rock, batched concrete, aggregate, ready-mixed concrete, and/or any other materials produced and furnished by established and recognized commercial plants, together with the delivery of such materials to the work site by the source of the materials or by recognized commercial hauling companies, is not considered as subcontracting under this section.

**2-1.33E Rejection of Bids Containing Alterations, Erasures or Irregularities:** Bids may be rejected if they show any alterations of forms, additions not called for, conditional bids, incomplete bids, erasures or irregularities of any kind.

**2-1.34 Bid Guaranty:** All bids shall be presented under sealed cover and shall be accompanied by cash, cashier's or certified check, or by a bidder's bond made payable to the City of Santa Rosa and executed as surety by a corporate surety authorized and admitted to transact a surety business in the State of California in an amount equal to ten percent of the amount of the bid. No bid shall be considered unless such cash, cashiers or certified check, or bidder's bond is enclosed with the bid. Any bidder's bond shall contain provisions for forfeiture consistent with California Public Contract Code section 20172.

**2-1.40 Withdrawal of Bid:** A bid may be withdrawn prior to, but not after, the hour fixed in the public notice for the opening of bids, provided that a written request to withdraw the bid, executed by the bidder or the bidder's authorized representative, is filed with the Engineer before this deadline. The withdrawal of a bid shall not prejudice the right of a bidder to submit a new bid.

**2-1.43 Public Opening of Bids:** Bids will be opened and read publicly at the time and place indicated in the Notice to Bidders. Bidders or their authorized agents are invited to be present.

**2-1.46 Disqualification of Bidders:** Serial bids from the same bidder will not be accepted. This section shall not be interpreted to mean that the same contractor may not be the contractor in one bid and listed as a subcontractor in another bid, provided that no collusion exists.

**2-1.48 Competency of Bidders:** No bid will be accepted from or contract awarded to a contractor that is not licensed in accordance with the law, that does not hold a license qualifying it to perform work under this contract, to whom a bid form has not been issued by the Engineer, or that has not successfully completed projects of similar character, scope and cost to the proposed project. Bidders will be required to provide a list of previous similar jobs with their bids.

## 3 CONTRACT AWARD AND EXECUTION

**3-1.04 Contract Award:** The City reserves the right to reject any or all bids. Bids are required for the entire work described herein. All bids will be compared with the Engineer's estimate of the quantities of work to be completed. Contract award, if any, will be made to the lowest responsible bidder within sixty days from the date bids are opened.

### **3-1.05 Contract Bonds:**

Within ten days after receipt of the Notice of Award, the successful bidder shall provide the following bonds to the City:

- a. **Performance Bond:** A performance bond to guarantee the faithful performance of the terms and conditions of the Contract by Contractor, which shall be executed in a sum of not less than one-half of the Contract price;
- b. **Labor and Materials Bond:** A labor and materials bond (payment bond) in accordance with Part 6 of Division 4, sections 8000 *et seq.* of the California Civil Code, to guarantee against any and all claims of subcontractors or other third parties furnishing labor, materials, or supplies for the Contract, which shall be executed in a sum of 100% of the Contract price; and
- c. **Material Guaranty Bond:** A material guaranty bond (warranty bond) to serve as surety for the guarantee requirements outlined in Section 6-3.01B, which shall be executed in a sum of not less than one-half of the Contract price.

The bond(s) shall be provided in a form acceptable to the City and issued by a corporate surety in good financial standing and authorized and admitted to transact a surety business in the state of California for the purposes and in the amount(s) stated above.

Whenever the financial or legal status of any surety on any such bond(s) is/are unacceptable to the City, it may make a demand to Contractor for further bond(s) or additional surety, not exceeding the sums originally required. Thereafter, no payment shall be made upon the Contract to Contractor or any assignees of Contractor until such bond(s) or additional surety has/have been provided to the City.

**3-1.07 Indemnification and Insurance:** **Indemnification:** Contractor shall defend, hold harmless and indemnify City, its officers, agents and employees, and each and every one of them, from and against any and all actions, damages, costs, liabilities, claims, demands, losses, judgments, penalties, costs and expenses of every type and description, including, but not limited to, any fees and/or costs reasonably incurred by City's staff attorneys or outside attorneys and any fees and expenses incurred in enforcing this provision (hereafter collectively referred to as "Liabilities"), including but not limited to Liabilities arising from personal injury or death; damage to personal, real or intellectual property or the environment; contractual or other economic damages, or regulatory penalties, arising out of or in any way connected with the performance of or the failure to perform the Contract by Contractor, any subcontractor or agent, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, whether or not such Liabilities are caused in part by a party indemnified hereunder, or such Liabilities are litigated, settled or reduced to judgment; provided, that the foregoing indemnity does not apply to liability for any damage or expense for death or bodily injury to persons or damage to property to the extent arising from (i) the sole negligence, or willful misconduct of, or defects in design furnished by City, its agents, servants, or independent contractors who are directly responsible to City (excluding Contractor), or (ii) the active negligence of City.

The existence of any of the insurance policies or coverages described in this Contract shall not affect or limit any of City’s rights hereunder, nor shall the limits of such insurance limit Contractor’s liability to the City hereunder. The provisions of this section shall survive any expiration or termination of the Contract.

**Insurance:** Contractor shall maintain in full force and effect all of the insurance coverage described in and in accordance with the insurance requirements set forth below. Maintenance of such insurance coverage during the entire performance of the Contract is a material element of the Contract. Failure by Contractor to (i) maintain or renew coverage, (ii) provide notice of any changes, modifications, or reductions in coverage, or (iii) provide evidence of renewal, if necessary, may be deemed a material breach of the Contract by Contractor, whereas the City shall be entitled to all rights and remedies at law or in equity. Notwithstanding the foregoing, any failure by Contractor to maintain required insurance coverage shall not excuse or alleviate Contractor from any of its other duties or obligations under the Contract. In the event Contractor retains or utilizes any subcontractors or sub-consultants in performance of the work, Contractor shall assure that any such subcontractor has first obtained, and shall maintain, all of the insurance coverage requirements herein set forth below.

**Insurance Requirements:**

**A. Insurance Policies:** Contractor shall maintain and keep in full force and effect, the following policies of insurance with minimum coverage as indicated below and issued by insurers with an AM Best rating of no less than A:VI or a rating otherwise acceptable to the City.

Insurance	Minimum Coverage Limits	Additional Coverage Requirements
1. Commercial general liability	\$5 million per occurrence \$5 million aggregate	Coverage must be at least as broad as ISO CG 00 01 and must include products liability and completed operations coverage which shall continue for a period of three years after acceptance of the work by the City. If insurance applies separately to a project/location, aggregate may be equal to per occurrence amount. Coverage may be met by a combination of primary and umbrella or excess insurance, but umbrella and excess shall provide coverage at least as broad as specified for underlying coverage. Completed Operations Coverage can be provided in the form of an endorsement to Contractor’s insurance (at least as broad as ISO Form CG 20 37 04 13. See endorsements below for other Additional Insured Requirements. Coverage shall not exclude subsidence.
2. Business auto coverage	\$3 million	Coverage at least as broad as ISO Form Number CA 00 01 covering any auto (Code 1). Insurance shall cover owned, non-owned and hired autos.

3.	Workers' compensation and Employer's Liability	\$1 million	As required by the State of California, with Statutory Limits and Employer's Liability Insurance with limit of no less than \$1 million per accident for bodily injury or disease. The Workers' Compensation policy shall be endorsed with a waiver of subrogation in favor of the City for all work performed by Contractor, its employees, agents and subcontractors.
4.	Course of construction/builders' risk	Amount of completed value of project without co-insurance provisions	Required for construction projects over \$3 million. The City shall be named as loss payee.

**B. Endorsements:**

1. All policies shall provide or be endorsed to provide that coverage shall not be canceled by either party, except after prior written notice has been provided to the City in accordance with the policy provisions.
2. Liability policies shall provide or be endorsed to provide the following:
  - a. For any claims related to this Contract, Contractor's insurance coverage shall be primary, and any insurance or self-insurance maintained by City shall be in excess of Contractor's insurance and shall not contribute with it. Endorsements at least as broad as 20 01 04 13 or evidence of policy language will be required in non-ISO CGL policies.
  - b. **The City of Santa Rosa, its officers, agents and employees are to be covered as additional insureds on the CGL policy.** Additional Insured Endorsements at least as broad as 20 10 04 13 or 20 38 04 13 are required.

**C. Verification of Coverage and Certificates of Insurance:** Contractor shall furnish City with original certificates and endorsements effecting coverage required above. Certificates and endorsements shall make reference to policy numbers. All certificates and endorsements are to be received and approved by the City before work commences and must be in effect for the duration of the Contract. The City reserves the right to require complete copies of all required policies and endorsements during the duration of the Contract and for a period of three years following City's acceptance of the work.

**D. Other Insurance Provisions:**

1. No policy required by this Contract shall prohibit Contractor from waiving any right of recovery prior to loss. Contractor hereby waives such right with regard to the indemnitees.
2. All insurance coverage amounts provided by Contractor and available or applicable to this Contract are intended to apply to the full extent of the policies. Nothing contained in this Contract limits the application of such insurance coverage. Coverage for an additional insured shall NOT be limited to the insured's vicarious liability. Defense costs must be paid in addition to coverage amounts.
3. Self-insured retentions above \$10,000 must be approved by the City. At the City's option, Contractor may be required to provide financial guarantees.
4. City reserves the right to modify these insurance requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

## 4 SCOPE OF WORK

**4-1.05 Changes and Extra Work:** All changes to the Contract shall be made by written change order only.

All extra work shall be recorded by Contractor on a daily report signed by both the City and Contractor. The “daily reports” shall thereafter be considered the true record of extra work performed. A copy of the daily reports will be furnished to Contractor. Contractor is directed to Section 9-1.04 of this Invitation for Bids.

**4-1.05C Compensation for Altered Quantities:** Payment and compensation for altered quantities shall conform to the provisions of Section 9-1.06 of the Standard Specifications, except as modified herein.



## 5 CONTROL OF WORK

**5-1.02 Contractor's Copies of Contract Documents:** In the event of a conflict in any of the Contract Documents, the order of precedence from highest to lowest shall be as follows:

1. Special Provisions
2. Project Plans, consisting of 30 sheets entitled Santa Rosa Avenue Corridor Improvements, 2022-0013
3. City Standards
4. City Specifications
5. Standard Specifications
6. Standard Plans

**5-1.05 Order of Work:** The work as shown on the Project Plans and as specified in the Invitation for Bids shall be constructed in a sequence that is satisfactory to and approved by the Engineer.

Contractor shall prepare a work schedule per Section 8-1.02 of the Standard Specifications.

With the exception of trenching, all existing street, street light base, curb and gutter, storm drain, water line, and sewer line work shall be completed before any existing street paving is removed.

Full compensation for the conformance to the requirements of this section is included in the Contract price and no additional allowance will be made to Contractor for this work.

**5-1.17 Character of Workers:** Contractor is directed to Section 5-1.17 of the Standard Specifications which states:

"If any subcontractor or person employed by the Contractor shall appear to the Engineer to be incompetent or to act in a disorderly or improper manner, he shall be discharged immediately on the request of the Engineer, and such person shall not again be employed on the work."

No additional compensation shall be granted to Contractor in the event City exercises any part of its rights under this section and any and all costs related to such exercise shall be borne by Contractor.

**5-1.20 Cooperation with Other Entities:** Attention is directed to Section 5-1.20 of the Standard Specifications.

Other construction including but not limited to utility, power, and pipe line relocation, may be in progress by other forces within and adjacent to the project area at the same time work is being performed under this Contract by Contractor.

Contractor shall cooperate with the forces performing other work, to the end that such forces may conduct their operations with as little inconvenience and delay as possible. Contractor shall grant such forces access to the project area as is reasonable and necessary to transport materials and equipment to the site of operations by the other forces.

**5-1.20B(4)(a) Offsite Staging Areas and Construction Yards:** Attention is directed to Santa Rosa City Code section 20-52.040, Temporary Use Permit.

A Temporary Use Permit shall be obtained for any offsite construction yard on private property to be used for any of the following:

- a. Stockpiling of equipment and/or materials;

- b. Staging of construction;
- c. Placement of work trailers or mobile offices;
- d. Storage of trench spoils; or
- e. Other construction related activities not specifically enumerated above.

**5-1.26 Lines and Grades:** Contractor shall carefully preserve all bench marks, grade stakes, and all other survey markers. In the case of willful or careless destruction, Contractor shall bear the cost of replacing the markers.

Contractor shall contact the Engineer directly for coordination of survey staking. Written staking requests must be submitted at least two working days in advance of the date and time stakes are needed.

**5-1.27B Examination and Audit:** Pursuant to California Government Code section 8546.7, any contract with the City involving expenditures in excess of \$10,000 shall be subject to the examination and audit of the California State Auditor for a period of three years after final payment is made to Contractor by City under this Contract. Any such examination and audit will be confined to those matters connected with the performance of this Contract.

**5-1.30A Inspection:** Contractor shall bear all costs associated with the re-inspection of any defective, rejected or unauthorized work as determined by the Engineer in Engineer's sole discretion. Such costs of re-inspection, including any costs incurred by the City for additional staff time or fees for third-party consultant inspectors, will be deducted from one or more progress payments hereunder.

**5-1.36A Property and Facility Preservation:** Attention is directed to Section 5-1.36 of the Standard Specifications.

At Contractor's sole expense, all fences, gates, landscaping, drainage ditches, sidewalks, irrigation systems, and any other improvements that are damaged, removed or destroyed because of Contractor's operations, shall be replaced in accordance with City Standards at a minimum and restored to the same or better condition. Concrete surface treatment and score marks shall match adjacent existing concrete improvements.

**5-1.36E Obstructions:** Attention is directed to Section 5-1.36 of the Standard Specifications and to the possible existence of underground gas mains, high voltage lines, telephone ducts, storm drains and water and sewers systems, the locations of which are not shown on the Project Plans. The determination of the location of these facilities and the cost of repair or replacement in the event of damage to such facilities are the sole responsibility of Contractor.

Should Contractor alter any public utility or private improvements to facilitate its operations or for its sole benefit, which alteration would not be otherwise required, Contractor shall make whatever arrangements are necessary with the owner or controlling authorities and shall bear all expenses in connection therewith. Any damages to any public utility or private improvement caused by Contractor shall be repaired by Contractor at its sole expense and to the full satisfaction of the Engineer or the controlling authority.

Any subsurface information and data furnished under any part of this Contract are not intended as a representation or warranty but are furnished for information only. It is expressly understood that the City will not be responsible for the accuracy thereof or for any deduction, interpretation or conclusion drawn therefrom by Contractor. The information is made available so that Contractor may have ready access to the same information available to the City and is not part of this Contract.

PRIOR TO STARTING ANY EXCAVATION, CONTRACTOR SHALL (AT LEAST TWO WORKING DAYS IN ADVANCE) CALL UNDERGROUND SERVICE ALERT (USA) toll free at (800) 227-2600

and provide USA with all necessary data relative to the proposed excavation. USA will accept calls and process information to participating agencies who have underground facilities in the area between the hours of 7:30 a.m. and 5:00 p.m. daily, except Saturdays, Sundays, and holidays. Between the hours of 5:00 p.m. and 7:30 a.m., calls will be recorded and then processed after 7:30 a.m. For emergency situations, after hours, and on Saturdays, Sundays and holidays, Contractor shall contact the owner of the affected facility.

Contractor shall coordinate all work with the appropriate City field personnel. When City work forces are required at the job site to perform Contract items of work, Contractor shall give a minimum of two working days advanced notification to the appropriate field office:

Water Division:	(707) 543-4200
Sewer Division:	(707) 543-4200
Street Division:	(707) 543-3880
Survey Division:	(707) 543-3834

**5-1.43 Potential Claims and Dispute Resolution:** "Claim" means a separate demand by Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following: (A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by the City under the Contract; (B) Payment by the City of money or damages arising from work done by, or on behalf of, Contractor pursuant to the Contract and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled; or (C) Payment of an amount that is disputed by the City.

Upon receipt of a Claim, the City shall conduct a reasonable review of the Claim and, within a period not to exceed 45 days, shall provide Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed, provided, the parties may extend the 45 day time period by mutual agreement.

If the City needs approval from the City Council to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the Claim, and the Council does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a Claim, the City shall have up to three days following the next duly publicly noticed meeting of the City Council after the 45-day period, or extension expires to provide Contractor a written statement identifying the disputed portion and the undisputed portion.

Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the City issues its written statement. If the City fails to issue a written statement, the Claim shall be deemed rejected in its entirety.

If a Contractor disputes the City's written response, or if the City fails to respond to a Claim within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the City shall conduct a meet and confer conference within 30 days for settlement of the dispute. Within 10 business days following the conclusion of the meet and confer conference, if the Claim or any portion of the Claim remains in dispute, the City shall provide the Contractor a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the City issues its written statement. Any disputed portion of the Claim, as identified by Contractor in writing, shall be submitted to nonbinding mediation, with the City and the Contractor sharing the associated costs equally. The City and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator.

## 6 CONTROL OF MATERIALS

**6-2.01 Source of Supply and Quality of Materials:** All materials required to complete the work under the Contract shall be furnished by Contractor and shall be free of hazardous substances.

**6-3.01 General:** Statistical means will not be used by the City for determination of Standard Specification compliance. Whenever both operating range test results and Contract compliance requirements are specified in these special provisions, the operating range requirements shall apply to the individual test results.

**6-3.01A Material Submittals:** Upon award of the Contract by City, Contractor shall submit to the Engineer a list of all materials proposed to be used on this project and any supporting documentation and/or samples required and source of supply.

For material listed on the “Engineer’s List of Approved Items” which is located in the Sewer and Water sections only of the City Standards, the Engineer shall be provided with the name of the manufacturer and model/part number for all material proposed for this project, unless that item has been replaced as shown on the Project Plans or in the Invitation for Bids.

For all other materials used on this project, regardless of the type of work, Contractor shall provide to the Engineer the name of the manufacturer and model/part number along with supporting documentation and/or samples that will allow the Engineer to determine the material’s acceptability.

The Engineer reserves the right to reject any proposed material, whether on the City’s “Engineer’s List of Approved Items” or not. If the City obtains information indicating that a listed item is not performing satisfactorily or is found to be defective, that item will be rejected and Contractor shall submit a replacement for review at no additional cost to the City.

**6-3.01B Material Guarantee:** Before any contract is awarded, the bidder may be required to furnish samples of materials and detailed descriptions of equipment to be used in the construction of the project. The materials samples may be subjected to the tests provided for in the Standard Specifications or in this Invitation for Bids to determine their quality and fitness for the project. The successful bidder shall unconditionally guarantee project materials and workmanship for a period of one year from the date of recording of the Notice of Completion. The guarantee shall cover 100% of all costs of repairs within the one year period, including all costs of labor, materials, equipment, and incidentals. Except as may be otherwise provided in Section 3-1.05, the successful bidder shall provide a surety bond executed by a corporate surety authorized and admitted to transact a surety business in the state of California in the minimum amount of one-half of the Contract price to cover this guarantee.

**6-3.05 Quality Assurance:** California Test 216 (Relative Compaction) testing will be modified as follows: A mechanical compactor (Ploog Engineering Co. Model M 100 or equivalent) with 10-pound hammer and split compaction molds shall be used in lieu of the specified manual compaction equipment.

California Test 231 (Nuclear Gage Determination of In-Place Density) will be modified as follows: In-place density and relative compaction may be determined on the basis of individual test sites in lieu of the area concept, at the discretion of the Engineer.

### **6-4 Water Utility**

**6-4.01A Construction Water:** All water required for the performance of the work shall be provided by Contractor. Prior to obtaining water from the City’s water system, Contractor shall obtain a Water

Use Permit from the City of Santa Rosa Water Department and rent a hydrant or bridge meter. Contractor is responsible for the cost of all water and the cost of all deposits, permits and fees.

Contractor is prohibited from operating gate valves or fire hydrants on the City system.

The acquisition of water from the City's water system through un-metered hydrants or other facilities is a violation of City ordinance and State law. The use of water from sources other than the City's water system must be approved by the Engineer in advance of the use.

Citations and fines will be levied for violation of these and other utility regulations and deductions will be made from payments consistent with Section 7-1.02A(1) of the Standard Specifications.

**6-4.01B Water Utility Notification:** Contractors or parties requiring work of any kind by the City of Santa Rosa Water Department forces shall request such services a minimum of 48 hours in advance of the time such services are desired. Work requests which will involve the City of Santa Rosa Water Department forces for more than eight hours or an extensive number of City parts shall be requested a minimum of seven calendar days in advance.

If it is necessary to terminate or disrupt utility service to any customer, Contractor shall make the request for such work by City forces an additional 72 hours (three additional working days for a total of five working days advance notice) in advance of the time such services are desired to allow affected customers a minimum of 72 hours' notice. Contractors who fail to keep field appointments will be billed for scheduled City of Santa Rosa Water Department crew standby time which was used and the Contractor shall bear the costs incurred by the City of Santa Rosa's Water Department for re-notification of customers.

City of Santa Rosa Water Department crews work a 9/80 schedule. This schedule may prohibit shutdowns for tie-ins on alternating Fridays. After hours work or weekend work may be performed if prior authorization from the Engineer is obtained.

Other than the hours specified in this Invitation for Bids, requests by Contractor for after hours or weekend work is to be avoided whenever possible. Any overtime costs incurred by City for such work shall be borne by Contractor.

Interruption of utilities service to commercial customers shall be coordinated with the customer to minimize disruption to the enterprise to the greatest extent practicable. After notification by the Contractor of the need, the City of Santa Rosa Water Department will contact all commercial customers and inform Contractor accordingly.

**6-4.01C Water Facility Damage:** All damage caused to the City's water system shall be immediately reported to the Engineer.

Damage caused to the City's water system by Contractor's operations shall be repaired by the Contractor at Contractor's sole expense in a manner satisfactory to the City of Santa Rosa Water Department. Such repairs shall not be charged to the City or any City project. All repair work shall be witnessed and approved by the City of Santa Rosa Water Department prior to backfilling the excavation. The City will require re-excavation if backfilling occurs prior to inspection, which costs shall be borne by Contractor.

Contractor is responsible for, at its sole cost and expense, the repair and remediation of damage to property and facilities caused by any of the following circumstances:

- a. Contractor fails to make a written request for a markout or begins excavation without providing the City of Santa Rosa Water Department a reasonable opportunity to mark facilities;

- b. Contractor destroys markouts;
- c. Contractor fails to perform hand digging or probing for utilities near markouts; or
- d. Contractor fails to use reasonable caution, regardless of whether markouts are present or clear. Reasonable caution includes any efforts to avoid damaging existing facilities, such as when excavating in the vicinity of water mains.

City may, in its discretion, opt to make the repairs for which Contractor is responsible with its own forces. In such cases, the repairs will be made at Contractor's expense in accordance with the emergency repair rate schedule of the City of Santa Rosa Water Department. The City may make repairs whenever restoration of service requires extraordinary speed or special equipment. Contractor will be billed accordingly and City shall have the right and option to withhold payment hereunder, or a portion thereof, for any such costs billed but not promptly paid by Contractor.

**6-4.02 Salvage:** All valves, hydrants, and other appurtenances of the water system that are the property of City and removed by Contractor shall be delivered to the City's Municipal Services Center (55 Stony Point Road) unless Contractor has obtained specific written approval from the City of Santa Rosa Water Department to otherwise dispose of the materials.

**6-4.03 Trade Names and Alternatives:** Unless otherwise specified, material and equipment specifications that identify a particular patent, trade name or manufacturer, may be satisfied through substitute materials and equipment accepted by the City. Contractor may offer substitute materials and equipment of equal or better quality to the City. Any such offer shall be made in writing to the Engineer at least four weeks in advance of the time Contractor wishes to order the materials or equipment. Contractor shall include sufficient data which, together with any other information the Engineer may require, will enable the Engineer to determine the acceptability of the materials and equipment. When the substitute materials or equipment necessitate changes to any part of the work, the information shall include drawings and details showing all such changes and Contractor shall perform these changes as a part of any acceptance of substitute materials or equipment. The use of substituted materials and equipment will be permitted only after written acceptance of the materials and equipment by the Engineer. Such acceptance shall not relieve the Contractor from full responsibility for the sufficiency, quality and performance of the substitute materials and equipment.

The City will not, under any circumstances, acknowledge or consider any offers to accept substitute materials or equipment between the dates of public notice of advertisement and the bid opening.

## 7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

**7-1.02A(1) Forfeitures for Health and Safety Violations:** Contractor shall comply with all applicable provisions of the Santa Rosa City Code and any failure to do so shall constitute a breach of the Contract. In the event of any violation of the Santa Rosa City Code that may impact public health and safety, including, but not limited to Chapter 17-12, "Storm Water" and Chapter 13-04, "Street Encroachments," City shall have the right to impose a charge against Contractor in an amount equal to \$500.00 per violation per day. Prior to the imposition of any charge hereunder, City shall first provide a written notice to Contractor of the violation and setting forth a reasonable period of time for Contractor to cure the violation(s). In the event Contractor fails to cure any such violation within the time provided, City shall have the right, in addition to all other rights and remedies available to City, to deduct and withhold as a permanent forfeiture by Contractor the appropriate amounts from any payment otherwise due Contractor under this Contract.

**7-1.02K(2) Wages:** Pursuant to Labor Code sections 1770 *et seq.*, each laborer or mechanic of Contractor or any subcontractor engaged in work on the project under this contract shall be paid not less than the hourly wage rate of per diem wages set forth in the prevailing wage rate schedule published by the Director of Industrial Relations, regardless of any contractual relationship which may be alleged to exist between Contractor or any subcontractor and such laborers and mechanics. A copy of the schedule of prevailing wage rates can be obtained online at [www.dir.ca.gov](http://www.dir.ca.gov) or from the Department of Transportation and Public Works at 69 Stony Circle, Santa Rosa.

Any laborer or mechanic employed to perform work on the public works project under this Contract, which work is not covered by any of the foregoing classifications, shall be paid not less than the prevailing wage rate of per diem wages specified herein for the classification which most nearly corresponds to the work to be performed by the worker.

The foregoing specified prevailing wage rates are minimum rates only, and Contractor may pay any wage rate in excess of the applicable rate.

Pursuant to Labor Code Section 1775, Contractor as a penalty to the owner shall forfeit not more than \$200.00 for each calendar day, or a portion thereof, for each worker paid less than the prevailing wage rate established by the Department of Industrial Relations for such work or craft in which such worker is employed. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which the worker was paid less than the prevailing wage rate shall be paid to each worker by Contractor.

Contractor shall only provide prevailing wage reports upon written request from City. When requested, these prevailing wage reports must be redacted by the Contractor prior to providing them to City.

**7-1.02K(4) Apprentices:** Contractor agrees to comply with Chapter 1, Part 7, Division 2, sections 1777.5 *et seq.* of the California Labor Code. These sections require contractors and subcontractors to employ apprentices in apprenticeable occupations in a ratio of not less than one hour of apprentice work for each five hours of journeyman work (unless an exception is granted in accordance with Section 1777.5), and the contractors and subcontractors shall not discriminate among otherwise qualified employees as apprentices solely on the ground of sex, race, religion, creed, national origin, ancestry, or color. Only apprentices as defined in Labor Code section 3077, who are in training under apprenticeship standards and who have written apprentice agreements will be employed on public works in apprenticeable occupations. The responsibility for compliance with these provisions is fixed with the prime contractor for all apprenticeable occupations.

**7-1.02K(6)(a)(1) Notice to Vendors:** Attention is directed to the current OSHA Standards. All equipment, tools and materials which are furnished and/or installed as part of this Contract shall meet or exceed the aforementioned standards in order to be considered acceptable.

**7-1.02K(6)(b) Excavation Safety:** When the digging or excavation occurs during project construction, Contractor shall:

- a. Promptly notify City in writing of the following conditions before any such conditions are disturbed:
  1. Material that the Contractor believes may be hazardous waste as defined in 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 provisions of existing law;
  2. Subsurface or latent physical conditions at the site differing from those indicated in the Invitation for Bids; and
  3. Physical conditions at the site of any unusual nature, materially different from those ordinarily encountered and generally recognized as inherent in the type of work under the Contract.
- b. The City will investigate the conditions and will issue a change order under the terms of the Contract if it finds that the conditions warrant it.
- c. If a dispute arises between City and Contractor as to whether a change order is warranted, Contractor shall not be excused from any scheduled completion date provided for in the Contract but shall proceed with all work to be performed under the Contract.

**7-1.02K(6)(b)(1) Trench Excavation Safety Plans:** When the estimated cost for the excavation of any trench or trenches five feet or more in depth will exceed \$25,000.00, Contractor shall submit to the Engineer in advance of excavation 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. If such plan varies from the shoring system standards established by the construction safety orders, or if the trench is anticipated to be greater than 20 feet, the plan shall be prepared by a registered civil or structural engineer.

A permit to do the above described work shall be obtained from the State of California, Division of Industrial Safety. Proof of such permit shall be submitted to the Engineer prior to starting the trench work.

Full compensation for complying with the provisions of this section shall be considered as included in the Contract price and no additional allowance will be made for the work.

**7-1.02K(6)(d) Confined Space Safety:** Any confined space entry for this project, including but not limited to manhole or water storage tank entry, will require a confined space entry permit pursuant to Cal/OSHA regulations as set forth in title 8 California Code of Regulations (CCR) sections 5157 or 5158. Confined space entry shall have the meaning ascribed in title 8 CCR sections 5157 and 5158. For any confined space entry for construction operations regulated by title 8 CCR section 1502, Contractor shall comply with title 8 CCR section 5158, "Other Confined Space Operations." For any other confined space operations, Contractor shall comply with title 8 CCR section 5157, "Permit-Required Confined Spaces."

Attention is directed to the technical specifications in the Special Provisions for information regarding entry to any City maintained confined space. Pursuant to title 8 CCR section 5157, Contractor is required to obtain any available information regarding hazards and operations for any City maintained confined spaces. The City maintained Confined Space Entry Manual is available



for viewing at the City of Santa Rosa Water Department or Transportation and Public Works Department office at 69 Stony Circle, Santa Rosa.

Contractor shall immediately inform the Engineer of any previously unidentified hazards confronted or created during confined space entry.

**7-1.02L(2)(a) Patents and Royalties:** All fees, royalties, or claims for any patented invention, article, process or method that may be used upon or in any manner connected with the work under this Contract shall be paid by Contractor. Contractor and its sureties shall protect and hold harmless City and its officers, agents, and employees from any and all demands made for such fees royalties or claims brought or made by any third party, and before the final payment is made on the account of the Contract, Contractor shall, if requested by City, furnish acceptable proof of a proper release from all such claims and liabilities.

Should Contractor, its officers, agents, or employees, or any one of them be enjoined from furnishing or using any invention, article, material, or plans supplied or required to be supplied or used under the Contract, 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. In the event that the Engineer elects, in lieu of such substitution, to have supplied and to retain and use any such invention, article, materials, or plans as may be required to be supplied by the Contract, Contractor shall pay such royalties and secure such valid licenses as may be requisite and necessary for City, its officers, agents, and employees, or any one of them to use such invention, article, materials, or appliance without being disturbed or in any way interfered with by any proceeding in law of equity on account thereof. Should 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 substitutions or City may pay such royalties and secure such licenses and charge Contractor even though final payment under the Contract may have been made.

**7-1.02M(3) Mined Materials:** California Public Contract Code section 20676 prohibits surface mining operators which are subject to the Surface Mining and Reclamation Act of 1975 (SMARA) from selling California mined construction material to the City unless the operator is identified in a list referred as the **3098 List**. The List, which is maintained by the Department of Conservation's Office of Mine Reclamation (OMR), changes throughout the year and can be viewed at the OMR website: [http://www.consrv.ca.gov/OMR/ab\\_3098\\_list/index.htm](http://www.consrv.ca.gov/OMR/ab_3098_list/index.htm). To confirm whether or not a specific operator is on the List at any given time, Contractor shall call the OMR at (916)323-9198.

**7-1.03A Maintaining Traffic:** Attention is directed to Sections 7-1.04 of the Standard Specifications and to the following modifications thereof.

If construction is within City owned right-of-way, provisions shall be made for the safe passage of public traffic through the work site at all times consistent with the requirements of Santa Rosa City Code Chapter 13-04.

Except for projects to be performed under a minor contract, Contractor shall install and maintain project identification signs at each end of the project or as directed by the Engineer two weeks prior to any construction activity. City shall furnish the appropriate sign panels upon request from Contractor. To mount the sign panels, Contractor shall furnish and install 4" X 4" posts or mount by other appropriate methods as approved by the Engineer. These sign panels shall be returned to the City Corporation Yard at 55 Stony Point Road after completion of the project.

Two weeks prior to any construction activity, advance notice signs for road closures shall be furnished and installed by Contractor at each end of the project and shall remain in place throughout the duration of the subject closure. Details of panel construction and lettering shall be approved by the Engineer.

Contractor shall furnish, install, and maintain at its expense all barricades, signs, lights, and other devices necessary to adequately warn of any obstructions to the traveled and pedestrian way and provide flaggers as necessary for the safety of public traffic and pedestrians and to provide access to property adjacent to the work site and Contractor shall comply with the Americans with Disabilities Act of 1990 (42 U.S.C. 12101, *et seq.*) (ADA) and any regulations and guidelines issued pursuant to the ADA.

Contractor shall comply with the current edition of the California Manual of Uniform Traffic Control Devices (CA MUTCD) for all items related to traffic within the work site.

Rain and other occurrences that may cause the suspension or delay of the work shall in no way relieve Contractor of its responsibility to provide traffic control and public access through the work site as specified herein. At all times, Contractor shall keep at the work site such materials, forces and equipment as may be necessary to keep roads, streets, and driveways within the work site open to traffic and in good repair and shall expedite the passage of such traffic, using such forces and equipment as may be necessary.

Should Contractor fail, in the opinion of the Engineer, to provide all the materials, forces and equipment necessary to maintain traffic through the work site as set forth herein, City may take steps necessary to remedy any such failure, including but not limited to causing such work to be performed and/or suspending any further work under the Contract. Any such remedial cost and expense incurred by the City, plus an administrative charge of 15%, shall be immediately due and payable by Contractor and may be deducted from any amounts owed to Contractor hereunder. In the event there are insufficient sums owed to Contractor hereunder to cover the foregoing costs and charges, City shall have the right to pursue any other remedy to recover the same, including but not limited to, proceeding against any surety or bond in favor of City. City's rights under Section 7-1.02 are intended to be in addition to and not in lieu of any charges imposed by City against Contractor under Section 7-1.02A(1) above for violations of the Santa Rosa City Code.

Contractor shall be responsible for informing emergency response agencies operating within the area of the work of obstructions to either public or private roads caused by reason of Contractor's operations hereunder.

Contractor shall make provisions for the safe passage of pedestrians around the project work site at all times.

## 8 PROSECUTION AND PROGRESS

**8-1.01A Assignments:** Once awarded, this Contract shall not be transferred, assigned, or sub-contracted, except as herein expressly provided without the prior written consent of the City in the City's sole and absolute discretion. See Section 5-1.12 of the Standard Specifications.

**8-1.04B Standard Start:** Contractor shall begin work within ten calendar days after the date authorized in the Notice to Proceed and shall diligently prosecute the Contract to completion before the expiration of:

80 WORKING DAYS

**8-1.05 Time:** Working days will be counted beginning with the day the Contractor begins work or with the tenth day after the date authorized in the Notice to Proceed, whichever occurs first.

Unless otherwise directed by Engineer, Contractor shall not conduct any activities that generate noise earlier than 7:00 a.m. or later than 7:00 p.m.

**8-1.10 Liquidated Damages:** Contractor hereby agrees that Contractor shall pay to the City liquidated damages for each and every calendar day delay over and above the number of working days prescribed above for finishing the work in the amount shown in Section 8-1.10 of the Standard Specifications.

## 9 MEASUREMENT AND PAYMENT

**9-1.04 Force Account Work:** All work done on a force account basis shall be recorded daily on report sheets prepared by Contractor and signed by both the Engineer and Contractor. Such reports shall thereafter be considered the true record of force account work performed during the project. Such reports shall be furnished to the Engineer and a copy retained by Contractor.

All extensions of labor, equipment, and material costs shall be completed by Contractor and submitted to the Engineer within 30 days of the completion of the extra work. Completed and extended extra work reports received later than the times herein prescribed may be deemed invalid and rejected without payment at the discretion of the Engineer.

**9-1.07 Payment Adjustments For Price Index Fluctuations:** Any references to Opt Out of Payment Adjustments for Price Index Fluctuations in the Standard Specifications are deleted in their entirety.

**9-1.16 Progress Payments:** Once each month for progress pay purposes, the City will prepare a written estimate of the total amount of completed work and accepted materials purchased by Contractor but not installed. The City shall retain five percent of such estimated value of the completed work and the unused materials and pay Contractor the balance after deducting all previous payments and all sums to be retained under the provisions of the Contract. No such estimate or payment shall be required to be made when, in the judgment of the Engineer, the work is not proceeding in accordance with the provisions of the Contract or when, in the Engineer's judgment, the total value of the completed work since the last estimate is less than \$500.00. No such estimate or payment shall be construed to be an acceptance of any defective work or improper materials.

After Contract acceptance, the Engineer will prepare a written proposed final estimate of the proposed final quantities of work completed under the Contract and the value of such work and will submit such estimate to Contractor. The City shall retain five percent of such estimated value of the work done and shall pay to Contractor the balance after deducting all amounts to be retained under the provisions of the Contract.

The City may, at its option and at any time, retain out of any amounts due Contractor sums sufficient to cover any unpaid claims of City or others, provided that sworn statements of all non-City claims shall have been filed with the Director of Finance.

**9-1.16E(6) Substitution of Securities for Withheld Amounts:** Pursuant to Public Contract Code section 22300, securities may be substituted for any moneys withheld by City to ensure performance under this Contract, provided that substitution of securities provisions shall not be required in contracts in which there will be financing provided by the Farmer's Home Administration of the United States Department of Agriculture pursuant to the Consolidated Farm and Rural Development Act (7 USC sections 1921 *et seq.*), and where federal regulations or policies or both do not allow the substitution of securities. At the request and expense of Contractor, securities equivalent to the amount withheld shall be deposited with the City, or with a state or federally chartered bank as the escrow agent, which shall then pay such moneys to Contractor. The Director of Finance is authorized to execute substitution of securities agreements on behalf of the City. The City will return the securities to Contractor upon satisfactory completion of the Contract as determined by City in its sole discretion and the resolution of all outstanding claims against the securities. Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

Securities eligible for investment under this section shall include those listed in Government Code section 16430, bank or savings and loan certificates of deposit, interest bearing demand deposit accounts, standby letters of credit or any other security mutually agreed to by Contractor and the

City, provided that the substituted security is equal to or not less than five percent of the Contract amount.

Security substitutions must be submitted by Contractor and approved by City prior to the time of the first progress payment to be made under the Contract. No other method of substituting securities for retention will be accepted. The security substitution shall be done only upon execution of an agreement satisfactory to City which includes the following provisions:

- a. The amount of securities to be deposited;
- b. The terms and conditions of conversion to cash in case of the default of Contractor; and
- c. The procedure for return of securities upon completion of the Contract.

**9-1.17D Final Payment and Claims:** The processing of payment of the final estimate shall not be commenced less than 35 days after the date of recording of the Notice of Completion with the County Recorder's Office. Contractor is advised that it takes approximately ten days for a check to be issued following a request for payment.

Contractor shall submit its written statement of all claims for additional compensation under the Contract to the Engineer within 15 days after submission to Contractor of the proposed final estimate.

If Contractor does not file a claim within the 15 day period, or upon Contractor's approval, the Engineer will issue a final written estimate and the City shall pay to Contractor the entire sum due after deducting all previous payments, if any, and all amounts to be retained under the provisions of the Contract.

If Contractor files a claim within the 15 day period, the Engineer will furnish a semi-final estimate and pay the amount due under the semi-final estimate within 30 days. The semi-final estimate is conclusive as to the amount payable except as may be affected by claims and any amount retained. The Engineer shall then consider and investigate such claim and shall make such revision in the final quantities as the Engineer may find to be due and shall then make and issue a final written estimate. The City will pay the amount due, after deducting all previous payments, if any, and amounts to be retained under the provisions of the Contract.

Any and all prior partial estimates and payments shall be subject to correction in the final estimate and payment.

The final estimate shall be conclusive and binding against both parties to the Contract on all questions relating to the performance of the Contract and the amount of work done thereunder and compensation therefor, except in the case of gross error.

**9-1.17D(3) Final Determination of Claims:** Claims filed by Contractor shall be in sufficient detail to enable the Engineer to determine the basis and amount of the Claims. Contractor shall also furnish reasonable documentation to the City to support Claims. If additional information is required by the Engineer, Contractor shall provide such information to the Engineer no later than the 15<sup>th</sup> day after receipt of the written request from the Engineer. If the 15<sup>th</sup> day falls on a weekend, holiday, or day City offices are closed, then the information shall be provided to the Engineer no later than close of the next business day. Failure to submit the requested information to the Engineer within the time specified will be sufficient cause for denying the Claim.

Contractor shall keep full and complete records of the costs and additional time incurred for any work for which a claim for additional compensation is made. The Engineer or any designated Claim investigator or auditor shall have access to those records and any other records as may be reasonably required by the Engineer to determine the facts or contentions in each Claim. Failure to grant access to such records shall be sufficient cause for denying the Claims.

**9-1.22 Arbitration:** Any references to Arbitration in the Standard Specifications are deleted in their entirety.

Claims submitted by Contractor shall be accompanied by a notarized certificate containing the following language:

Under the penalty of law for perjury or falsification and with specific reference to the California False Claims Act, Government Code sections 12650 *et seq.*, the undersigned,

\_\_\_\_\_,  
(Name)

\_\_\_\_\_ of  
(Title)

\_\_\_\_\_  
(Contractor)

hereby certifies that the claim for additional compensation made herein is supported by a true statement of the actual costs incurred and time expended on this project and is fully documented by records maintained by Contractor.

Dated \_\_\_\_\_,

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

Subscribed and sworn before me this \_\_\_\_\_ day of

\_\_\_\_\_

\_\_\_\_\_  
Notary Public

My Commission Expires \_\_\_\_\_

Failure to submit the notarized certificate will be sufficient cause for denying the claim.

Any claim for overhead expenses, in addition to being certified as stated above, shall be supported by an audit report of an independent Certified Public Accountant. Any such overhead claim shall also be subject to audit by the City at its discretion.

Any costs or expenses incurred by the City in reviewing or auditing any claims that are not supported by Contractor's cost accounting or other records shall be deemed to be damages incurred by the City within the meaning of the California False Claims Act.



**TECHNICAL SPECIFICATIONS**

**FOR**

**SANTA ROSA AVENUE  
CORRIDOR IMPROVEMENTS**

**CONTRACT NO. C01620**



**2022**

## 10 General Construction

**10-3 Mobilization:** Mobilization shall conform to the provisions in Section 9-1.16D(2) of the Standard Specifications and any modifications herein.

Mobilization shall include the obtaining of all permits, moving onto the site of all equipment, and materials, and other construction facilities as required for the proper performance and completion of the work. Mobilization shall include demobilization as defined herein.

Mobilization shall include but not be limited to the following principal items:

1. Preparation of Contract by the Contractor.
2. Completion of all tasks and submittal of all documents (bonds, insurance, schedule, etc.) required as conditions of issuing the Notice to Proceed.
3. Obtaining all required permits.
4. Moving onto the site(s) of all Contractor's equipment required for operations.
5. Installing temporary construction water supply, power, wiring and lighting facilities, as required.
6. Providing field office trailers if needed by the Contractor.
7. Providing all on-site communication facilities, including telephones and radio pagers.
8. Compliance with submittal process.
9. Having all OSHA required notices and establishment of safety programs.
10. Attendance at Pre-Construction and weekly progress meetings of Contractor's principal construction personnel.
11. Beginning work on the project or at the subject site as applicable.

Demobilization shall include, but not limited to, removal of all equipment, unused materials, all temporary utilities, job trailers and all temporary utilities.

Only one mobilization charge shall be allowed for this project. No charges will be allowed for movement of equipment between project sites or locations.

**10-3.02 Payment: Mobilization/Demobilization** shall be paid for at the contract **lump sum** price, which price shall not exceed 3% of the total contract price for the work, and shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all work involved in conforming to the provisions this section as specified herein, and no additional allowance will be made therefore.



The first payment for mobilization/demobilization shall be no more than 90% of the bid item amount. The first payment request for mobilization/demobilization may be made after all requirements for mobilization, as indicated herein, have been completed. The second payment request for mobilization/demobilization shall be made after completion of all contract items of work and completion of the final punch list has been completed.

# 12 TEMPORARY TRAFFIC CONTROL

## **12-1 General**

**12-1.01 General:** Construction area traffic control devices shall be installed and maintained in accordance with the applicable sections of these Special Provisions, the Standard Specifications, the current Edition of the California Manual on Uniform Traffic Control Devices (CA MUTCD), the Americans with Disabilities Act (ADA) and as directed by the Engineer.

**12-1.03 Flagging Costs:** The first paragraph of Section 12-1.03, "Flagging Costs" is amended to read:

The cost of furnishing all flaggers, including transporting flaggers, to provide for passage of public traffic through the work under the provisions in Section 7-1.03, "Public Convenience", and Section 7-1.04, "Public Safety", shall be considered as included in the contract lump sum price paid for traffic control and no additional allowance will be made therefor.

## **12-3 Traffic-Handling Equipment and Devices**

**12-3.01 General:** Prior to commencing construction which will affect existing vehicular and pedestrian traffic, the Contractor shall submit for review by the Engineer, Traffic Control Plans on 11" x 17" sheets of paper which contains only information specifically related to work zone vehicular and pedestrian traffic control. If the Contractor proposes to use the current edition of the CA MUTCD published by Caltrans in lieu of a traffic control plan, in specific work operations, they shall submit in writing for consideration which Typical Application Diagram will be used and how it will be applied for each work operation. Traffic Control Plans or proposals shall be submitted for review at least two weeks prior to implementation.

Traffic Control Plans shall contain a title block which contains the Contractor's name, address, phone number, project superintendent's name, contract name, dates and hours traffic control will be in effect, and a space for review acknowledgment.

The content of the Traffic Control Plan shall include, but is not limited to, the following:

1. Show location and limits of the work zone.
2. Give dimensions of lanes affected by traffic control that will be open to traffic.
3. Indicate signing, cone placement, and other methods of delineation and reference to appropriate City or Caltrans Standards.
4. Dimension location of signs and cone tapers.
5. Identify side streets and driveways affected by construction and show how they will be handled.
6. Show how pedestrian traffic will be handled through the construction site. Pedestrian pathways through the work zone shall be in compliance with the requirements of ADA during and after work hours.
7. Identify message board locations. A minimum of 4 changeable message boards shall be required. Location to be determined by Engineer.
8. Demonstrate how two-way traffic will be maintained.

No work except for installation of project identification signs will be allowed to commence prior to approval of the Work Zone Traffic Control Plans.

## **12-4 Maintaining Traffic**

### **12-4.01 Maintaining Traffic:**

1. The full width of the traveled way shall be open for use by public traffic on Saturday, Sundays and designated legal holiday(s), after 4:00 p.m. on Fridays and the day preceding designated legal holidays, and when construction operations are not actively in progress; unless work has specifically been authorized by the Engineer.
2. The location of traffic control signing, barricades, and other facilities shall be monitored frequently (four to five times per day) by the Contractor to verify their proper location. All traffic signal and other traffic control devices shall be maintained at all times.
3. The Contractor shall conduct his operations so as to cause the minimum obstruction and inconvenience to traffic and to places of business, multiple dwelling units and residences adjacent to the work. The Contractor shall notify the Engineer of his planned work and utility service interruption at least five working days in advance to allow time to notify residents and businesses.
4. When construction activities will prevent vehicle access to individual driveways the Contractor shall notify and receive permission from the affected businesses and residents. Attention is directed to Section 7-1.03, "Public Convenience". **Full access shall be provided to all driveways during non-working hours.**
5. At locations where traffic is routed perpendicular to trench excavation, the excavation shall be conducted in a manner to provide a surface reasonably satisfactory for traffic at all times. Substructure installation or construction shall be conducted on only one-half the width of the roadway at a time, and that portion of the roadway being used by traffic shall be kept open and unobstructed until the opposite side of the roadway is ready for use. Upon completion of the rough grading, the surface of the roadbed shall be brought to a smooth, even condition free from humps and depressions and made satisfactory for traffic.

**12-4.01A Construction Traffic:** The Contractor shall submit a trucking route along with the traffic controls plans for approval by the Engineer. The route must minimize traffic on residential streets that are not part of the project.

Existing pavement damaged by the Contractor's operations and not shown to be replaced shall be replaced at the Contractor's expense, per City Standards and to the satisfaction of the Engineer.

**12-4.02 Closure Requirements:** Attention is directed to Section 7-1.03, "Public Convenience", to Section 5-1.05, "Order of Work," of these Special Provisions.

Exact locations of Project Identification signs and Advance Notice signs (7-1.03, "Public Convenience") shall be determined in the field by the Engineer.

Lane closures will be permitted between the hours of 8:30 a.m. and 4:00 p.m. only. Only one lane at a time may be closed and no lanes shall be closed at any other hours unless specifically approved by the Engineer. The Contractor shall maintain vehicle access to homes and other properties at all times while work is in progress.

The Contractor shall not park construction vehicles, contractor employee vehicles, stage materials or stockpiles in front of any business or residential driveway access and the Contractor shall maintain access to private parking lots within the block where work is in progress. Construction vehicles shall not be left running for any length of time if parked in front of a business or residential unit.

On identified local/residential streets the Contractor will normally be allowed use of each block (between nearest intersections) for their sole use, without the need to provide 2-way traffic through that block. The Contractor will be required to maintain vehicle access to homes and other properties within the block where work is in progress.

The Contractor shall keep the City of Santa Rosa Fire Department informed regarding the closure of any traveled way. At a minimum, the Contractor shall call the Fire Department at 543-3535 **and** the Communications Center at 543-3666 **daily** to report any traveled way closure. This means immediately upon closure for that day and again immediately after removal of the closure. For closures over multiple days, the daily notification still applies. This requirement does not apply for single lane closures on multiple lane streets.

The Contractor shall notify Sonoma County Transit at (707) 585-7516, Superintendent of Golden Gate Transit at (415) 257-4442, Santa Rosa City Bus at (707) 543-3922, Sonoma County Airport Express at (707) 837-8700, the local Postal Service at (707) 526-0113 and Santa Rosa Recycling and Collection at (707) 586-8234 5 calendar days prior to any lane closures or restrictions in turning movements.

If the Contractor has been given an approved Traffic Control Plan that includes road closures, they shall maintain vehicular access to homes and other properties where work is in progress within the closure area.

Where necessary, and only after receiving written approval from the Engineer, the Contractor may temporarily suspend curb side parking in their immediate work zone. Notification to businesses and residents shall be hand delivered at least 72 hours prior to construction in the affected areas.

Notification shall be as follows:

1. A notice placed on the front door of each home or business where curb side parking will be suspended and attempt made to notify each business or resident verbally that work will be underway within the block and that curb side parking will be suspended during stated working hours and request that vehicles be parked out of the roadway by 8:00 a.m. Service of notice shall not bar use of cars within the block, as individual plans change and emergencies arise.
2. Type 1 barricades every 50feet adjacent to the curb where parking will be suspended with a notice posted on the barricade stating specific dates and times that curb side parking will be temporarily suspended. If work will not take place in the posted area, then Contractor shall remove "No Parking" notices.

The Contractor shall maintain vehicle access to all homes and other properties along the work zone. During paving operations the Contractor will be allowed to temporarily suspend vehicle access to a limited number of driveways when approved by the Engineer. When approved by the Engineer and at least 72 hours prior to suspending access to any driveway, the Contractor shall give both written and verbal notice to the affected businesses and residents and place barricades adjacent to the driveways with posted notices stating the specific dates and times of the suspension for that area. The notice shall also indicate an alternate parking location. Suspension of access to driveway will be permitted only as approved by the Engineer and only between the hours of 8:00 am and 4:30 pm.

Cross streets will require maintenance of at least one-half (1/2) width of each street for traffic purposes, unless a parallel route is approved by the Engineer. Flagging will only be allowed between the hours of 8:30 am and 4:00 pm.

Barricades and flaggers shall be positioned to allow safe turns at intersections and curves.

The Contractor shall maintain traffic control as necessary and as directed by the Engineer for "cat-tracking" operations by City Forces. Flaggers, barricades, signing, etc., shall remain in place for protection of City personnel until such time as all temporary lane delineation is complete.

## **12-7 Temporary Pedestrian Walkways**

**12-7.01 Pedestrian Traffic Control:** The Contractor is directed to Chapter 6D, Pedestrian and Worker Safety, in the CA MUTCD, the improvement plans and these Special Provisions.

Provide temporary pedestrian access the full extents of marked crosswalks. Outside of crosswalks, particularly at street parking locations, at any time, if uneven conditions are created in the pedestrian path of travel that exceed 1/4" change in grade, contractor is to remove trip hazards prior to opening the area to the public.

Pedestrians shall be provided with a safe convenient and accessible path that, at a minimum, replicates the most desirable characteristics of the existing sidewalk, path or footpath. At no point along the road shall the sidewalks on both sides of the road be closed at the same time.

The Contractor shall construct and maintain temporary pedestrian pathways through the work zone, where required, that shall be in compliance with the requirements of the Americans with Disabilities Act (ADA), and the CA MUTCD.

Pedestrian routes shall not be impacted for the purposes of any non-construction activities such as parking of vehicles or equipment, or stock piling of materials. Pedestrians shall not be led into conflicts with work site vehicles, equipment or operations.

Pedestrian routes shall be open and accessible at the end of the work day unless an alternate ADA compliant route has been approved by the Engineer. The construction of curb ramps and/or long sections of sidewalk do not alleviate the Contractor from this requirement.

## **12-9 Measurement and Payment**

**12-9.01 Payment:** **Traffic Control** shall be paid for at the contract **lump sum** price, which price shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all work involved in **vehicular and pedestrian** traffic control, including but not limited to, providing, placing, maintaining, and removal of temporary paths and/or ramps, temporary relocation of regulatory signs, changeable message boards, project and public notification signs, flagging, excavation, compaction, furnishing, and placement of asphalt concrete and/or PCC, barricades, toe-rails, hand rails, complying with CA MUTCD Standards for Pedestrian Safety, coordination efforts and any other items necessary for vehicle and pedestrian traffic control not specifically enumerated in the plans or these specifications, and no additional allowance will be made therefor.

# 13 WATER POLLUTION CONTROL

## **13-1 General**

**13-1.01A:** Water Pollution Control shall be performed in accordance with Section 13, Water Pollution Control, of the Standard Specifications and these technical specifications. In addition, construction activities shall comply with:

The current California Water Quality Control Board, North Coast Region Order No. National Pollutant Discharge Elimination System Municipal Storm Water Permit, commonly referred to as the "Storm Water Permit". A copy of the Storm Water Permit is available for review at the City of Santa Rosa Transportation and Public Works Department, 69 Stony Circle, Santa Rosa, CA, and at [www.srcity.org/stormwaterpermit](http://www.srcity.org/stormwaterpermit).

The California Stormwater Quality Association Storm Water BMP Handbook for Construction (CASQA Handbook). BMPs shall be selected, installed and maintained in accordance with the latest edition. A copy of the handbook can be viewed at the City of Santa Rosa Department of Transportation and Public Works office at 69 Stony Circle or downloaded from CASQA, <http://www.casqa.org/>.

In this technical specification the CASQA Handbook BMP numbers are appended to the associated Standard Specification sections. If a conflict occurs the CASQA Handbook BMP's shall govern.

## **13-2 Water Pollution Control Program**

**13-2.01B Submittals:** The program to control water pollution required to be submitted under this section of the Standard Specifications shall include a spill contingency plan that establishes clean-up procedures that will be followed in the event of a spill of potentially hazardous, toxic, or polluting materials.

**13-2.04 Payment:** The City Pays you to prepare **Water Pollution Control** Program as the **lump sum** price for **Water Pollution Control** and as follows:

## **13-3 Storm Water Pollution Prevention Plan**

**13-3.01A Summary:** This project is exempt from the State Water Resources Control Board General NPDES Permit for the Discharge of Storm Water related to Construction Activities (Construction General Permit), and not required to have a Storm Water Pollution Prevention Plan (SWPPP), therefore Section 13-3, Storm Water Pollution Prevention Plan, of the Standard Specifications does not apply to this project.

## **13-4 Job Site Management**

**13-4.03B: Spill Prevention and Control/CASQA Spill Prevention and Control (BMP WM-4):** If a spill occurs at the construction site and the contractor does not take immediate and adequate steps to contain and clean up the spill, especially if rain is threatening or if a discharge to a storm drain or creek could occur, the City shall have the right, in its sole and absolute discretion, to clean up the spill using City forces or an independent contractor. The cost of any such cleanup, in addition to recovery of any penalty or fine imposed upon the City, plus an administrative charge of fifteen percent (15%) of the costs incurred by the City, shall be deducted from any amounts owed to Contractor hereunder.

In the event there are insufficient amounts owed to Contractor hereunder to cover the foregoing costs and charges, the City shall have the right to pursue any other remedy to recover same, including, but not limited to, proceeding against any surety or bond in favor of the City. The City's rights under this section are intended to be in addition to and not in lieu of any imposed by the City against Contractor for violations of City Code Chapter 17-12, "Storm Water".

**13-4.03C(2): Material Storage/CASQA Material Delivery and Storage (BMP WM-1)**

**13-4.03C(3): Stockpile Management/CASQA Stockpile Management (BMP WM-3):** Do not block storm water flows.

**13-4.03D(1): Waste Management/CASQA Solid Waste Management (BMP WM-5):** The Contractor shall dispose of all trash, rubbish, and waste materials of any kind generated by the contractor, subcontractor, or any company hired by the Contractor on a daily basis.

**13-4.03D(3): Concrete Waste/CASQA Concrete Waste Management (BMP WM-8):** Ensure the containment of concrete washout areas and other washout areas that may contain pollutants so there is no discharge into the underlying soil and onto the surrounding areas.

**13-4.03D(4): Sanitary and Septic Waste/CASQA Sanitary and Septic Waste Management (BMP WM-9):** Sanitation facilities must be maintained periodically by a licensed service to keep them in good working order and prevent overflows. Portable toilets are required to have secondary containment.

**13-4.03D(5): Liquid Waste:** Liquid waste includes water generated from excavation dewatering. Minimize transfer piping by locating containers near the excavation to be dewatered while protecting the containers from moving vehicles and equipment.

**13-4.03E(1): Water Control and Conservation/CASQA Water Conservation Practices (BMP NS-1 and NS-2)**

**13-4.03E(3): Vehicle and Equipment Cleaning/CASQA Vehicle and Equipment Cleaning (BMP NS-8)**

**13-4.03E(4): Vehicle and Equipment Fueling and Maintenance/CASQA Vehicle and Equipment Fueling (BMP NS-9), and CASQA Vehicle and Equipment Maintenance (BMP NS-10)**

**13-4.03E(7): Paving, Sealing, Sawcutting, Grooving, and Grinding Activities:** As listed in Part 9, sections 4 and 5 of the Storm Water Permit, the following additional BMPs shall be implemented for street paving, repaving, reconstruction, patching, digouts or resurfacing.

1. Restrict paving and repaving activity to exclude periods of rainfall or predicted rainfall unless required by emergency conditions;
2. Install BMPs at all susceptible storm drain inlets and manholes to prevent paving products and tack coat from entering;
3. Prevent the discharge of release agents including soybean oil, other oils, or diesel to the storm water drainage system or watercourses;
4. Minimize non-storm water runoff from water use for the roller and for evaporative cooling of the asphalt;
5. Clean equipment over absorbent pads, drip pans, plastic sheeting or other material to capture all spillage and dispose of properly

6. Collect liquid waste in a container, with a secure lid, for transport to a maintenance facility to be reused, recycled, or disposed of properly **13-4.03D(5)**;
7. Collect solid waste by shoveling and vacuuming or sweeping and securing in an appropriate container for transport to a maintenance facility to be reused, recycled, or disposed of properly **13-4.03D(5)**;
8. Cover “cold-mix” asphalt (i.e., pre-mixed aggregate and asphalt binder) with protective sheeting during a rainstorm **13-4.03C(3)**;
9. Cover loads with tarp before haul-off to a storage site, ensuring that trucks are not overloaded;
10. Minimize airborne dust by using water spray during grinding **14-9.03**;
11. Protect stockpiles with a cover or sediment barriers during a rain event and;
12. Avoid stockpiling soil, sand, sediment, asphalt material and asphalt grindings materials or rubble in or near storm water drainage system or watercourses **13-4.03C(1)**,

**13-4.03F: Sweeping/CASQA Street Sweeping and Vacuuming (BMP SE-7)**

**13-4.04 Payment:** Job Site Management shall be paid for at the contract lump sum price for Water Pollution Control.

**13-6 Temporary Sediment Control**

**13-6.03C: Temporary Drainage Inlet Protection/CASQA Storm Drain Inlet Protection (BMP SE-10)**

**13-6.04: Payment:** Temporary Sediment Control shall be paid for at the contract lump sum price for Water Pollution Control. The contractor pays all maintenance costs.

**13-7 Temporary Tracking Control**

**13-7.01A: Temporary Tracking Control/Stabilized Construction Entrance and Exit (BMP TC-1), Entrance Outlet Tire Wash (BMP TC-3)**

**13-7.03 Construction/CASQA Stabilized Construction Site Entrance / Exit (BMP TC-1)**

**13-7.04 Payment:** Temporary Tracking Control shall be paid for at the lump sum price for Water Pollution Control. The contractor pays all maintenance costs.

**13-8.01: General:** Water removed from excavations will likely contain contaminants at levels requiring treatment prior to discharge. Analytical test results are in the report referenced in section 14-11.06, Department Generated Contaminated Soil, of these technical specifications. You will design the treatment system to treat the water to levels compliant with discharge requirements according to section 13-8.02D Discharge Method.

**13-8.01C: Quality Control Assurance:** The City will collect samples and perform the analytical testing of stored water.

**13-8.02D: Discharge Method:** Water removed from excavations shall be discharged to the publicly owned sanitary sewer under the conditions set forth in the discharge permit issued by the City, a copy of which is included in Section A, Fees and Permits, of these technical specifications.

**Temporary Active Treatment System,** except for furnishing tanks, shall be paid for by force account.



**13-10 Temporary Linear Sediment Barrier**

**13-10 Temporary/CASQA Silt Fence and Sand Bag Barrier (BMP SE-1 and SE-8)**

**13-10.04 Payment: Temporary Linear Sediment Barriers** shall be paid for at the **lump sum** price for **Water Pollution Control**. The contractor pays all maintenance costs.

[Revised: 12/15/16 CDA STD2010]

## 14 ENVIRONMENTAL STEWARDSHIP

### **14-9.03 Dust Control**

**14-9.03A General:** Sweeping per section 14-9.03C shall also be performed to prevent and alleviate dust.

Sweeping, covering stockpiles, applying water, and/or dust palliative, to control dust caused by public traffic is not change order work.

**14-9.03C Construction:** All dust-producing work and unpaved construction sites shall require a minimum watering in the middle and ending of each workday. The frequency of watering shall increase if dust is airborne. Watering shall not produce runoff.

Contractor shall maintain dust control to the satisfaction of the Engineer, 7 days a week, 24 hours per day.

At the end of each work day the Contractor shall thoroughly sweep all streets in the work zone to minimize airborne dust.

At the end of each work week the Contractor shall sweep all streets in the work zone with a commercial street sweeping truck equipped with a rear pick up broom.

At the Engineer's discretion additional sweeping or watering may be required, including the use of a commercial street sweeping truck equipped with a rear pick up broom, at any time or place.

**14-9.03D Payment:** Full compensation for conforming to this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed.

**14-10.01 General:** The Contractor shall dispose of all portland cement concrete and asphalt concrete, generated from removal or demolition activities on the project, at a recycler for these materials. The Contractor shall provide receipts verifying delivery and approximate quantity (in tons) of the material delivered to a material recycler.

All other excess materials from the project shall become the property of the Contractor and shall be disposed of by him, at his expense.

**14-10.02A(1) Submittals:** Submit a Solid Waste Disposal and Recycling Report prior to final acceptance of work performed under the Contract. Show the types and amounts of project-generated solid waste taken to or diverted from landfills or reused on the project.

Submit a Solid Waste Disposal and Recycling Report prior to Contract acceptance. Show the types and amounts of project-generated solid waste taken to or diverted from landfills or reused on the project.

**14-10.02D Payment:** Full compensation for material recycling as specified herein shall be considered as included in the contract prices paid for various items of work, and no additional compensation will be allowed therefor.

## 14-11 Hazardous Waste and Contamination

**14-11.02F(3) Hazardous Waste Transport and Disposal:** All soil from excavations on this project shall be considered contaminated and shall be transported to and disposed of at an approved landfill. Prior to any excavation activities, contractor shall supply the city with a soil disposal plan.

Based on communications with the Regional Water Quality Control Board, and analytical tests of project soils, this project runs adjacent to or within an area that has contained subsurface petroleum hydrocarbon contamination.

*Analytical test results are documented in a Summary Report "Additional Site Investigation Report" dated September 13, 2010, prepared by Northgate Environmental Management, Inc., and report titled "Additional Off-Site Well Installation Report" dated December 12, 2012, prepared by Northgate Environmental management, inc. The report and test results are on file with the City of Santa Rosa Public Works Department, 69 Stony Circle, Santa Rosa, CA 95401. A copy of the Northgate Environmental Management, Inc. reports and boring logs are available from the City for the Contractor's use and are **not** part of the contract documents. An electronic copy (PDF) of this report and test results may be obtained at the following ftp site (copy exactly as written including the underscores) or via email from the City by request and is **not** considered part of the contract documents:*

[https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo\\_report/4250050365/T0609793578.PDF](https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/4250050365/T0609793578.PDF)

[https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo\\_report/2589004456/T0609793578.PDF](https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/2589004456/T0609793578.PDF)

In general, the Contractor shall maintain awareness of potential signs of soil and groundwater contamination throughout the project limits and shall notify the City immediately upon discovery of any potential soil or groundwater contamination.

The Contractor shall provide 40-hour OSHA-HAZWOPER certified workers in the contaminated area and provide a field Site Safety Officer that is also an 8-hour OSHA-HAZWOPER Supervisor trained to directly oversee the contaminated materials removal and handling operation. All workers in this circumstance must have their initial and annual renewal refresher training, medical clearance and personal protection equipment in accordance with 8CCR Section 5192.

You will furnish completely filled out hazardous waste manifests ready for the Engineer's signature.

You are responsible for disposal of contaminated soil, including trucking, disposal site fees, and additional testing if required by disposal sites. You shall comply with all disposal regulations, such as City, County, and/or State permits and licenses, as may be required.

Prior to disposal of any excess material from the work site, submit to the Engineer written authorization for such disposal and entry permission signed by the approved disposal site. You shall disclose in landfill applications the existing conditions and the written disposal and entry permission shall include acknowledgement of such disclosure.

You shall be responsible for separating asphalt, concrete, base rock, asbestos cement pipe, and other non-contaminated debris from the soil prior to loading the soil for transport to disposal sites. Dispose of asphalt, concrete, and base rock at a recycler of these materials as specified in Section 124 of these Special Provisions. Dispose of asbestos cement pipe as specified in Section 15-2.02N of these Technical Specifications.

**14-11.06: 14-11.06 Payment: Class II Soil Disposal** shall be paid for at the contract price per **ton** price for **Roadway Excavation**, which price includes full compensation for preparing a soil disposal plan, identifying contaminated material, testing, handling, removal and disposal of all excavated material, including any landfill fees and trucking fees, and no additional compensation will be made therefor. The estimated quantity for Class II Soil Disposal is for bidding purposes only. This quantity may be increased or decreased or eliminated entirely based upon the Engineer Approved soil test results and no adjustment in the contract bid price or other contract items will be made therefor. Then provisions of Section 9-1.06 "Changed Quantity Payment Adjustments", of Standard Specifications **SHALL NOT** apply.

[Revised: 01/08/18-CDA STD2010]

## 15 EXISTING FACILITIES

**15-1.03A General:** Existing facilities disturbed by construction shall conform to the applicable provisions of Section 5-1.36. All existing active utilities found to reside in excavated areas shall be supported in place with service maintained during construction. The Contractor shall be responsible for any damage caused by their operations and any needed repairs shall be completed to the Engineer's satisfaction.

Existing storm drains found to reside in excavated areas shall be supported, removed, or replaced at the Contractor's option and at no additional cost to the City. The Contractor shall be responsible for maintaining the existing line and grade of the storm drains. If the Contractor elects to remove and replace, it shall be done per applicable City Standards and Specifications.

Existing utility trenches and/or structures that are in close proximity to proposed trenches shall be safeguarded in an appropriate manner from damage.

**15-1.04 Payment:** Full compensation for supporting, potholing, removal and disposal of existing utilities and their appurtenances is considered as included in the contract prices paid for various contract items of work and no additional allowance will be made therefor.

**15-2.02C Traffic Stripes and Pavement Markings:** All traffic stripes, pavement markings or any other traffic markings shall be removed by the Contractor to the satisfaction of the Engineer and in accordance with Sections 84 of the Standards, and the Plans.

**15-2.02D Pavement Markers:** All raised pavement markers shall be removed by the Contractor to the satisfaction of the Engineer and in accordance with Sections 85 of the Standard Specifications, City Standards, and the Plans.

**15-2.02N Asbestos Cement Pipe:** The Contractor is advised that asbestos cement pipe (ACP) will likely be encountered on the project and must be cut, handled, and disposed of according to the Contractor's State Licensing Law and all other applicable laws and regulations.

**15-2.02O Payment:** Full compensation for the cutting, removal and disposal of asbestos cement pipe shall be considered as included in the prices paid for various contract items of work and no additional allowance will be made therefor.

**15-2.04G Reconstruct Sidewalk Drain:** Reconstruct sidewalk drain shall be done in conformance with requirements of Section 73 of the City Specifications, City STD-406 and as directed by the Engineer.

The Contractor shall remove portions of existing curb, gutter, and sidewalk, and the existing sidewalk drain and install new sidewalk drain, curb, gutter and sidewalk at the location designated and as directed by the Engineer.

**15-2.08A General:** Reset existing City facility boxes and lids to grade. The contractor shall replace any damaged city utility box and/or lid within improvement area as determined by city staff.

**15-2.10B Adjust Frames, Covers, Grates, and Manholes:** Existing manhole frames and covers, valve boxes, mainline cleanouts and monuments adjusted to grade shall conform to City Standards.

The Contractor shall accurately locate and record the location of existing and new manholes, valve boxes, mainline cleanouts, and monuments to be adjusted to grade and shall furnish the Engineer a copy of said record prior to starting construction.

All facilities on active systems shall be accessible at all times to City personnel unless otherwise stated in these Special Provisions or approved by the Engineer.

After placement of the finish course of asphalt concrete the Contractor shall mark all overlaid manholes, valve boxes, mainline cleanouts and monuments, whether new or existing, with white paint by the end of that working day.

All new and existing manholes, valve boxes, mainline cleanouts and monuments shall be accessible within 48 hours after they are covered.

Final grade adjustments and installation of concrete collars shall be done on the same working day. Final paving around manholes, valve boxes, mainline cleanouts and monuments shall be completed the following working day.

All silt and debris shall be removed from finished structures. This shall include all existing silt and debris plus material caused by the Contractor's operation.

If new or existing water valve riser pipe needs to be extended after paving to conform to City STD-877, the Contractor shall use either a slip x slip glued PVC coupling or a transition coupling with sheer bands as directed by the Engineer. Upsizing the existing riser pipe to 8-inch will not be required unless otherwise directed by the Engineer. Any added extension must be a minimum of 12 inches. The lower section of riser pipe shall be adjusted to accommodate this requirement.

In the event that the Contractor encounters water valve boxes with round lids or sanitary sewer frame and covers with open pick holes which must be adjusted to grade, the Contractor is to provide a count to the Engineer a minimum of two days prior to paving to obtain replacements that complies with current City Standards. The City will provide replacements provided the Contractor is not required to replace them as part of the contract or due to damage by the Contractor's operations. Valve boxes and frames and covers on facilities to be abandoned shall not be included in the count provided to the Engineer.

Prior to removal of an existing manhole frame, a platform shall be constructed in the manhole above the top of the sewer to prevent any dirt or debris from falling into the sewer. The platform shall remain in place until all work on the manhole has been completed and the asphalt concrete has been placed around the manhole. Prior to the removal of the platform from the manhole, all dirt and debris shall be removed.

All grade rings shall be set in cement mortar the same day they are placed. All joints shall be smoothly plastered inside and out.

Existing grade rings removed in the adjustment of manhole frames shall become the property of the Contractor and if undamaged and thoroughly cleaned of mortar may be reused in the work. If not so used, they shall be disposed of away from the site of work at the expense of the Contractor.

Manhole frames shall be reinstalled to align directly over the grade rings. Any frames misaligned by more than ½ inch shall be removed and reinstalled.

New and existing Monuments adjusted shall conform to City Standards.

**15-2.13 Payment:** **Adjust Existing Valve Boxes, Mainline Cleanouts and Monuments to Grade** shall be paid for under various items of work, which price shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all the work involved in adjust existing valve boxes, mainline cleanouts and monuments to grade, including but not limited to, required excavation and backfill, replacing to current City Standards, coordination, and removing silt and debris, as specified herein, and no additional allowance will be made therefor.

**Adjust Existing Manholes to Grade** shall be paid for at the contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all the work involved in adjusting manholes to grade, including but not limited to: required excavation and backfill; additional grade rings *if required*; furnishing location of manholes to be adjusted to grade; removing and delivering silent night frames and covers to the City MSC; and transporting new frames and covers to job site, as specified herein, and no additional allowance will be made therefor.

**Remove/Replace and Reset Existing City Facility Boxes and Lids to Grade** shall be paid for under various items of work, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all the work involved in removing, replacing and resetting existing City facility boxes and lids to grade, as specified herein, and no additional allowance will be made therefor.

**Remove and Replace Sidewalk Drain** shall be paid for under various items of work, which price shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved in installation of sidewalk drain complete in place, including 4-inch drain pipe, wire mesh, breaking out and replacing curb and gutter, as specified herein, and no additional allowance will be made therefor.

**15-3.03 Construction:** All removed concrete shall become the property of the Contractor and shall be immediately off-hauled. None of the removed concrete shall be dumped or stockpiled on the work site. The Contractor shall dispose of all removed concrete at a recycler for this material. Burying of broken concrete within the limits of the project will not be allowed.

All concrete which is to be removed from sidewalk, curb, gutter and driveway areas shall be removed to the nearest score mark or construction joint as directed by the Engineer unless otherwise noted on Project Plans. The edge of existing concrete to remain shall be neat and free of defects. Saw cutting may be required to achieve this.

Reinforcing steel may be encountered in portions of concrete to be removed and no additional allowance will be made for the removal of such steel.

Irrigation facilities may be encountered during concrete removal and replacement. The Contractor shall exercise care in this area and repair any damage done by their operations at no additional cost to the City.

Landscaping and other surfaces or structures shall be restored to original condition at no additional cost to the City.

**15-3.04 Payment:** Payment for saw cutting, removal and disposal of concrete sidewalk, curb and gutter, driveway areas, and existing City monuments shall be included in the contract prices paid for various contract items of work and no additional allowance will be made therefor.

Full compensation for repair of existing irrigation facilities damaged during any phase of the work shall be included in the prices paid for various contract items of work and no additional allowance will be made therefor.

**15-7 Utility Clearances:** *All items noted in this Section shall take place prior to any other construction activities.*

Pothole information provided on the Project Plans shall be for reference use only and shall not be considered as accurate information for any other areas within the project limits.

Contractor shall investigate, confirm and/or determine the exact locations of existing utilities, and verify clearances between existing and proposed utilities at crossings and/or known potential conflicts. The Contractor shall determine elevations and alignments of existing utilities at connection points.

The Contractor shall determine elevations and alignments of existing sewer laterals, at the back of sidewalk, if a new proposed sewer main is at a higher elevation than the existing sewer main.

*The Contractor shall provide all relevant information in writing to the Engineer immediately upon discovery of any conflict.* Any delay in notification to the Engineer may delay direction and/or corrective action and a delay claim due to this reason shall not be considered by the City. The Contractor shall not proceed with any work that is in conflict until direction is provided by the Engineer and shall redirect crews to other contract work. All the information required to be obtained per this Section and any other information not noted but relative to the project shall be provided to the Engineer on a set of Plans when the investigative effort is complete.

**15-7.01 Payment: Utility Clearances** shall be paid under various items of work and shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all the work involved in verifying utility clearances, including but not limited to: potholing to verify potential conflicts, grades and alignments of existing facilities to be connected to; excavation; backfill; notification; and coordination and redirection of crews to other contract work *if required*, as specified herein, and no additional allowance will be made therefor.

**15-8 Tree Root Pruning:** All tree roots two inches and greater which are encountered during excavation must be pruned by hand. The root shall be cut cleanly with a saw to avoid splits. When digging within the drip line of trees, Contractor shall exercise extreme caution to avoid pulling on roots with excavation equipment. Hand dig around all roots greater than one inch in diameter. The Contractor shall notify the Engineer when encountering roots within the drip line of trees which are greater than one inch. If the Engineer elects to get direction from an arborist the Contractor shall redirect crews to other contract work after safeguarding the area.

**15-8.01 Payment:** Full compensation for removing and pruning tree roots, hand digging to avoid root damaging roots, and excavating cautiously with respect to tree roots is considered as included in the prices paid for various contract items of work and no additional allowance will be made therefor.

**15-9 Replace Advanced Traffic Loop Detector:** Traffic loop detector reconstruction shall conform to the requirements in Section 86-5, "Detectors," of the Standard Specifications and these Special Provisions. All traffic detection systems that are damaged by the Contractor's operations shall be replaced per Section 86-5 "Detectors" of the Standard Specifications, Caltrans Standard Plan ES-5B (Type A) and per the City of Santa Rosa Traffic Standards. Damage to traffic detection systems will require full replacement of loop systems with splicing at hand holes only.



Loop detectors which are destroyed or damaged that would not otherwise need to be reconstructed as part of this project shall be reconstructed at the Contractor's expense within five working days or as directed by the Engineer.

The Contractor shall notify the Engineer in writing 72 hours in advance of taking loop detectors out of service so that the traffic signal can be placed on timed cycle for the duration of time the loops will be out of service. If a loop detector is accidentally destroyed, the Contractor shall immediately notify the Engineer.

The functional test for each traffic signal detector loops shall consist of not less than 48 hours of continuous satisfactory operation. If unsatisfactory performance of the system develops, the conditions shall be corrected and the test shall be repeated until the 48 hours of continuous satisfactory operation is obtained.

Reconstruction of traffic loop detectors will be measured and paid for as units from actual count, complete and in place. The loop detectors shall be tested to determine if they are operational. Payment for loop detector reconstruction will not be processed until the loop detectors are operational to the satisfaction of the Engineer.

**15-9.01 Payment: Replace Advanced Traffic Loop Detectors** shall be paid for at the contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved including, but not limited to: saw cutting, cable and epoxy sealant, connecting to the traffic signal controller and testing, as specified herein, and no additional allowance will be made therefor.

**15-10 Dig-Out Repair:** Hot mix asphalt grind and replace shall be in accordance with City Standard 215, Section 39, the modified detail on the Plans or as specified herein. Longitudinal grinds shall be a minimum of 6' in width and 0.45-ft in depth. Stabilization fabric shall be used where aggregate base or sub-base is exposed. Grind length shall be determined by Engineer.

Roadway excavation and asphalt concrete base paving shall be completed for the lane width before beginning excavation of the remaining street.

**15-10.01 Payment: Dig-Out Repair** shall be paid for at the contract price per **square yard**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in placing asphalt concrete surface and overlay, including tack coat and overlay conforms, and no additional allowance will be made therefor.

[Revised: 01/08/18-CDA STD2010]

# 19 EARTHWORK

## **19-1 General**

### **19-1.01 General:**

1. Contaminated site: Technical Specifications for handling and disposal of contaminated soil and water are included in section 14-11.06, Department Generated Contaminated Soil, and section 13-8, Temporary Active Treatment System, respectively.

### **19-1.01A Summary:**

Excavating for trenching

**19-1.03B Unsuitable Material:** Stabilization of unsuitable material shall comply with the following provisions:

- A. Unsuitable material may be processed in place, may be excavated and placed on the grade or other locations suitable for further processing, or may be partially excavated and partially processed in place.
- B. Processing may consist of drying to provide a stable replacement material, or mixing with lime per Section 24.
- C. Stabilized material shall be placed and compacted in layers as hereinafter specified for constructing embankments.

**19-1.03C Grade Tolerance:** When aggregate subbase or aggregate base are to be placed on the grading plane, the grading plane shall not vary more than 0.05' above or 0.1' below the grade established by the Engineer.

## **19-2 Roadway Excavation**

### **19-2.03A General:**

Roadway excavation shall include sawcut and pavement section removal associated with roadway median construction and curb and gutter construction under Section 73.3.

The Contractor shall note that there are street trees near areas intended for roadway excavation. The Contractor's operation, including the size of the grinding equipment, shall be such, so as to insure that existing street trees are not damaged. Where limited clearance under the street trees prevents the use of a grinder, excavation shall be performed by an alternate method as approved by the Engineer. Alternate methods may include jack-hammering and removal of existing pavement and base materials by hand, or by use of smaller grinding equipment.

Where tree roots are encountered during roadway excavation, the Contractor shall cut the roots off six inches below the planned subgrade. Each cut shall be clean with no torn bark or splintered wood remaining on the root and shall be accomplished by use of a saw appropriate for the size of the root to be cut.

**19-2.03B Surplus Material:** Excess materials from the excavation operations will become your property and will be disposed of at no additional cost to the City and will be immediately removed from the jobsite. Dumping and/or stockpiling material onsite will not be allowed.

Prior to disposal of any excavated material, you will submit to the Engineer written authorization for such disposal of material and entry permission signed by the owners of the disposal site. You will also comply with all disposal regulations such as City, County, and/or State permits and licenses, as may be required. You will dispose of all removed concrete and AC at a recycler.

You will furnish a surplus material handling and disposal plan which will include the following:

1. Disposal site for spoils
2. Type of trucks and equipment to be used
3. Haul routes.

The City shall reserve the right to unconditionally suspend or revoke disposal at any time at no cost to the City.

**19-2.04 Payment:** **Roadway Excavation** shall be a final pay quantity (F) paid for at the contract price per **cubic yard**, which price shall include full compensation for all work as specified herein and no additional allowance will be made therefor.

Removal of existing bituminous pavement and base materials will be paid for as roadway excavation.

### **19-5 Compaction**

**19-5.03B Relative Compaction (95 percent):** Relative compaction of not less than 95 percent shall be obtained for a minimum depth of 0.5-foot below the grading plane for the full width of the planned pavement structural section, whether in excavation or embankment.

### **19-8 Subgrade Enhancement Geotextile**

**19-8.02 Materials:** Soil stabilization fabric shall be installed per manufacturer's recommendations and shall meet or exceed the following specifications:

Grab Tensile Strength (ASTM D4632)	290 lb.
Mullin Burst Strength (ASTM D3786)	500 psi
Trapezoid Tearing Strength (ASTM D4533)	113 lb.
Modulus (Load at 10% Elongation) (ASTM D4632)	120 lb.
Apparent Opening Size (ASTM D4751)	40-70 sieve
Permittivity (ASTM D4491)	0.05 sec <sup>-1</sup>

Soil stabilization fabric shall be Mirafi 600-X, GeoTex 315ST, Carthage Mills FX-66, TerraTex HD, or approved equivalent.

The soil stabilization fabric shall be held in place with wooden stakes driven through the fabric into the subgrade at the beginning and the end of the fabric and at 50 foot intervals. A minimum of three stakes shall be placed across the width of the fabric roll at each interval. The stakes shall be a minimum length of 8-inches and shall be driven at an angle opposite to the direction of pull exerted on the fabric by the paving machine.

**19-8.04 Payment:** **Stabilization Fabric** shall be paid for under various items of work. Payment shall include full compensation for doing all work involved in placing the fabric including root pruning labor, materials, tools and equipment, and no additional allowance will be made therefor.

## 20 LANDSCAPE

### 20-1. Materials

#### A. Plants

1. Nomenclature: See list of plant materials on Landscape Planting plans.
2. Conditions: Plant shall be symmetrical, typical for variety and species, sound, healthy, vigorous, free from plant disease, insect pests or their eggs, excessive abrasions, or other objectionable disfigurements, and shall have healthy, normal root systems, well filling their containers, but not to the point of being root bound. Tree trunks shall be sturdy and well hardened off. Plants shall not be pruned prior to delivery except as authorized by the Landscape Architect. In no case shall trees be topped or pruned before delivery. Plants shall be grown in nurseries which have been inspected by the State Department of Agriculture and have complied with its regulations.
3. Minimum Tree Sizes: In addition to the preceding specifications, all trees shall conform to the following minimum specifications for height and caliper:

<u>Species</u>	<u>Size</u>	<u>Min. Ht.</u> Measured from soil level in can	<u>Min. Caliper</u> Measured at a point four inches above soil level in can
<i>Ginkgo Biloba</i>	24" Box	10'	1.5"

Contractor shall inform the City of the source of all plant material allowing adequate time so that inspections of plant material may be made at the source prior to delivery to site.

3. Shrub Sizes: Plants shall be of the variety and size shown on the plans, and shall conform to the requirements herein.
4. Identification: One of each bundle or lot shall be tagged with plant name in accord with recommendations of the American Association of Nurserymen.
5. Substitutions: Substitutions for the indicated plant materials will be permitted, provided the substitute materials are approved in advance by the Landscape Architect and/or the City, and the substitutions are made at no additional cost to the City. Except for the variations so authorized, all substitute plant materials shall conform to the requirements of these specifications. If accepted substitute materials are of less value than those indicated or specified, the contract price will be adjusted in accordance with the provisions of the contract.
6. Plant Inspection and Rejection: Root condition of plants will be determined by the Landscape Architect and/or City through the removal of earth from the roots of at least two (2) plants but not more than 2 percent of the total number of species from each source.
7. Tree Stakes: Wood Poles shall be lodgepole pine logs, untreated, 2-inch diameter by 10-foot long actual dimensions. One end shall be tapered to point for installing in soil. Install as detailed.

8. Ties: Ties at tree stakes shall be ¾-inch rubber hose sections with #12-gauge galvanized steel wire, or elastic webbing 1-inch wide, and minimum of ¼ inch thick. Recycled car tire straps are acceptable.

B. Imported Planting Soil and Soil Amendments

1. Imported Planting Soil shall consist of fertile, friable soil of loamy character that contains organic matter in amounts natural to the region and be capable of sustaining healthy plant life. Imported Planting Soil shall be free from deleterious substances such as litter, refuse, toxic waste, stones larger than 1 inch in size, coarse sand, heavy or stiff clay, brush, sticks, grasses, roots, noxious weed seed, weeds, and other substances detrimental to plant, animal, and human health. Use a soil mix that has a minimum of 5 percent and up to 10 percent organic matter (with 20 percent or more of compost content). Soil portion shall be sandy loam as defined by the United States Department of Agriculture (USDA).
2. All areas to be planted and irrigated shall receive soil amendments. The following soil amendments may be used for bidding purposes. Contractor to amend Imported Planting Soil based on the results of the Soils Test. If compost quantity recommended by the soil analysis is less than rates listed, contractor must receive written approval from landscape architect prior to lowering compost quantities.
  - a. **Compost**: Three cubic-yards per 1,000 square feet of planting area. Compost shall:
    - i. Be mature, well decomposed, stable and weed free.
    - ii. Be derived from agricultural and/or food scraps and/or plant trimmings.
    - iii. Contain no substances toxic to plants.
    - iv. Be a dark brown to black color
    - v. Smell of: soils, or forest, or mold.
    - vi. Not smell of: ammonia, rot, garbage, or sour.
    - vii. Not resemble: feedstock (original materials from which it was derived)
    - viii. Be listed by California Department of Food and Agriculture (CDFA) as an Organic Input Material (OIM) and/or be approved by the Organic Materials Research Institute (OMRI).
    - ix. Be produced by a participant of the US Composting Council's STA Program.
    - x. Be generated from feedstock/materials sourced within 100-miles or produced at a facility within 100-miles of the project site
    - xi. Contain no manure of any kind, weed seeds, or any foreign substance.
    - xii. Have a particle size that meets the following parameters:
      1. 98% pass the 2-inch sieve
      2. 95% pass the 3/8-inch sieve
    - xiii. Shall contain organic matter content between 30-60% of dry weight.
  - b. 200 lbs. agricultural gypsum per 1,000 square feet of planting area.

3. A copy of delivery slips on all materials used on the project shall be delivered to the City.
4. Substitutions will not be permitted except when proof is submitted that any material specified is not obtainable. All substitutions are subject to the approval of the Landscape Architect.

C. Root Barrier

1. Root Barrier shall be black, molded, modular panels manufactured with 50 percent recycled polyethylene plastic with ultraviolet inhibitors, 85 mils (2.2 mm) thick, with vertical root deflecting ribs protruding 3/4 inch (19 mm) out from panel, and each panel 24 inches (610 mm) deep. Install 10' lengths, centered on tree trunk, adjacent to median curb edges. Install per manufacturer's instructions and as directed in the field.

D. Mulch and Sheet Mulch Cardboard

1. Mulch:
  - a. Must be made from organic materials including tree trimmings, clean (unpainted and untreated) wood or wood and plant trimmings,
  - b. Free of physical contamination with zero visible contamination at time of final walk-through. If contamination is present when mulch is delivered, Contractor shall reject load or remove contamination.
  - c. Shall not include forest industry products and/or byproducts such as redwood bark, peat moss, redwood "gorilla hair", recycled tires, or any inorganic materials.
  - d. Generated from feedstock/materials sourced within 100-miles or produced at a facility within 100-miles of the project site.
2. Sheet Mulch Carboard: Carboard for sheet mulch shall be rolls of 100 percent recycled flute carboard, 70 pound weight.

E. Landscape Paving

1. Cobble Pavers. Refer to drawings for material and installation.
  - a. Concrete slab shall be consistent with Section 90 Concrete.
2. 6" Wide Flush Concrete Curb. Refer to drawings for material and installation. Shall be consistent with Section 73 Concrete Curb and Sidewalks and Section 90 Concrete

F. Landscape Furnishings

1. Bench. Refer to drawings. Contractor to supply all materials and labor to install benches as described on drawings.
2. Bicycle Rack. Refer to drawings. Contractor to supply all materials and labor to install bicycle rack as described on drawings.

**20-2. Submittals:**

A. Plants

1. Plant List: A complete plant list indicating species, variety, quantity, size, and nursery location shall be submitted to and accepted by the O.R. prior to acquiring plants.

2. Plant Photographs: A complete photographic record of the actual specified plants, secured and purchased by the Contractor at designated nurseries. Photos shall be date stamped, digital, pdf files (500kb size), labeled with botanical name, and size.

B. Imported Planting Soil and Soil Amendments

1. Soils: Materials testing report from O.R. approved testing agency indicating and interpreting test results for compliance of the following with the requirements indicated. Include sieve analysis and complete chemical and physical analysis of all components of each soil material specified.
2. Compost: Cut sheet verifying feedstock and source, and complete physical and chemical analysis of product.

C. Root Barrier

1. Cut sheet verifying product.

D. Mulch and Sheet Mulch Cardboard

1. Mulch: Cut sheet verifying feedstock type, producer, and complete physical and chemical analysis of product
2. Cardboard: Cut sheet verifying weight and recycled content of cardboard.

E. Landscape Paving

1. Cobble Paving: Cut sheet verifying product.

F. Landscape Furnishings

1. Cut sheets verifying product.

**20-3. Lab Analysis Reports:**

A. Submit lab reports for each of the following:

1. Soil analysis report and recommendations for Imported Planting Soil. The soil analysis shall (at a minimum) include:
  - a. soil texture (percent sand-silt-clay)
  - b. infiltration rate (based on laboratory testing or soil texture infiltration rate table)
  - c. pH level
  - d. total soluble salts/salinity/electrical conductivity (EC), units: dS/m or mmho/cm
  - e. essential nutrients
  - f. heavy metals
  - g. organic matter content percentage
  - h. Recommendations for amending the soil with compost to bring organic matter content to 6 percent and organic fertilizers to recommended levels for planting area and planting type.
2. Compost technical data sheet including compost laboratory report, including test data summary page. If results are unacceptable to support healthy plant growth, Contractor is responsible for retesting compost or finding an acceptable alternative.

**20-4. Construction:**

- A. Scheduling. Planting shall not commence until completion of all construction work, grading, soil preparation, and sprinkler installation. All container stock shall be spotted on-site by the Contractor per plans prior to planting. Set out only quantity that can be reasonably planted in one work day. Plant pits shall not be excavated until the approval of plant locations by the Landscape Architect and/or the City.
- B. Soil Preparation
  - 1. Soil shall be amended per the direction of the soils report.
  - 2. At time of planting, all areas to be planted or seeded shall be free of weeds, stones, stumps, roots, or other deleterious matter 1 inch in diameter or larger and shall be free from all wire, plaster, or similar objections that would be a hindrance to planting or maintenance.
  - 3. Compact Imported Planting Soil to 85 percent.
- C. Spacing. When plant material is spaced in rows, the total dimension shall be verified and the plants equally spaced within the designated area. Where plant material is shown in loose pattern, the Contractor shall space the material as shown on plans or as directed by the Landscape Architect and/or the City.
- D. Plant Pits. See drawings.
- E. Removal from Containers. All canned stock 5-gallon size and under shall be vertically cut on two opposite sides with approved instrument for the purpose. Fifteen (15) gallon size containers shall be cut on four opposite sides. Cutting with an axe or spade shall NOT be permitted.
- F. Handling. No canned plant material shall be planted if the ball is broken or cracked either before or during the process of planting.
- G. Setting. Plant shall be same relation to soil level when planted as it was when in container. Each plant shall be placed in center of plant pit.
- H. Pit Backfill. Backfill material around plants shall be free from rocks or foreign material and shall be amended according to the recommendations of the Soils Test
- I. Backfilling Procedure
  - 1. Backfill pit with backfill mix halfway to finish grade and water thoroughly.
  - 2. Backfill finish to grade. Backfill finish shall be tamped firm and a shallow basin formed at the perimeter of plant pit to hold enough water to saturate the root ball and backfill mix.
  - 4. Water immediately to saturate entire root ball and backfill.
  - 5. Remove watering basins prior to hydroseeding.
- J. Tree Staking
  - 1. Stake all median trees as shown in drawings. Drive stakes into firm soil next to root ball on windward side of tree and backfill with prepared soil mix. Tree and stakes shall be vertical in all cases.

**20-5. Quantities**

- A. In all cases, quantities of plant material shall be furnished as needed to complete work as indicated on plans.



**20-6. Protection**

- A. The Contractor shall carefully and continuously protect all areas included in the contract until final acceptance of the work by the City.

**20-7. Cleanup**

- A. After all planting operations are completed Contractor shall remove all trash, excess soil, empty plant containers, or other accumulated debris from the site at no extra cost to City. Contractor shall repair all scars, ruts, or mars in area caused by work operations. Areas shall be left in a neat and orderly condition.

**20-8. Inspections:**

- A. Contractor shall give forty-eight (48) hour notice and set appointment for all inspections by the Landscape Architect and/or City.
- B. Inspections and/or field supervision by Landscape Architect and/or City shall be scheduled for the following operations:
  - 1. Approval of all plant material.
  - 2. Tree and shrub replacement PRIOR to digging holes and placement planting.
  - 3. Final inspection.
- C. Inspection shall be called for at the end of all planting operations for the purpose of determining compliance with plans and specifications, intent, workmanship, and cleanup. Contractor shall secure written verification of inspection data, any corrections required to work, and limits of inspected area before beginning the described maintenance work.
- D. In the event the Contractor requests inspection of work, and said work is substantially incomplete, the Contractor shall be responsible for inspection costs.

**20-9. Guarantee:**

- A. All shrubs shall be guaranteed as to growth and health for a period of ninety (90) days after final acceptance by the City; all trees shall be guaranteed for a period of one (1) year.
- B. Plants which die or lose more than 30 percent of their original leaves shall be replaced under this section.
- C. The Contractor, within fourteen (14) days of written notification by the City, shall remove and replace all guaranteed plant materials which for any reason fail to meet the requirements of the guarantee. All plant material replaced shall be guaranteed for the original period, starting from the date of replacement.

**20-10. Payment:**

- A. Plants
  - 1. **1 gallon plants** shall be paid for a contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in planting shrubs, and no additional allowance will be made therefor.
  - 2. **Trees (24" Box)** shall be paid for a contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in planting trees and installing tree stakes and ties, and no additional allowance will be made therefor.

B. Imported Planting Soil and Soil Amendments

1. **Imported Planting Soil** shall be paid for a contract unit price per **cubic yard**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in installing imported planting soil in the medians and providing amendment per the soils report and compost, and no additional allowance will be made therefor.

C. Root Barrier

1. **Root Barrier** shall be paid for a contract unit price per **linear foot**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in installing root barrier at each tree location, and no additional allowance will be made therefor.

D. Mulch and Sheet Mulch Cardboard

1. **Mulch and Sheet Mulch Cardboard** shall be paid for a contract unit price per **square foot**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in installing 3 inches of mulch and one layer of sheet mulch cardboard in all planting areas, and no additional allowance will be made therefor.

E. Landscape Paving

1. **Cobble Pavers** shall be paid for a contract unit price per **square foot**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in installing cobble pavers, mortar, concrete slab, and aggregate base, and no additional allowance will be made therefor.
2. **6" Wide Flush Concrete Curb** shall be paid for a contract unit price per **linear foot**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in installing concrete curb, and no additional allowance will be made therefor.

F. Landscape Furnishings

1. **Bench** shall be paid for a contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in installing benches, and no additional allowance will be made therefor.
2. **Bicycle rack** shall be paid for a contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in installing bicycle racks, and no additional allowance will be made therefor.

## 20-3 IRRIGATION SYSTEM CONSTRUCTION

**20-3 Scope of Work:** Furnish all labor, materials, supplies, tools, and transportation; and perform all operations in connection with and reasonably incidental to the complete installation of the irrigation system as shown on the Project Drawings.

### **20-3.02M(3) Materials:**

- A. Main lines (constant pressure) 2 inches and larger shall be polyvinyl chloride (PVC) 1120-160 psi with ring-tite connections; ½ inch to 1½ inch shall be PVC 1120 schedule 40.
  - 1. Join lengths of pipe by means of integrally formed bell end on pipe using rubber ring seal. Use schedule 40 PVC coupling on schedule 40 pipe.
  - 2. At changes in direction of branch mains and at QCV and RCV use appropriate schedule 40 PVC rubber ring seal fittings as approved by the Uniform Plumbing Code.
  - 3. At the location of QCV and RCV, use solvent weld Schedule 80 PVC Tee or 90 Degree Elbow as required for connection.
- B. Lateral lines (non-pressure) shall be 1120-200 psi PVC plastic pipe with schedule 40 Type 1, Grade 1 PVC solvent weld fittings.
- C. Connections between main lines and RCV's shall be of schedule 80 PVC nipple as detailed. Riser stock shall be as follows:
  - 1. Risers connecting QCV's to PVC fitting shall be 1"x3" brass nipple. Refer to City details.
- E. Quick coupler valves (QCV) shall be Rainbird #44 or approved equal.
- F. Controllers
  - 1. Controller shall be as specified on plans.
  - 2. Provide and install automatic irrigation controller in approximate location shown on the plans. The exact location will be determined on the site by the Engineer. Provide conduit, wire, and connection to 120 volt switch accessible to controller for ease of maintenance.
- G. Remote control valves (RCV)
  - 1. RCV shall be as specified on plans.
- H. Control wire shall be copper with UL-approval for direct burial in ground, size #14-1 AWG-UF. Common ground wire shall have white insulating jacket; control wire shall have jacket of color other than white. Splices shall be made with 3-M #3576 Scotchlok seal packs or approved equal.
- I. Boxes for remote control valves shall be Brooks 37SP or equal. Rubber valve markers shall be Rainbird #63100.
- J. Bubblers.
  - 1. Bubblers shall be as specified on plans.
- K. Irrigation controller enclosure shall be as detailed on the drawings.
- L. 120-volt service and connections shall be provided by the irrigation contractor. Install in conduit with Brooks 3½ pull boxes as required. Concrete pull boxes shall have locking covers marked "electrical".
- M. Ball valves shall be Watts LFB6000 or equal. Locate in Carson 1419 valve box with green plastic lid. Use extensions as required.
- O. Reduced pressure backflow assembly shall be as specified on the plans. Refer to City standard details..
- P. Miscellaneous Installation Materials

1. Solvent cement for solvent weld joints shall be of make and type approved by manufacturer(s) of pipe and fittings. Cement shall be maintained at proper consistency throughout use.
2. Lubricant for assembling rubber ring seal joints shall be of make and type approved by manufacturer of pipe.
3. Pipe joint compound shall be non-hardening, non-toxic materials designed specifically for use on threaded connections in water carrying pipe. Performance shall be same as teflon tape or approved equal.

Q. Miscellaneous Equipment

1. Provide all equipment called for by the plans.
2. Provide to the City, at completion of the irrigation installation, three (3) each of all operating and servicing keys and wrenches required for complete maintenance and operation of all heads and valves. Include all wrenches necessary for complete disassembly of all heads and valves.

**20-5.08 Layout of Work:** The Contractor shall stake out the irrigation system as shown on the plans, using a different color flagging for heads, valves, tie-inpoint and trench. These areas shall be checked by the Contractor and Engineer before construction is started. Any changes, deletions or additions shall be determined at this check. Trenching shall be started only after layout check by the Contractor and approval by the Engineer.

**20-5.09 Installation:**

- A. Preparation. Schedule and coordinate placement of materials and equipment in a manner to effect earliest completion of work in conformance with construction and progress schedule.
- B. Protect work and materials from damage during construction and storage.
- C. Layout:
  1. Layout work as accurately as possible in accordance with diagrammatic plans.
  2. Where site conditions do not permit locating piping, valves and heads where shown, notify the Engineer immediately and determine relocation in joint conference.
  3. Run pipe lines and automatic control wiring in common trenches wherever practical.
- D. Install water lines in 1120-Schedule 40 PVC plastic sleeves at street crossings.
- E. Excavation and Trenching
  1. Excavation shall be in all cases ample in size to permit the pipes to be laid at the elevations intended and to permit ample space for joining.
  2. Make trenches for pipe lines deep enough to provide minimum cover from finish grade as follows:
    - a. 24-inch minimum cover over main lines to control valves and quick coupling valves.
    - b. 24-inch minimum cover over control wires from controller to valves.
    - c. 18-inch minimum cover over RCV-controlled lines to bubblers and dripline.
    - d. 48-inch minimum cover over all lines inside street right of way.
  3. Restore surfaces, existing underground installations, etc., damaged or cut as result of excavations to original conditions in manner approved by Engineer.
  4. Where drainage line interferes with irrigation trenching and pipe work, adjust the trench depth as instructed by the Engineer.
- F. Assembling Pipe Lines
  1. All pipe shall be assembled free from dirt and pipe scale. Field cut ends shall be reamed only to full pipe diameter with rough edges and burrs removed.
  2. Rubber ring seal joint:
    - a. Use factory-made male end or prepare field-cut male end to exact specifications of factory-made end. Beveling is to be done with a tool specifically designed for that purpose.

- b. Carefully clean bell or coupling and insert rubber ring seal without lubricant. Position ring carefully, according to manufacturer's instructions.
  - c. Place a reference mark on each male end at the proper distance from the beveled end as indicated by the manufacturer's instructions. Lubricate male end according to manufacturer's instructions and insert male end to specified depth.
  - d. All ring-tite joints are to be left uncovered until after they have been inspected and the pressure test applied.
  - e. Form thrust blocks in such a manner to prevent any concrete from coming in contact with the pipe. Thrust blocks shall be between solid soil and the fitting.
3. Solvent weld joint:
- a. Prepare joint by first making sure the pipe end is square, then deburring the pipe end and cleaning pipe and fitting of dirt, dust and moisture.
  - b. Dry-insert pipe fitting to check for mis-sizing. Pipe should enter fitting 1/3 to 2/3 depth of socket.
  - c. Coat the inside socket surface of the fitting and the external surface of the male end of the pipe with P-70 Primer (manufactured by Weld-On). Then without delay, apply Weld-On 711 cement liberally to the male end of the pipe and also apply 711 cement lightly to the inside of the socket. At this time, apply a second coat of the cement to the pipe end.
  - d. Insert pipe immediately into fitting and turn ¼ turn to distribute cement and remove air bubbles. The pipe must seat to the bottom of the socket fitting. Check alignment of the fitting. Pipe and fitting shall be aligned properly without strain to either.
  - e. Hold joint still for approximately thirty (30) seconds and then wipe excess cement from the pipe and fitting.
  - f. Cure a minimum of thirty (30) minutes before handling and at least six (6) hours before allowing water in the pipe.
4. Threaded joint:
- a. Field-threading of plastic pipe or fittings is not permitted. Factory-formed threads only will be permitted.
  - b. Factory-made nipples shall be used wherever possible. Field-cut threads in metallic pipe will be permitted only where absolutely necessary. When field-threading, cut threads accurately on axis with sharp dies.
  - c. All threaded joints shall be made up with pipe joint compound. Apply compound to male threads only.
  - d. Where assembling metallic pipe to metallic fitting or valve, no more than three (3) full threads shall show when joint is made up.
  - e. Where assembling to threaded plastic fitting, take up joint no more than one full turn beyond hand tight.
  - f. Where assembling soft metal (brass or copper) to plastic pipe, use strap type friction wrench only; do not use metal jawed wrench.
5. Cap or plug openings as pipelines are assembled to prevent entrance of dirt or obstruction. Remove caps or plugs only when necessary to continue assembly.
6. Where pipes or control wires pass through sleeves, provide removable non-decaying plugs at ends of sleeve to prevent entrance of earth.
- G. Remote control valves:
- 1. Install where shown and group together where practical.
  - 2. Locate valves no closer than 24 inches from walk edges, buildings, and walls.
  - 3. Provide 6 inches of pea gravel in bottom of valve box. No soil shall be in contact with RCV.
  - 4. Support valve box with four (4) bricks (one at each corner). Maintain a minimum of 2 inches clearance between PVC pipe and valve box.

5. Valve boxes to be located 4 inches below finished grade with a 3-inch clearance between the remote control valve stem in the fully open position and the underside of the valve box lid.
  6. Center rubber valve marker over flow control stem.
- H. Automatic control wiring:
1. Run lines along mains wherever practical. Tie wires in bundles at ten (10) foot intervals. Run wires along the underside of mains and allow slack for expansion and contraction of wire.
  2. Loop a minimum of three (3) feet of extra wire in each valve box; both control wire and ground wire.
  3. Connections shall be made by crimping bare wires with brass connectors and sealing with epoxy resin sealer packs.
  4. No splices shall be permitted between controllers and remote control valves.
  5. Where control lines pass under paving, they shall pass through schedule 40 electrical PVC conduit.
  6. Where control lines do not parallel mains, wires shall be protected by being strapped at ten (10) foot intervals to the underside of 2- by 6-inch redwood boards.
- I. Automatic controller:
1. Locate controllers in general locations shown with exact placement to be determined by the Engineer.
  2. Connect control lines to controller in sequential arrangement according to assigned identification number of valve. Control lines shall be labeled at controller with permanent non-fading labels indicating identification number of valve controlled.
- J. Testing: Perform test as specified. Remake any faulty joints with all new materials. Use of cement or caulking to seal leaks shall not be permitted.
- K. Backfilling:
1. Backfill only after pipe has been inspected and approved.
  2. Main line and lateral line backfill to be a 4-inch minimum sand bed on all sides of the pipe. The remaining backfill material shall be native soil excavated from the trenches.
  3. Place backfill materials in 6-inch layers and compact by jetting or tamping to a relative compaction of 90 percent.
  4. Dress off areas to finish grades and remove excess soil, rocks or debris remaining after backfill is completed.
  5. In existing turf areas, after trenches have been compacted and settled, replace all sod within a 3-foot diameter of all sprinkler heads. Dress off all other trenches and seed with perennial rye grass.
  6. If settlement occurs along trenches, and adjustments in pipes, valves and sprinkler heads, soil, sod, or paving are necessary to bring the system, soil, sod, or paving to the proper level of the permanent grade, the Contractor, as part of the work under this Contract, shall make all adjustments without extra cost to the City.
- L. Sprinkler heads and quick coupler valves.
1. Thoroughly flush lines before installing heads and QCV's.
  2. Locate heads and QCV's as shown in the Drawings and details.
  3. Place heads and QCV's in lawn areas at 2 inches above grade at time of installation.

**20-5.10 Tests:** The Contractor shall:

1. Notify the Engineer at least three (3) days in advance of testing.
2. Perform testing at their own expense.
3. Center load piping with small amount of backfill to prevent arching or slipping under pressure. No fitting shall be covered.
4. Apply the following tests after welded plastic pipe joints have cured at least 24 hours.
  - a. Test live (constant pressure) and QCV lines hydrostatically at 125 psi minimum. Lines will be approved if test pressure is maintained for six (6) hours. The lines

shall be restored to the original test pressure and the amount of water required to do so will be measured. Approved tables of allowable loss (Johns-Manville Installation Guide for ring-tite PVC pipe, pages 25 and 26) will be consulted, and the lines will be approved or not approved as such results may indicate. The Contractor shall make tests and repairs as necessary until test conditions are met.

- b. Test RCV-controller lines with water at line pressure and visually inspect for leaks. Retest after correcting defects.

**20-5.11 Inspection:** The Contractor shall be subject to inspections at any and all times by authorized representatives of the City.

**20-5.12 Guarantee:** It shall be the responsibility of the irrigation Contractor to fill and repair all depressions and replace all necessary lawn and planting-loss due to the settlement of irrigation trenches for one year following completion and acceptance of the job.

The Contractor shall also guarantee all materials, equipment, and workmanship furnished by him to be free of all defects of workmanship and materials, and shall agree to replace at his expense, at any time within one year after installation is accepted, any and all defective parts that may be found.

**20-5.13 Record Plans:**

- A. The Contractor shall maintain in good order in the field office one complete set of black line prints of all sprinkler plans which form a part of this Contract, showing all water lines, sprinklers, valves, controllers and stub-outs. In the event that any work is not installed as indicated on the plans, such work shall be corrected and dimensioned accurately from the building walls on these record plans.
- B. All underground stub-outs for future connections shall be located and dimensioned accurately from building walls on all record plans.
- C. Upon completion of the work, obtain reproducible prints from the Engineering Department and neatly correct the prints to show the as-built conditions and return to the Engineering Department.

**20-5.14 Payment: Irrigation Systems** shall be paid for at the contract **lump sum** price, which prices shall include full compensation for furnishing all labor, materials, tools and equipment and conforming to the requirements of the Special Provisions and no additional allowance will be made therefor. All work included in this Section 20-3 and per plan irrigation general notes, plans and details (Sheets 15 -20 of the Project Plans) unless otherwise covered in payments under Section 20-10.

(STD2010)

## 20-9 PLANT ESTABLISHMENT

### 20-9-1. Plant Establishment

For the plant establishment period, the contractor shall:

#### A. Pruning

1. Selective pruning. Plants shall be pruned selectively to remove individual stems or branches that extend beyond the natural conformation of the plant to a lateral branch or at the point of attachment.
2. Hedging and shearing. Contractor shall not shear plants into formal shapes as this destroys the natural form of the plant and generates excessive waste.
3. Tree pruning shall be performed only by trained, experienced personnel. An International Society of Arboriculture (I.S.A.) Certified Arborist or Tree Worker is to be present at all times during pruning.

#### B. Protect soil from compaction. Soil may not be worked when wet, generally between October and April. Maintain a 3-inch layer of mulch.

#### C. Amendment. Quality, organic compost shall be used as the soil amendment for all landscape areas. Top-dress shrub areas with 3/8-inch compost one time per year.

#### D. Mulching. Contractor shall maintain a minimum of 3 inches of mulch at all times over soil surface that is not covered by vegetation. Keep mulch 6 inches away of tree trunks and 4 inches away from shrub stems. Replenish mulch to a three inch depth at 6 months and right before the end of one year maintenance period. Restore plant basins.

#### E. Irrigation Maintenance, Monitoring and Repair. Perform the following systems check twice a year, at a minimum:

1. Ensure all flush valve/cap locations and valve boxes are visible and can be opened.
2. Inspect valves, filters, and pressure regulators for damage or leaks.
3. Check wire splices.
4. Clean valve boxes of dirt and debris.
5. Inspect, clean and flush filters and replace damaged or torn filters.
6. Flush laterals.
7. Make sure plants have adequate numbers of drip emitters for their size.
8. Test backflow preventers.

#### F. Tree Staking: Adjust and repairing tree staking materials.

#### G. Soil subsidence: Fill in any soil subsidence that may occur, replant trees and or shrubs that may have settled.

#### H. Plant Maintenance

1. On a monthly basis contractor to replace any dead or significantly diseased plants as directed by the City.
2. Perform other operations as required to establish healthy viable plantings.

#### I. Weed management



1. Weeds must be properly managed throughout the duration of the maintenance period in all planting areas.
2. Weeds should be removed at a minimum of once a month. Acceptable weed levels to be approved by the Owner.

**20-9-2. Duration**

The plant establishment period will extend for one year (1 year) following project acceptance from the City.

**20-9-3. Inspections:**

- A. A final inspection shall be made at the end of the maintenance period for full approval of the work area.

**20-9-4. Payment: Plant Establishment** shall be paid for at the contract **lump sum** price, which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work involved in plant establishment for one year (1 year), as specified herein, and no additional allowance will be made therefor.

Retention payments for all accepted contract work within the notice of completion (NOC), other than retention payments for planting costs, as determined by the Engineer, will be released no sooner than 35 days after filing the notice of completion with the County Clerk. However, upon completion of the plant establishment period and acceptance of all plantings by the Engineer, an additional notice of completion (NOC) will be submitted to the County Clerk and no sooner than 35 days after the second filing, all remaining retention will be released.

## 26 AGGREGATE BASE

**26-1.01 Aggregate Base:** Aggregate base shall be Class 2 conforming to and placed in accordance with the requirements of Section 26 of the City Specifications, with the following modifications and additional requirements.

Rolling shall commence immediately after spreading of the damp material and before the material has dried sufficiently to allow separation between the fine and coarse particles.

**26-1.02B Quality Requirements:** The minimum sand equivalent shall be 31 for any individual test.

**26-1.03D Compacting:** The surface of the finished aggregate base shall be firm and unyielding. Any visible movement vertically or horizontally of the aggregate base under the action of construction equipment or other maximum legal axle loads shall be considered as evidence that the aggregate base does not meet this requirement.

**26-1.04 Payment:** **Class 2 Aggregate Base** shall be paid under various items of work, which price shall include all compensation for furnishing all labor, materials, tools and equipment and doing all the work involved in furnishing and placing the base material as specified, including furnishing, hauling and applying water as specified and directed by the Engineer.

# SECTION 37 BITUMINOUS SEALS

## 37-2 CHIP SEALS

### 37-2.02 POLYMER MODIFIED ASPHALT RUBBER STRESS ABSORBING MEMBRANE CHIP SEAL

#### 37-2.02A General

**37-2.02A(1) Summary:** This item shall consist of a bituminous surface Stress Absorbing Membrane (SAM) composed of a single application of Polymer Modified Asphalt Rubber binder material and pre-coated aggregate in accordance with these specifications.

**37-2.02A(2) Qualification of Polymer Modified Asphalt Rubber Binder Manufacturer/Applicator:** The contractor will be required to pre-qualify with this specifying agency the Polymer Modified Asphalt Rubber manufacturer/applicator process and/or subcontractor or supplier. The data required to be submitted for qualification approval will include experience records and equipment list indicating ability to comply with the specification. The Polymer Modified Asphalt Rubber applicator must have constructed a minimum of three Polymer Modified Asphalt Rubber Chip Seal applications over existing pavements that have been in place at least three years under traffic.

#### 37-2.02B Materials

**37-2.02B(1) PG Asphalt Cement:** The type and grade of asphalt cement utilized to manufacture the Polymer Modified Asphalt Rubber binder shall be PG 64-16/64-22.

**37-2.02B(2) Reclaimed Tire Rubber (CRM):** The CRM shall be produced primarily from the processing of automobile and truck tires. The rubber shall be produced by ambient temperature grinding processes only. The SBS polymer shall be a linear type of polymer with a molecular weight sufficient enough to meet the end result physical binder requirements. The gradation of the CRM and SBS Polymer when tested in accordance with ASTM C-136 (dry sieve only) and using a 100 gram sample, shall meet the requirements in Table #2.

**Table #2  
CRM and SBS Polymer Grading Requirements**

Sieve Size	CRM Percent Passing	SBS Polymer Percent Passing
#8 (2.36 mm)	100	Per PMAR Binder manufacturer
#10 (2 mm)	95-100	Per PMAR Binder manufacturer
#16 (1.18 mm)	45-75	Per PMAR Binder Manufacturer
#30 (600 µm)	2-20	Per PMAR Binder Manufacturer
#50 (300 µm)	0-10	Per PMAR Binder Manufacturer
#200 (75 µm)	--	--

The use of CRM from multiple sources is acceptable provided that the overall blend of rubber meets the gradation requirements.

The individual CRM particles, irrespective of diameter, shall not be greater in length than 3/16 of an inch (5mm).

The CRM shall have a specific gravity of 1.15 + 0,05, and shall be free of loose fabric, wire and other contaminants except that up to 4 percent (by weight of rubber) calcium carbonate or talc

may be added to prevent the rubber particles from sticking together. The rubber shall be sufficiently dry so as to be free flowing and not produce a foaming problem when blended with the hot asphalt cement. The CRM and SBS Polymer shall be accepted by certification from the approved supplier.

**37-2.02B(3) Polymer Modified Asphalt Rubber Binder:** The temperature of the PG asphalt cement shall not be less than 375° F (190° C) nor more than 425° F (220° C) when the CRM and the SBS Polymer are homogeneously blended. The combined materials shall be reacted for a minimum of 90 minutes after the complete incorporation of all the CRM and SBS Polymer. The Polymer Modified Asphalt Rubber binder shall meet the requirements in Table #3, when the reaction is complete.

**Table #3  
Specification Limits for Polymer Modified Asphalt-Rubber Binder**

Apparent viscosity, 347° F (175° C) Spindle 3 @ 12 RPM: cps (ASTM D7741)	Min Max	1500 3500
Cone Penetration, 11° F (25° C), 150g, 5 sec; 1/10 dm (ASTM D217)	Min	15
Softening Point, °F (° C) (ASTMD36)	Min	165° F (74° C)
Resilience, IT F (25° C), % (ASTM D5329)	Min	45

The viscosity testing shall be conducted by using a hand held RJON VISCOMETER (VT-04 or VT-06), with rotor 1,24mm in depth x 53mm in height, or equivalent.

If material in a batch of Polymer Modified Asphalt Rubber binder is not used within six hours after the reaction period is complete, heating of the material shall be discontinued. When the Polymer Modified Asphalt Rubber binder temperature cools below 375° F (190° C) and is then reheated, it shall be considered a reheat cycle. The total number of reheat cycles shall not exceed two (2). The binder material shall be uniformly reheated to a temperature of not less than 375° F (190° C). Additional scrap tire CRM may be added to the reheated Polymer Modified Asphalt Rubber binder and reacted for a minimum of 30 minutes and shall not exceed 10 percent of the total binder weight. Reheated Polymer Modified Asphalt Rubber binder shall conform to the requirements for blended Polymer Modified Asphalt Rubber binder.

**37-2.02B(4) Polymer Modified Asphalt Rubber Blend Design Profile (BDP):** The Polymer Modified Asphalt Rubber supplier, shall furnish to the Engineer within 15 days of the notice to proceed, the Polymer Modified Asphalt Rubber formulation which shall contain the following information;

PG Asphalt Cement

- Source of PG Asphalt Cement
- Grade of PG Asphalt Cement
- Percentage of PG Asphalt Cement by total weight of the Polymer Modified Asphalt Rubber mixture

Reclaimed Tire Rubber CRM)

- Source of CRM
- Grade of CRM
- Percentage of CRM by total weight of the Polymer Modified Asphalt Rubber mixture

SBS Polymer

- Source of SBS Polymer

Grade of SBS Polymer

Percentage of SBS Polymer by total weight of the Polymer Modified Asphalt Rubber mixture

*If CRM or Polymer from more than one source is to be utilized, then the above information will be required from each source.*

**37-2.02B(5) Polymer Modified Asphalt Rubber Quality Control Plan:** The Polymer Modified Asphalt Rubber binder supplier/manufacturer shall furnish to the Engineer within 15 days of the notice to proceed the Polymer Modified Asphalt Rubber Quality Control Plan. The Plan shall provide the following minimum data:

- A Blend Design Profile (BDP) confirming compliance of the Polymer Modified Asphalt Rubber binder properties at 6 hours and at a 24 hour period (See Section 2.4).
- A Certificate of Compliance for the PG Asphalt Cement proposed for use during Polymer Modified Asphalt Rubber binder production.
- Testing of CRM for specified properties every lot (truck load) utilized on the project.
- Testing of Polymer Modified Asphalt Rubber binder for specified properties once per 500 tons of production.

Testing shall be performed by a laboratory accredited in the applicable methods by the AASHTO Materials Reference laboratory. Results of testing shall be reported to the Engineer within 7 working days of the time the sample was taken, All testing shall be at the expense of the Polymer Modified Asphalt Rubber supplier/manufacturer.

**37-2.02B(6) Aggregate Cover Material:** Aggregate shall be composed of clean and durable crushed rock or crushed gravel conforming to the following requirements:

Proposed aggregate samples shall be submitted to the Polymer Modified Asphalt Rubber supplier prior to the preparation of the Vialit Test (See Section 2.7) to test the aggregate for stripping characteristics. All testing results shall be submitted to the project engineer.

If the aggregate is to be crushed stone, it shall be manufactured from sound, hard, durable material of accepted quality and crushed to specification size. All strata, streaks and pockets of clay, dirt, sandstone, soft rock or other unsuitable material accompanying the sound rock shall be discarded and not allowed to enter the crusher.

If the aggregate material is to be crushed gravel, it shall consist of hard, durable fragments of stone or gravel of accepted quality and crushed to specification size. All strata, streaks, pockets of sand, excessively fine gravel, clay or other unsuitable material including all stones, rocks and boulders of inferior quality shall be discarded and not allowed to enter the crusher. The crushing of the gravel shall separate the #4, 3/8 and 1/2 inch (4.75, 9, and 12 mm) sieves and shall have a minimum 95% of the particles with a minimum of one mechanically fractured face and 90% of the particles shall have a minimum of two mechanically fractured faces.

The crushed aggregate shall not contain more than 8% by weight of flat or elongated pieces and shall be free from wood, roots and vegetable or other organic extraneous matter. The crushed coarse aggregate shall have a percentage of wear not more than 7 percent at 100 revolutions and not more than 30 percent at 500 revolutions, as determined by ASTM C131.

The aggregate shall show no evidence of disintegration nor show a total loss greater than 12% when subjected to 5 cycles of the sodium sulfate accelerated soundness test specified in ASTM C88.

The crushed aggregate for PMAR applications shall meet the requirements for gradation given in Table 4, when tested in accordance with ASTM CI 36.

Table 4  
Aggregate Gradation Requirements

3/8 inch SAM	Aggregate Gradation	1/2 inch SAM	Aggregate Gradation
Sieve Size	Percent Passing	Sieve Size	Percent Passing
1/2 inch (12 mm)	100	3/4 inch (15 mm)	100
3/8 inch (9 mm)	70-85	1/2 inch (12 mm)	95-100
1/4 inch (4.75 mm)	0-15	3/8 inch (9mm)	70-85
#8 (2.36 mm)	0-5	1/4 inch (4.75 mm)	0-15
#200 (75 µm)	0-1	#8 (2.36 mm)	0-5
---	---	#200 (75 µm)	0-1

The aggregate shall be pre-coated or hot pre-coated with 0.5 to 1.0 percent emulsified asphalt or PG asphalt cement. The Engineer shall determine the appropriate amount of pre-coat. The pre-coated aggregate shall have a “salt and pepper” appearance and when used hot shall be supplied to the project site at 250° F to 325° F (121° C to 162° C).

**37-2.02B(7) Method for Vialit Test Concerning Aggregate Retention for Chin Seal Applications:** European Standard EN12272-3, as modified for hot spray applied polymer/rubberized binders.

**Scope**

This method is an indicator of aggregate retention for hot applied chip seal, pavement preservation surface treatments and is performed as part of the BDP.

**Summary of Method**

Hot applied, Polymer Modified Asphalt Rubber or modified binder materials are applied at 79 grams to standard size, clean and dry, stainless steel plates. Exactly one hundred (100) washed and graded aggregate particles are embedded into the required binder type. The sample is allowed to cure under specified conditions. Following this cure, the individual plates are conditioned at three different temperatures for 30 minutes. Then a 500 gram steel ball is dropped three (3) times from a distance of 50 cm (20 inches) onto the inverted stainless steel plates. The results are recorded at percent aggregate retention with 90% retention being the minimum allowable value.

**Steps for Modified Test Method**

- 1) Hot asphalt cement, Polymer Modified Asphalt Rubber or modified binder are pre-heated to approximate application temperature (330° F (165° C) to 375° F (190° C).
- 2) Test
  - a. Tare weight of plate is recorded.
  - b. Individual plates are pre-heated in an oven to a minimum of 330° F (165° C).
  - c. 79 grams of asphalt cement/modified binder applied to each plate.
  - d. Plates are returned to the 330° F (165° C) minimum temperature oven for 15 minutes.

- e. Plates are removed from the oven and placed on a warm hotplate and the binder is spread and smoothed with a hot blade.
  - f. Application weight is verified and adjusted as needed.
  - g. 100 particles of washed and graded aggregate, meeting the project specification requirements, are applied in a 10 x 10 matrix, with the plate still on the warm hotplate.
  - h. Three (3) plates are prepared for each combination of binder and aggregate.
- 3) Plates are again returned to the 330° F (165° C) minimum temperature oven for 15 minutes.
  - 4) Plates are removed from the oven and allowed to cool at room temperature for four to six hours.
  - 5) Once the room temperature cure is complete, individual plates are conditioned for 30 minutes at each of the following temperatures: 41° F (5° C), 14° F (-10° C) and -8° F (-22° C).
  - 6) After the 500 gram steel ball has been dropped three times on each of the three samples, report the number of stones attached as percent aggregate retention at test temperature.

### **Purpose of Vialit Aggregate Retention Test**

*It should be the contractor/agencies responsibility as partners to construct a quality pavement preservation chip seal project. There needs to be insurance that good adhesion occurs between binder and aggregate, at the time of placement. The Vialit Retention Test provides a method to assess the active adhesivity of the binder and the aggregate being utilized in conditions, which are very close to the actual project variables and environment.*

### **37-2.02C Construction**

#### **37-2.02C(1) Equipment**

**37-2.02C(1)(a) General:** The equipment used by the contractor for pavement cleaning and excess aggregate removal shall include a self-propelled rotary power broom, mobile pick-up broom or top dumping mobile pick-up broom.

**37-2.02C(1)(b) Polymer Modified Asphalt Rubber Equipment:** All equipment utilized in the production and application of Polymer Modified Asphalt Rubber binder materials shall be described as follows:

- a) A PG asphalt cement heating tank with a hot oil heat transfer system or a retort heating system capable of heating the PG asphalt cement to the proper temperature for blending with the CRM and SBS Polymer.
- b) A Polymer Modified Asphalt Rubber mechanical blender shall have a two stage continuous mixing process capable of producing a homogenous blend of PG asphalt cement, CRM and SBS Polymer, at the BDP ratios. This unit shall be equipped with a granulated rubber feed system capable of supplying the PG Asphalt Cement feed system, as not to interrupt the continuity of the blending process.

The maximum capacity of the primary blending vessel shall be 500 gallons (1900 liters). Both the primary and secondary blenders shall be equipped with an agitation device orientated horizontally in the blending vessel. The blending unit shall be capable of fully blending the individual modifier particles (CRM and SBS Polymer) with the PG asphalt cement. A separate PG asphalt cement feed pump and finished product pump are

required. This unit shall have a PG asphalt cement totalizing meter in gallons and a flow rate meter in gallons per minute.

- c) A trailer mounted self-powered distributor truck equipped with a heating unit, and an internal mixing device capable of maintaining a uniform mixture of PG asphalt cement, CRM and SBS Polymer. It shall be equipped with a full circulating spreader bar and pumping system capable of applying the Polymer Modified Asphalt Rubber material within  $\pm 0.05$  gallons per square yard tolerance of the specified application rate, and must achieve a uniform covering of the surface to be treated. The distributor shall have a boot board on the rear of the vehicle and a bootman shall accompany the distributor. The bootman shall ride in a position so that all the spray bar tips are in full view and readily assessable for unplugging, if a plugged tip should occur. The distributor shall also require a thermometer and a computer rate control (CRC).

**37-2.02C(1)(c) Aggregate Cover Material Spreader:** The cover material (chip) spreader shall be a self-propelled machine with an aggregate receiving hopper in the rear, belt conveyors to carry the pre-coated aggregate to the front, and a full width spreading hopper. The spreader shall be in good mechanical condition and shall be capable of applying the cover aggregate uniformly across the spread width and at the specified application rate. When utilizing hot pre-coated aggregate, heat-treated belts shall be required to be installed on the chip spreader.

**37-2.02C(1)(d) Rolling Equipment:** A minimum of three continually operated self-propelled pneumatic-tired rollers (and one steel wheel roller, if required, based on the hardness of the aggregate) shall be used for the required rolling of the cover material. The pneumatic-tired rollers' shall carry a minimum loading of 3,000 pounds (1,361 kg) on each wheel and a minimum pressure of 90 pounds per square inch in each tire.

**37-2.02C(1)(e) Hauling Equipment:** Trucks for hauling the cover aggregate shall be tailgate discharge and shall be equipped with a device to lock onto the hitch of the cover material spreader. Haul trucks shall also be compatible with the cover aggregate spreader so that the dump bed will not push down on the spreader when fully raised, or have too short of a bed which results in aggregate spillage while dumping into the receiving hopper.

### **37-2.02C(2) Construction Methods**

**37-2.02C(2)(a) General:** Immediately prior to the application of the Polymer Modified Asphalt Rubber Chip Seal application, the surface shall be thoroughly cleaned in order to insure adequate adhesion of the Polymer Modified Asphalt Rubber to the existing pavement surface.

**37-2.02C(2)(b) Weather Conditions:** Polymer Modified Asphalt Rubber binder shall be applied only when the existing surface is dry and the atmospheric temperature is above 65° F (18° C) and rising. No material shall be applied when the predicted chance of rain is higher than 30% or when the wind is in excess of 20 mph, as directed by the Engineer.

**37-2.02C(2)(c) Polymer Modified Asphalt Rubber Mixing and Reaction:** The percentage of Reclaimed Tire Rubber (CRM) shall be 15 - 18 percent by weight of the total Polymer Modified Asphalt Rubber binder. The exact CRM and SBS Polymer content shall be determined by the BDP submitted by the Polymer Modified Asphalt Rubber supplier/manufacturer. During production, the CRM percentage shall not fluctuate by more than 1 (one) percent by weight of total Polymer Modified Asphalt Rubber mixture. The SBS Polymer shall be 1.5-3 percent, which will replace an equal percentage of the CRM.

The temperature of the PG asphalt cement shall be between 375° F and 425° F (190° C and 220° C) at the addition of the CRM and SBS Polymer, The PG asphalt cement, CRM and SBS Polymer shall be combined and mixed together in the Polymer Modified Asphalt Rubber



blending unit, and reacted in the agitated distributor or agitated reaction vessel for a minimum of 90 minutes from the time the CRM and SBS Polymer are completely added to the PG asphalt cement. The temperature of the Polymer Modified Asphalt Rubber mixture shall be above 350° F (176° C) during the reaction period, but shall not exceed 425° F (220° C) at any time. Exceeding the 425° F (220° C) limit will be grounds for rejection of the affected binder material.

When a job delay occurs after full reaction, the Polymer Modified Asphalt Rubber binder may be allowed to cool. The Polymer Modified Asphalt Rubber binder shall be re-heated slowly just prior to application to a temperature between 375° F and 400° F (190°C and 205° C) An additional quantity of asphalt cement and / or CRM may be added as required to produce a material with the appropriate viscosity. See re-heat cycle requirements (Section 37-2.02B(3)).

### **37-2.02C(2)(d) Application of Polymer Modified Asphalt Rubber Binder**

Placement of the Polymer Modified Asphalt Rubber Binder shall be made only under the following conditions:

- a) The pavement surface temperature shall be 60° F (16° C) and rising.
- b) The pavement surface is clean and dry.
- c) The wind conditions do not exceed 20 mph.
- d) All of the construction equipment such as the Polymer Modified Asphalt Rubber distributor, aggregate spreader, haul trucks loaded with cover material, rollers and brooms are in position and ready to commence placement operations.
- e) Chance of rain does not exceed 30%.

The Polymer Modified Asphalt Rubber binder shall be applied to the roadway immediately following mixing and reaction at a temperature of 375° F to 400° F (190°C to 205°C) at a minimum rate of .65 gallons per square yard (3.26 liters per square meter), or as determined by the engineer. Transverse joints shall be constructed by placing building paper across and over the end of the previous Polymer Modified Asphalt Rubber Chip Seal application. Once the application has progressed beyond the paper, the paper shall be removed immediately and disposed of as directed by the engineer. The use of paper may be discontinued if the contractor chooses to squeegee the excess Polymer Modified Asphalt Rubber binder material at the transverse joints prior to the placement of the cover aggregate. All longitudinal joints shall not exceed a 12-inches (30 cm) overlap.

Distributor bar height, distribution, speed and shielding materials shall be utilized to reduce the effects of excess wind upon the spray distribution (fan). The Engineer shall delay or reschedule work when high gusting or dirty winds prevent or adversely affect binder or aggregate application.

The application of Polymer Modified Asphalt Rubber binder to areas not accessible with the distributor bar on the distributor truck, shall be accomplished by using pressurized hand wands, squeegee or other means approved by the engineer.

The contractor shall comply with all Federal, State and Local environmental laws, regulations and ordinances.

### **37-2.02C(2)(e) Application of Aggregate Cover Material**

Cover material shall be applied immediately onto the Polymer Modified Asphalt Rubber binder, after application, at a rate of 26 to 34 pounds per square yard (11.79 to 15.42 kilograms per square meter). The actual amount selected within this range will be determined in the field based on the appearance of the SAM after initial rolling. At all times the application rate shall be kept to a minimum.

At the time of application, when using hot pre-coated aggregate, the temperature of the aggregate shall range from 250° F to 325° F (121° C to 162° C)

**37-2.02C(2)(f) Rolling:** At least three operational pneumatic-tired rollers (and one steel wheel roller, **if required**, based on the hardness of the aggregate) shall be provided to accomplish the required embedment of the aggregate cover material, At some project locations, or when production rates dictate, additional or fewer rollers may be utilized as directed by the engineer. At no time shall there be less than 3 (three) operational pneumatic-tired rollers and 1 (one) 12 to 14 ton operational steel wheel roller on a project.

Sufficient rollers shall be used for the initial rolling to cover the width of the aggregate spread with one pass. The first pass shall, be made immediately behind the cover material spreader as the aggregate is being placed. If the spreading is stopped for an extended period, the cover material spreader shall be moved ahead or off the side so that all cover material may be immediately rolled. Three complete passes with rollers shall be made with the pneumatic rollers and one pass with the steel wheel roller.

**37-2.02(2)(g) Traffic Control:** Except when it is necessary that hauling equipment must travel on the newly applied Polymer Modified Asphalt Rubber SAM, traffic of all types shall be kept off the membrane until it has had time to set properly. The speed of the hauling equipment shall not exceed 15 miles per hour (24 kilometers per hour) when traveling over a membrane that has not had sufficient time to properly set. All barricades, signage and traffic control procedures for the traveling public shall follow Section 12 of these special provisions.

### **37-2.02C(3) Method of Measurement**

**37-2.02C(3)(a) Polymer Modified Asphalt Rubber Binder:** The Polymer Modified Asphalt Rubber binder shall be measured by the square yard (square meter) at the specified application rate for Polymer Modified Asphalt Rubber binder and approved by the Engineer.

**37-2.02C(3)(b) Cover Aggregate Material:** The quantity of the cover aggregate material shall be measured by the square yard (square meter) and approved by the Engineer.

### **37-3.05 HIGH VOLUME TRAFFIC SLURRY SEALS**

**37-3.05A General:** The mix shall be a “quick traffic system”, meaning that it will be able to accept traffic within 1 hour after placement in +75 degrees Fahrenheit temperature and 50 percent or less humidity.

The performance of the operator shall be reviewed by the Engineer on a daily basis and if performance is found to be unsatisfactory, you shall replace the operator to the satisfaction of the Engineer within two days of direction.

Each crew, at a minimum, shall be composed of a non-working foreman, a coordinator at the project site at all times, a competent mixing operator, a competent driver, traffic control personnel and sufficient personnel to load trucks.

No material shall be placed on wet pavement without the Engineer’s consent.

The limits of work shall be marked by the Engineer in the field and as shown on the plans or map located in these Special Provisions.

You shall provide barricades and other traffic control devices as necessary to eliminate traffic on areas of fresh material that might sustain damage from such traffic. Any tracking of emulsion on public or private property will be your responsibility to correct and shall be removed by the

method acceptable to the property owners and the Engineer. Sandblasting or soda blasting may be required.

The cost of the repair, cleanup and/or damage caused by vehicles tracking through the material shall be borne solely by you.

**37-3.05A(2) Submittals:** You shall submit for approval a complete mix design prepared and certified by a Laboratory. Compatibility of the aggregate, polymer-modified emulsion, mineral filler, and other additives shall be verified by the mix design. The mix design shall be made with the same aggregate gradation that you will provide on the project.

**37-3.05B Materials**

**37-3.05B(1) General:** Water shall be potable, free of harmful soluble salts or reactive chemicals and any other contaminants.

Additives may be added to the emulsion mix or any of the component materials to provide the control of the quick-traffic properties. They must be included as part of the mix design and be compatible with the other components of the mix.

**37-3.05B(2) Polymer Modified Asphaltic Emulsions:** The emulsified asphalt shall be a quick-traffic polymer modified asphalt emulsion conforming to the requirements specified in AASHTO M208 or ASTM D2397 for CQS-1h. Polymer content shall consist of a minimum of 2-3/4 percent of latex by weight to create a latex modified emulsion (LMCQS1h). The cement mixing test shall be waived for this emulsion.

You must submit a certification from the polymer supplier 5 days prior to the product being used.

The five (5) day settlement test may be waived, provided job stored emulsion is used within thirty-six (36) hours from the time of the shipment, or the stored material has had additional emulsion blended into it prior to use.

Each load of emulsified asphalt shall be accompanied with a Certificate of Analysis/Compliance to assure that it is the same as that used in the mix design.

**37-3.05B(3) Aggregate:** The mixture shall be placed at a rate of not less than 16 pounds or more than 18 pounds of aggregate per square yard of pavement surface.

Aggregate for Slurry Seal must be Type II, and have the quality characteristic as specified below:

Sieve Size	Percentage Passing
3/8	100
No. 4	94-100
No. 8	65-90
No. 16	40-70
No. 30	25-50
No. 200	5-15

Sand Equivalent	55 minimum
Durability Index	55 minimum
Methylene Blue Value	10 maximum per AASHTO T330-07 (2001)

The aggregate shall be a manufactured crushed stone such as granite, slag, limestone, chat, or other high-quality aggregate, or combination thereof. To assure the material is totally crushed,

100 percent of the parent aggregate will be larger than the largest stone in the gradation to be used.

When tested in accordance with AASHTO T27 (ASTM C136) and AASHTO T11 (ASTM C117), the target (mix design) aggregate gradation (including the mineral filler) shall be within the Type II.

The job mix (target) gradation shall be within the gradation band for the desired type. After the target gradation has been submitted, then the percent passing each sieve shall remain within the gradation band. The percent passing shall not go from the high end to the low end of the range for any two consecutive screens.

The aggregate shall be inspected, accepted or rejected at the job location stockpile or when loading into the support units for delivery to the lay-down machine. The stockpile shall be accepted or rejected based on five gradation tests according to ASTM D75 or CTM 202. Sampling of the stockpile material shall be performed in accordance with CTM 125. If the average of the five tests is within the gradation tolerances, then the materials will be accepted. If the tests show the material to be out of specification, you will be given the choice to either remove the material or blend other aggregate with the stockpiled material to bring it into specification.

**37-3.05B(4) Mineral Filler:** Mineral filler, if required, shall be any recognized brand of non-air entrained Portland cement or hydrated lime that is free from lumps. It may be accepted upon visual inspection. The type and amount of mineral filler needed shall be determined by a laboratory mix design and will be considered as part of the aggregate gradation. An increase or decrease of less than one percent (1%) may be permitted when the slurry seal is being placed, if it is found to be necessary for better consistency or set times.

### **37-3.05C Construction**

**37-3.05C(1) General:** Slurry seal shall be of such a mix design and placed in such a manner that in no case shall streets remain closed to traffic for more than 1.5 hours after application, and the mix will not ravel, shove or displace due to traffic.

You shall submit to the Engineer a slurry seal schedule in addition to the construction schedule in accordance with Section 5-1.05 "Order of Work". The schedule shall clearly show the sequence of slurry sealing specifically detailing each individual lane on each street and shall include the dates, start times, and end times of each lane. The schedule shall include a corresponding map that illustrates all of the items mentioned above. Daily schedules shall not exceed 250,000 square feet of production per day.

The schedule shall be received and accepted by the Engineer a minimum of three weeks prior to slurry sealing.

You shall adhere diligently to the approved schedule in the production of work.

Any changes in your planned sequence or timing of work shall be submitted to the Engineer immediately in writing and accompanied by an updated schedule for the Engineers approval. Any residents or businesses affected by the approved changes to your schedule shall be re-notified a minimum of 72 hours prior to proceeding.

Prior to the slurry sealing operation, you shall remove all existing thermoplastic striping, legends, and markings in accordance with Section 15-2.02C and all raised pavement markers in accordance with Section 15-2.02D.

You shall protect all utility access covers in accordance with Section 15-1.02A.

You shall protect all drainage inlets in accordance with Section 13.

Prior to the application of the slurry seal, pavement surfaces shall be cleaned of all oil, debris, grease spots, and vegetation.

To areas that have been patched with new asphalt within the last 60 days, you shall apply a tack coat after thoroughly cleaning and before applying the slurry seal. Tack coat shall be SS-1h or SS-1 emulsified asphalt and shall be uniformly applied at an approximate rate of 0.10 to 0.15 gal/sy.

You shall remove any and all vegetation within the slurry seal limits by an acceptable and approved means, (i.e. manual and/or mechanical), remove dirt and debris from cracks, joints (including asphalt/gutter lip joint) and voids in the road surface within the limits of the project and apply an approved herbicide to the cracks/ joints, voids in the road surface to prevent the re-growth of vegetation through the road surface. The removal of vegetation and application of herbicide shall be performed to the satisfaction of the Engineer.

You shall comply with all Federal, State and local laws and regulations governing the use of chemicals for control of vegetation. You shall permit treatment for weed control to be done by qualified, trained personnel under the supervision of a State Licensed Qualified Pesticide Applicator, using recognized and approved methods and materials, in compliance with all Federal, State and local laws and regulations.

Vegetation removed beyond the slurry seal limits will be required to be replaced at your expense if requested by the Engineer.

The herbicide shall be applied by you after vegetation removal and prior to crack sealing. All herbicides shall be submitted by you for the approval of the Engineer and shall be certified for use in the State of California for the specific use intended. The application of the herbicide shall be performed in accordance with all applicable regulations. The herbicide shall be applied only on the roadway surface to be sealed and NOT in roadside ditches or drainage facilities. Any and all fines or clean-up costs for unlawful misuse or discarding of herbicides shall be the sole responsibility of you. Mixtures and spread rates for the herbicides shall be determined by the manufacturer's specifications. Wash down of the equipment or discarding of herbicides shall not enter the catch basins or drainage facilities.

You shall make his/her own arrangements for temporary stockpile work areas for stockpiling and batching. Prior to beginning construction, you shall provide the Engineer with a copy of the Temporary Use Permit with the landowner(s) for use of the stockpile area in accordance with Section 5-1.20B(4)(a).

The stockpile areas shall be thoroughly cleaned, removing all excess material and any material contaminated by spilled material, and left with a neat, orderly appearance upon completion of the sealing operations. Paved areas shall be cleaned and repaired to the satisfaction of the Engineer and property owner and striping replaced at your expense. Prior to final payment, you shall provide the Engineer with a letter from the Landowner(s) stating that said areas have been left in a condition satisfactory to the Landowner(s).

All staging areas shall have BMPs in place in accordance with Section 13 and left in a neat orderly appearance as stated above upon completion.

You shall supply the Engineer with licensed weigh master's certificates of the weights of all aggregate and emulsion delivered to the job during the course of each day. You shall present

Weigh Master's certificates for the amounts of such aggregate and emulsion remaining unused at the completion of the contract at no cost to the City. Certified weight tags from a local scale with current CTM 109 certification will be required to establish weight of remaining aggregate and emulsion. The certificates shall be presented to the Engineer on the same day the aggregate and emulsions are delivered.

You shall schedule and coordinate the delivery of aggregate to the stockpiles such that:

1. Deliveries originate at the plant and arrive at the stockpile site within normal work hours on the same calendar day.
2. Delivery site and project name are explicitly stated on each delivery ticket.
3. Successive deliveries on the same calendar day show the cumulative total for that day.
4. Copies of all delivery tickets are delivered to the Engineer before the end of the working day, any delivery tickets not so delivered may be rejected by the City and no payment made therefor. Any deviation from this process must have the prior approval of the Engineer.

Sanding shall be minimized and only used when absolutely necessary. When necessary at driveways and intersections to accommodate vehicular and pedestrian traffic while the slurry seal cures, sand at intersections shall be swept within 2 hours of placement and within 4 hours at other locations. Sand shall not be applied until slurry seal can withstand pedestrian traffic. Any sand deposited on driveway aprons or sidewalks shall be removed by the end of that day.

You shall install temporary raised pavement markers in accordance with Section 15-2.02D until the roadway surface is ready for permanent raised pavement traffic delineation.

**37-3.05C(2) Mixing and Spreading Equipment:** Inspection: You shall provide the equipment proposed for the project for inspection and demonstration at the site or other location acceptable to the Engineer at least two working days prior to beginning work. Any equipment requiring repair or replacement as determined by the Engineer shall not be used on the work until the Engineer accepts its condition.

Maintenance: All equipment must be maintained and in good state of repair, including no oil leaks that could damage existing asphalt, concrete or landscape areas. All equipment safety guards shall be in place, hydraulic hoses and fittings shall be in good condition.

In the event of equipment failure that you determine the repair will require more than 24 hours, you shall (1) notify the Engineer immediately and (2) have a functional replacement piece of equipment on site and ready for work the morning after the determination was made.

Prior to a change of emulsion type or supplier, you shall notify the Engineer and obtain approval. You shall thoroughly clean all emulsion tanks and mixing units to prevent any chemical reaction between any differing emulsions.

Trucks: You shall furnish and continuously operate a minimum of 3 aggregate trucks for each scheduled workday. The number of trucks used each day shall be as shown on the approved schedule unless otherwise approved in advance by the Engineer. Failure by you to adhere to this requirement will cause the City to sustain additional inspection costs that will be deducted from any compensation due you. The Engineer shall determine these costs.

Prior to the beginning of operations, you shall furnish, at no cost to the City, calibration certificates for each individual slurry truck and for the same type of material specified in this section from a certified weighmaster. The certificate shall be dated no more than 6 months prior to the date of start of construction.

All trucks which you propose to use, that exceed the legal weight limit, are required to have overweight permits from the City and jurisdictions within which they will be operated.

Flexible drags made of burlap or similar attached to the rear of the spreader box shall not be used and does not constitute a secondary strike-off.

Support Equipment: Support equipment such as front end loaders shall be in good working order and sized to adequately perform the work without interruption.

Prior to the sealing operation, the Contractor shall arrange to perform any necessary patching of the street surface.

The Contractor shall hand deliver advance notices of the work to residences and businesses.

Immediately prior to the sealing operation, the Contractor shall cover all utility covers, remove thermoplastic pavement markings, and remove raised pavement markers.

You shall clean the streets and all grounds of all excess material, rubbish, equipment and temporary structures associated with the performance of work on a daily basis. Surface preparation shall be accomplished by commercial street sweeping vehicles equipped with automatic debris pickup. Debris shall become your property and shall be disposed of at an approved refuse site. Transferring of the debris from pickup vehicle or temporary stockpiling of debris will not be allowed. Debris shall be deposited from pickup vehicle to final disposal location. The use of a Contractor furnished debris box located at the pit site for the disposal of sweeping debris is acceptable. Any sweeping beyond the limits to be slurried or in advance of the day a given street is to be slurried shall be at your expense. Street sweeping will be exempt from the construction hours stated in section 8-1.05. but in no case shall street sweeping begin prior to 4:30 a.m. Street sweeping vehicles noise shall be limited to 75 db as measured at a distance of 25 feet and a height of 5 feet.

At all times during the street sweeping operation, you shall apply adequate water to control dust. Dust control water shall not create runoff or flow into the gutter.

Sweeping of the streets shall be performed on the same day the street is to be slurried in accordance with the City furnished work schedule. Sweeping shall be performed in the same sequential order as the streets are to be slurried. Sweeping of a given street shall be completed a minimum of two hours prior to the slurry application. Surface Preparation will be considered as included in the contract price paid for "Slurry".

**37-3.05C(3) Placement:** A minimum of two (2) commercial street sweeping vehicles shall be provided and approved in advance by the Engineer. Sweeping vehicles shall be vacuum assisted power brooms.

Only place slurry seal if both the pavement and air temperature are at least 50 degrees F and rising. Do not place any slurry seal if rain is imminent or the air temperature is expected to be below 36 degrees F within 24 hours after placement.

Streets shall be kept free of “raveling”. It will be your responsibility to drive completed streets on a daily basis and evaluate whether or not streets require sweeping. The project inspector will also review completed streets and notify you of streets requiring sweeping.

Slurry seal surfaces shall receive daily maintenance sweeping for a period of 10 days following the application to remove all accumulations of loose material. Maintenance sweeping shall be done by commercial street sweeping vehicles. Where commercial street sweeping vehicles cannot remove loose material, hand sweeping or equal shall be performed. The slurry seal mixture shall be uniformly spread on the existing road surface within the rate specified without spotting, re-handling, or otherwise shifting the mixture.

The slurry seal mixture shall be of the proper consistency at all times, so as to provide the application rate required by the surface condition. The average single application rate shall be in accordance with the following table:

Aggregate Type	Location	Suggested Application Rate Dry Pounds Per Yard
Type II	All Streets To Be Slurry Sealed	16-18 lb/yd <sup>2</sup>

Slurry seal applied around curb ramps shall be squeegeed flush with the gutter lip at the curb ramp.

All incidental work such as surfacing of driveway aprons and returns shall be done concurrently with the surfacing of the street proper. The slurry seal shall be applied from lip of gutter to lip of gutter. If no gutter exists, the slurry seal shall be from edge of pavement to edge of pavement. The edges of the limits of the slurry sealing application on both sides of the street shall be maintained in a neat and uniform line.

The mixture shall be uniform and homogeneous after placing on the surfacing and shall not show separation of the emulsion and aggregate after setting. The completed surface shall be of uniform texture and free from ruts, humps, depressions, or irregularities.

The slurry seal shall be rolled after it has cured sufficiently so as not to pick up on the vehicle tires, but not more than 2 hours after placement. The rollers shall be 5-ton self-propelled pneumatic rollers with tire pressure of 50 p.s.i. and water spray system. There shall be a minimum of two operating rollers on the same newly constructed surface, tandem rolling, during the compaction rolling process. The slurry seal coat shall be given a minimum of three complete passes with the roller or until the material is compacted with a uniform surface. The entire surface of the slurry seal shall be rolled in this manner including bike and parking lanes.

This work involves the removal of vegetation, dirt/debris, sweeping, and application of herbicide complete in place.

Clean-up sweeping for a period of 10 days and protecting the seal from traffic damage until the mixture has cured sufficiently so that material will not adhere to the tires of vehicles, rolling, and constructing test strip, as specified herein, and no additional allowance will be made therefor.

**37-5.01A Summary:** The work conducted under this section shall be done in accordance with Sections 37 & 94 of the Standard Specifications, the seal coat manufacturer’s specifications, and any modifications herein.

This work involves the furnishing and application of a pavement seal coat to all new and existing asphalt concrete where shown on the Project Plans and as stated herein.



New and existing asphalt concrete dikes shall receive a seal coat on the exposed faces and top surfaces.

Seal coat shall be applied as the last order of work at each site.

You shall notify the City of Santa Rosa a minimum of one week prior to starting construction activities.

You may not proceed with construction activities until gaining approval from the City of Santa Rosa for each location.

You shall notify the City of Santa Rosa a minimum of forty-eight (48) hours prior to starting construction activities at all project locations not listed above.

### **37-5.01C Submittals**

**37-5.01C(1) Schedule:** You shall provide a schedule of work to the Engineer for approval.

**37-5.01D Quality Assurance:** You shall provide a certificate of compliance from the manufacturer prior any shipment of material used on this project.

### **37-5.02 Materials**

**37-5.02A General:** You shall provide a submittal for any product proposed to be used to complete this work. You shall also provide a one-half gallon sample in an appropriate container prior to any application of seal coat.

Seal coat shall be RaynGuard Steelguard Asphalt Pavement Coating, or an approved equivalent.

Oil sealant shall be Reed & Graham OverKote Oil-Spot Seal, or an approved equivalent.

Crack Seal shall be Reed & Graham OverKote Crack Filler or an approved equivalent.

All materials used as described in this section shall be compatible.

All material storage and/or mixing shall occur in secondary containment.

### **37-5.03 Construction**

**37-5.03A General:** You shall hand deliver advance notices of the work to residences and businesses.

Immediately prior to the sealing operation, you shall cover all utility covers and remove thermoplastic pavement markings. You shall remove all cover used to protect utility covers after final seal coat application has cured.

You shall clean project sites of all excess material, rubbish, equipment and temporary structures associated with the performance work daily.

**37-5.03B Surface Preparations:** Prior to placement of seal coat, the entire surface of the designated areas shall be free of dirt, water and vegetation. Cleaning may be accomplished by air blowing, vacuum, mechanical sweeper, power washing, or other techniques as approved by the Engineer. Edges of concrete surfaces abutting areas to receive a seal coat application shall

be power washed to remove moss or other contaminants. If power washing the existing surface is used, the surface shall not have any standing water prior to application of the seal coat. Where there are deposits of grease or oil, these areas shall be cleaned by scraping, burning and/or the use of an approved detergent such as trisodium phosphate (using a stiff brush to scrub the area clean). Where a detergent is used, the pavement shall be thoroughly rinsed with water. All rinsate from pavement cleaning, if any, shall be collected and disposed of in accordance with all applicable laws and regulations. Rinsate disposal shall be your responsibility. No rinsate, or other products from the work, shall be allowed to flow to the storm drain or off site. After cleaning and removing grease and oil deposits, the cleaned area shall be sealed with an approved oilseal, applied per manufacturer's recommendations.

Surface preparation and sealer application shall not be performed if rain is forecast within 48 hours after application. Surface preparation and sealer application shall not be performed during or just prior to freezing weather conditions. Surface temperature shall be at least 55° F and rising during application.

Cracks in excess of 1/4 inch in width shall be sealed prior to application of the seal coat. Large cracks (1/4" or larger) shall be cleaned out with a stiff bristle broom and compressed air prior to crack sealing with crack seal. The crack seal shall be applied per manufacturer's recommendations and must be dry to the touch prior to application of the seal coat. Cracks that contain weeds and other live vegetable matter must be treated with locally approved non-oil based sterilant prior to application of crack seal.

Prior to the seal operation you are responsible for removal of thermoplastic pavement markings.

You shall install BMPs on the edge of pavement and outside edge of asphalt concrete dikes to ensure asphaltic emulsion does not contaminate unpaved surfaces.

All surfaces and facilities other than those shown to be coated shall be fully covered using a heavy mil plastic or oil resistant construction paper secured by tape in such a manner leaving a neat break between the sealed and unsealed surfaces.

**37-5.03C Placement:** One application (unless otherwise noted) of seal coat shall be applied at all project locations using a minimum of 20 gallons of undiluted sealer per 1,000 square feet of area.

Two applications of seal coat shall be applied using a minimum of 20 gallons of sealer per 1,000 square feet of area per application.

The second application shall be made after the first application is dry to the touch and won't scuff under normal walking.

The sealer shall be mixed to uniform free flowing consistency. Potable water shall be added (not to exceed 5% by volume) to obtain a semi-fluid consistency. In exceptionally hot weather (95 degrees Fahrenheit or greater), potable water addition may be increased up to as much as 10% by volume. The sealer shall be applied to the pavement in continuous parallel lines and spread immediately ahead by use of rubber faced squeegees and/or mechanized spreading equipment.

No excessive build-up or unsightly appearance shall be permitted on longitudinal or transverse joints.

Approved squeegees shall be used to spread emulsion seal in areas non-accessible to the treatment seal spreader. Care shall be exercised in leaving no unsightly appearance from hand work.

It is your responsibility to protect the seal coat during drying. After application of the sealer is complete, traffic shall be excluded from the area until the sealer is completely dry and won't scuff under tires. This drying time shall be a minimum of 24 hours.

Any surface or facility damaged by over-spray shall be cleaned or replaced to the satisfaction of the Engineer at your expense.

**37-5.04 Payment: High Traffic Slurry Seal** will be paid for at the contract unit price per **ton**. Slurry seal is measured by combining the weight of the aggregate and asphaltic emulsion. The weight of added water and set-control additive are not measured.

You shall furnish to the Engineer weight or load slips verifying the quantities of Aggregate and Asphaltic Emulsion. Slips shall be provided to the Engineer on the day of the delivery to the pit site.

**37-5.05 Payment: Preparation for High Volume Traffic Slurry Seal** shall be paid for at the contract price per **square foot**, which price shall include all compensations for the removal of vegetation, dirt/debris, sweeping, application of herbicide, and protection of existing access covers complete in place as specified herein.

**37-5.06 Payment: Bituminous Chipseal** shall be paid for at the contract unit price per **ton**. Bituminous Chip is measured by combing the weight of the aggregate cover and asphaltic emulsion binder. The weight of added water and set-control additive are not measured. These prices shall be in full compensation for furnishing all materials and for all preparation, hauling and application of the materials, including labor, equipment, tools and incidentals necessary to complete the item specified herein.

**37-6.01A Summary:** This work shall consist of cleaning and filling the cracks with rubber asphalt joint seal as specified in the Standard Specifications and these Special Provisions and as directed by the Engineer. All cracks ¼" or larger on the surfaces to receive slurry shall be filled.

**37-6.02B Crack Treatment Material:** The crack sealant shall be a mixture of paving asphalt and ground rubber and shall conform to ASTM D 5078, Type II. The crack seal product shall conform to the following requirements:

<u>Test</u>	<u>Specification Limit</u>
Cone Penetration 77°F(25°C)(ASTM D5329)	35-55
Resilience (ASTM D5329)	40% min.
Softening Point (ASTM D36)	200°F(93°C) min.
Ductility 77°F(25°C)(ASTM D5113)	30 cm min.
Flexibility ( ASTM D3111 Modified)	Pass at 20°F (-7°C)
Flow 140°F(60°C)(ASTM D5329)	3 mm max.
Brookfield Viscosity 400°F(204°C)(ASTM D2669)	100 Poise max.
Asphalt Compatibility (ASTM D5329)	Pass
Bitumen Content (ASTM D4)	60% min.
Tensile Adhesion (ASTM D5329)	500% min.
Safe Heating Temperature	400°F(204°C)
Recommended Pour Temperature	380°F(193°C)

**37-6.03 Construction:** During all construction operations, you shall protect cracks cleaned for sealing from intrusions of solid foreign materials into the groove or into the sealant.

All cracks indicating weed growth are to be sprayed and cleaned as follows.

You shall remove any and all vegetation within the slurry seal limits by an acceptable and approved means, (i.e. manual and/or mechanical), remove dirt and debris from cracks, joints (including asphalt/gutter lip joint) and voids in the road surface within the limits of the project and apply an approved herbicide to the cracks/ joints, voids in the road surface to prevent the re-growth of vegetation through the road surface. The removal of vegetation and application of herbicide shall be performed to the satisfaction of the Engineer.

You shall comply with all Federal, State and local laws and regulations governing the use of chemicals for control of vegetation. You shall permit treatment for weed control to be done by qualified, trained personnel under the supervision of a State Licensed Qualified Pesticide Applicator, using recognized and approved methods and materials, in compliance with all Federal, State and local laws and regulations.

Vegetation removed beyond the slurry seal limits will be required to be replaced at your expense if requested by the Engineer.

The herbicide shall be applied by you after vegetation removal and prior to crack sealing. All herbicides shall be submitted by you for the approval of the Engineer and shall be certified for use in the State of California for the specific use intended. The application of the herbicide shall be performed in accordance with all applicable regulations. The herbicide shall be applied only on the roadway surface to be sealed and NOT in roadside ditches or drainage facilities. Any and all fines or clean-up costs for unlawful misuse or discarding of herbicides shall be the sole responsibility of you. Mixtures and spread rates for the herbicides shall be determined by the manufacturer's specifications. Wash down of the equipment or discarding of herbicides shall not enter the catch basins or drainage facilities.

Immediately prior to applying the sealant, the cracks shall be additionally cleaned with high pressure air jets to remove all residue and foreign material. Water jets will not be allowed. Crack surfaces shall be dry at the time the sealant is applied. Crack seal materials shall be placed in conformance with the manufacturer's recommendations. Crack seal materials shall not be placed when the surface temperature is below 50 degrees Fahrenheit.

The finished crack seal shall be bonded to the crack such that there is no separation or opening between the sealant and the crack edge and there shall be no cracks, separation or other opening in the sealant.

You shall remove crack seal material that is not placed within the conformance of these provisions, clean cracks as specified herein and then reseal the cracks at his expense.

Before opening to traffic, apply the manufacturer's recommended detackifying agent to tacky crack treatment material on the traveled way.

**37-6.04 Payment: Crack Seal** shall be paid for under various items of work.

# 39 HOT MIX ASPHALT

## 39-2 HOT MIX ASPHALT

**39-2.02A(1) Summary:** Section 39 includes specific specifications for producing and placing Hot Mix Asphalt (HMA) by mixing aggregate and asphalt binder at a mixing plant and spreading and compacting the HMA mixture.

Asphalt Concrete Surface Repair shall consist of removing existing asphalt pavement by grinding to a depth of 0.45' and placing new asphalt at that depth to match surrounding grade.

Existing asphalt concrete paving shall be ground out as directed by Engineer. The exact areas, width, depths, and limits will be designated in the field by Engineer. Grinding widths shall vary from a minimum of 6 feet and shall not necessarily be in a contiguous pattern on the roadway surface.

All excavated material shall be your property. Prior to disposal of any excess material from the work site, you shall submit to the Engineer written authorization for the disposal and entry permission signed by the owners of the disposal site. You shall comply with all disposal regulations, such as City, County and/or State permits and licenses, as may be required. Attention is directed to Section 124, "Material Recycling" of these Special Provisions.

The excavation shall be filled with asphalt surface in the manner and in the number of lifts as designated in Section 39-2.02 of these Special Provisions, and as directed by Engineer to return the excavation to grade after the material is compacted with a minimum 7-ton vibratory roller or approved equal and has obtained a minimum 97% relative compaction.

Asphalt concrete surface in areas of pavement grind shall be placed in a manner that does not cause deformation to the ground surface or the adjacent pavement. You shall place asphalt concrete surface the same day that an area is ground. Traffic shall not be allowed on the ground surface prior to placement of asphalt concrete surface.

Contract plans have been developed strictly for striping layout purposes and do not indicate underground facility locations. You shall be responsible for locating underground utilities by means of potholing at all locations where potential utility conflicts may arise.

You shall not remove more area than can be easily repaved that same day. All loose material shall be removed from the excavations.

Roadway excavation and asphalt concrete surface paving shall be completed for half the street width before beginning excavation of the remaining street.

All existing asphalt concrete that is adhered to the top of gutters shall be removed prior to placement of new asphalt concrete surface in a manner satisfactory to the Engineer and that does not damage the gutter.

Asphalt concrete surface shall be placed on the same day the area is excavated so that all areas will either have existing asphalt surface or new asphalt concrete surface by the end of each working day. No subgrade areas shall be exposed or open to traffic during non-working hours.

Asphalt concrete surface paving shall be accomplished by use of a paving machine.

No longitudinal vertical drop offs will be allowed between the lanes when the roadway is opened to traffic.

All ground edges adjacent to curb ramps and driveways shall have temporary asphalt concrete ramps (tapers) installed until asphalt surface is placed. Kraft paper or other bond inhibitor shall be placed under the temporary asphalt taper to facilitate removal when paving operations resume.

The Engineer shall provide reference points marked in the field indicating asphalt repair locations.

You shall furnish an excavation and paving plan which shall include the following:

1. Requested location for survey staking of reference points
2. Asphalt plant supplying mix including aggregate source
3. Disposal site for spoils
4. Type of trucks and equipment to be used
5. Haul routes through adjacent residential streets
6. Staging locations
7. Sequencing
8. Taper grind locations

A tack coat of SS-1h or SS-1 emulsified asphalt shall be applied to all asphalt concrete and concrete surfaces and allowed to break immediately in advance of placing all lifts of asphalt concrete. Tack coat shall also be applied to all vertical mating surfaces and conforms to existing pavement, curbs, gutters, and construction joints, and allowed to break immediately in advance of placing all lifts of asphalt concrete. The tack coat shall be reapplied 1) where it becomes contaminated, and 2) where it is significantly tracked (removed) from the surface.

The asphalt concrete surface course shall be allowed to cool to 160° F at mid depth before the roadway is opened to traffic each day.

At the end of each working day you shall place retro reflectorized signs and delineators, as required for nighttime use in accordance with the Standard Specifications and Section 12 of these Special Provisions to warn the public of the existing conditions.

**39-2.02A(2) Definitions:** For these specifications, HMA and asphalt concrete shall be the same.

At your option, and at no additional expense to the City, a Cal-trans approved Warm Mix Asphalt (WMA) technology may be added to the HMA. However, the asphalt concrete shall be manufactured at HMA temperatures (300F +/- 25F) at a dosage rate approved by the Engineer. All other HMA project specifications shall be adhered to.

Use Section 39-3 Method construction process of these specifications for HMA production and construction.

**39-2.02B Materials**

**39-2.02B(3) Asphalt Binder:** Asphalt binder in HMA must comply with the specifications for asphalts.

Asphalt binder to be mixed with aggregate for asphalt concrete surface, leveling and base shall be PG64-16 grade paving asphalt.

The amount of asphalt binder to be mixed with the aggregate shall be specified by the Engineer at the time of paving. Different asphalt binder content may be specified for each lift and each location.

Liquid anti-stripping agent (LAS) shall be added to the asphalt binder at a rate of 0.4 to 1.0% by weight of asphalt binder as specified by the Engineer at the time of paving. The LAS shall be AD-here LOF 65-00 or equivalent, and shall be stored, measured, and blended with the asphalt binder in accordance with the anti-stripping agent manufacture’s recommended practice. The LAS can be added at the asphalt plant or at the refinery. When added at the asphalt plant, the equipment shall indicate and record the amount of LAS added. If added at the refinery, the shipping ticket from the refinery shall certify the type and amount of LAS added.

**39-2.02B(4) Aggregates**

**39-2.02B(4)a General:** The aggregate grading of the various types of asphalt concrete shall conform to one of the following as directed by the Engineer:

Surface or Leveling Course... ..... 3/4-inch HMA Type A

Aggregates should be of high abrasion resistance and durability. Excessively soft and friable aggregates are not allowed.

The specified aggregate gradation must be determined before the addition of asphalt binder and includes supplemental fine aggregate.

Before the addition of asphalt binder and lime treatment, aggregate must have the values for the quality characteristics shown in the following table:

Quality characteristic	Test method	HMA Type A
Percent of crushed particles Coarse aggregate (% min.)	California Test 205	
One fractured face		90
Two fractured faces		75
Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.)		
One fractured face		70
Los Angeles Rattler (% max.)	California Test 211	
Loss at 100 rev.		10
Loss at 500 rev.		45
Sand Equivalent (min.) <sup>a</sup>	California Test 217	50 <sup>b</sup>
Fine aggregate angularity (% min.)	California Test 234	45
Flat and elongated particles (% max. by weight @ 5:1)	California Test 235	10

a Reported value must be the average of 3 tests from a single sample.

b Minimum Sand Equivalent of 45 for asphalt concrete base.

**39-2.02B(4)b Aggregate Gradations:** The proposed aggregate gradation must be within the TV limits for the specified sieve sizes shown in the following tables:

**Aggregate Gradation  
(Percentage Passing)  
HMA Types A  
3/4-inch HMA Type A**

Sieve sizes	TV limits	Allowable tolerance
1"	100	--
3/4"	95–100	TV ± 5
3/8"	65–80	TV ± 5
No. 4	49–54	TV ± 5
No. 8	36–40	TV ± 5
No. 30	18–21	TV ±5
No. 200	2.0–8.0	--

**39-2.02B(5)Reclaimed Asphalt Pavement:** Reclaimed Asphalt Pavement (RAP) may be used at your option. If RAP is used, you shall provide the proposed mix design and the quality control for all HMA that includes RAP, in accordance with the following requirements:

1. You shall provide City with a mix design per California Test 384 for the proposed RAP HMA.
2. As part of City’s evaluation of RAP HMA, Contractor and City shall perform bitumen ratio tests on at least six split samples of Contractor’s RAP to establish correlation between respective binder ignition ovens.



3. RAP shall be processed from reclaimed Asphalt Concrete pavement only.
4. RAP pile(s) shall be separate from the stacker pile, not intermingled with other materials, and stored on smooth surfaces free from debris and organic material.
5. The project RAP pile shall be processed and mixed, identified, and of adequate quantity for the proposed project. "Live" piles shall not be permitted.
6. Contractor shall sample the RAP pile and determine the bitumen ratio (using same binder ignition oven used in #2 above) and provide the test results to the City at least one week prior to producing RAP HMA.
7. A minimum of three samples shall be tested for bitumen ratio for RAP pile of 1500 tons, or portion thereof.
8. RAP pile shall be mixed such that individual bitumen ratio test results of RAP pile so not vary more than +/- 0.5%.
9. During RAP HMA production, RAP shall be sampled by you off of the belt (into the batch plant), per method established by the City, and samples provided to the City.
10. Bitumen ratio of RAP sampled off of the belt shall be 4.0% minimum, as determined by City binder ignition oven. City shall select binder content for RAP HMA mix per Specifications.
11. RAP content shall be no more than 20% by dry aggregate mass in the HMA. If proposing a change in the RAP content, you shall notify the Engineer. If the content changes more than 5%, you shall submit a new mix design.
12. Moisture content of RAP pile shall be 4.0% maximum and shall be tested the day prior to the day of paving and tested/monitored during each day of HMA production.
13. RAP pile(s) shall be protected from exposure to moisture.
14. RAP HMA shall comply with all the specifications for HMA.
15. If batch mixing is used, RAP shall be kept separate from the virgin aggregate until both ingredients enter the weigh hopper or pugmill. After introduction to the pugmill and before asphalt binder is added, the mixing time for the virgin aggregate and RAP shall not be less than five seconds. After asphalt binder is added, the mixing time shall not be less than 30 seconds.
16. If continuous mixing is used, the RAP shall be protected from direct contact with the burner flame with a device such as a shield, separator, or second drum.
17. If any of the above criteria are not satisfied, or if the RAP HMA test result determined by

the City are inconsistent, RAP HMA production shall stop for City projects until the issue(s) are corrected.

**39-2.02B(6) Smoothness:** Determine HMA smoothness with a straightedge or a profilograph. The completed surfacing shall be thoroughly compacted, smooth and free from ruts, humps, depressions or irregularities. Any ridges, indentations or other objectionable marks left in the surface of the asphalt concrete by blading or other equipment shall be eliminated by rolling or other means. The use of any equipment that leaves ridges, indentations or other objectionable marks in the asphalt concrete shall be discontinued, and acceptable equipment shall be furnished by you.

**39-2.02B(6)(a) Straightedge:** The HMA pavement top layer must not vary from the lower edge of a 12-foot long straightedge:

1. More than 0.01 foot when the straight edge is laid parallel with the centerline
2. More than 0.02 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane
1. 3. More than 0.02 foot when the straightedge is laid within 24 feet of a pavement conform

**39-2.02B(6)(b) Profilograph:** Under California Test 526, determine the zero (null) blanking band Profile Index (PI0) and must-grinds on the top layer of HMA Type A pavement. Take 2 profiles within each traffic lane, 3 feet from and parallel with the edge of each lane. A must-grind is a deviation of 0.3 inch or more in a length of 25 feet. You must correct must-grinds.

Profile pavement in the Engineer's presence. Choose the time of profiling.

On tangents and horizontal curves with a centerline radius of curvature 2,000 feet or more, the PI0 must be at most 3 inches per 0.1-mile section.

On horizontal curves with a centerline radius of curvature between 1,000 feet and 2,000 feet including pavement within the super elevation transitions, the PI0 must be at most 6 inches per 0.1-mile section.

Before the Engineer accepts HMA pavement for smoothness, submit written final profilograms.

Submit 1 electronic copy of profile information in Microsoft Excel and 1 electronic copy of longitudinal pavement profiles in "erd" format or other ProVAL compatible format to the Engineer.

**39-2.02B(6)(c) Smoothness Correction:** If the top layer of HMA Type A pavement does not comply with the smoothness specifications, grind the pavement to within tolerances, remove and replace it, or place a layer of HMA. The Engineer must authorize your choice of correction before the work begins.

Corrected HMA pavement areas must be uniform rectangles with edges:

1. Parallel to the nearest HMA pavement edge or lane line
2. Perpendicular to the pavement centerline

Measure the corrected HMA pavement surface with a profilograph or a 12-foot straightedge and correct the pavement to within specified tolerances. If a must-grind area or straight edged pavement cannot be corrected to within specified tolerances, remove and replace the pavement. On all ground areas, apply fog seal coat per Standard Specifications Section 37-1, "Seal Coats."

**39-2.02B(7) Acceptance Criteria Testing:** The acceptance testing requirement for Sand Equivalent shall be 50 (minimum) for asphalt concrete surface and 45 (minimum) for asphalt concrete base. HMA shall meet the following requirements.

Aggregate Micro-Deval (ASTM D6928-10) <sup>1</sup>	Tensile Strength Ratio, TSR (ASTM D7870) <sup>2</sup>
≤16.0%	Not Required
16.1-18.0%	70 (minimum)
18.1-21.0%	80 (minimum)

1 Asphalt concrete with an aggregate Micro-Deval loss greater than 21.0% shall be removed and replaced at your expense. In addition, no single source of asphalt concrete aggregate shall have a Micro-Deval loss greater than 21.0%.

2 TSR testing shall be performed on re-compacted asphalt concrete (per ASTM D7870), obtained from field cores, and tested within 30 days of asphalt concrete placement. Specimens tested shall include 1 unconditioned sample, and 2 conditioned samples as follows:

- a) 20.0 hour Adhesion cycle @ 60°C
- b) 3500 cycles @ 40 psi and 60°C

A single TSR test shall not represent more than 750 tons of asphalt concrete.

Asphalt concrete not meeting the above requirements shall be removed and replaced at your expense.

Test sections shall be approved on the basis of the attainment of 93% relative compaction and a satisfactory surface condition following final rolling. The number of coverages required shall be the minimum number required to obtain 93% relative compaction. Relative density shall be the ratio of in-place density (ASTM Test Method D2950) to test maximum density (California Test 309, Method of Test for Determining Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt) determined during production paving.

The HMA may be cored during paving of the test sections, and the in-place density for each test section shall be the average of three core densities determined per California Test 308.

**39-6 Payment: Asphalt Concrete Surface** shall be paid for at the contract price per **ton**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in placing asphalt concrete surface and overlay, including tack coat and overlay conforms, and no additional allowance will be made therefor.

**Asphalt Concrete Base** shall be paid for at the contract price per **ton**, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in placing asphalt concrete base, including tack coat and temporary tapers, and no additional allowance will be made therefor.

## 39A HOT MIX ASPHALT CONCRETE TRENCH PAVING

**39A-1.01 Description:** Hot mix asphalt concrete surfacing and asphalt concrete base and the placing thereof shall conform to the requirements of the Standard Specifications, Section 39 of the City Specifications and these Technical Specifications.

**39A-2.01 Asphalts:** Temporary paving on all utility trenches and any other excavated areas shall be ½-inch maximum, medium grade aggregate hot mix asphalt concrete installed a minimum of two inches thick **placed each day** over the work.

Temporary paving around edges of steel plates shall be a hot mix ½-inch maximum, medium graded aggregate.

The amount of asphalt binder to be mixed with the aggregate will be specified by the Engineer at the time of paving. Different asphalt binder content may be specified for each lift and each location. Asphalt concrete trench paving shall be per Section 39-1.02E for surface and base requirements.

**Cutback shall not be stockpiled or used anywhere on the job site.**

**39A-5.01 Spreading Equipment:** When trench width is three feet or less, the asphalt concrete used for trench paving may be deposited directly from the haul vehicle into the trench. The asphalt shall then be raked smooth prior to compaction.

**39A-6.01 General Requirements:** Areas outside of reconstruction or overlay limits shall receive permanent trench paving per City STD-215, the modified detail on the Plans or as specified herein.

Areas requiring permanent trench paving per City STD-215 shall have a minimum surface A.C. thickness of 0.35 feet, and will use the 6" thick AC alternative in Note 1 of Standard 215.

The Contractor shall provide compaction of backfill and base material as the job progresses. All trench back-fill required per STD-215 on all trenches within the project shall use aggregate base class 2 material as required in Section 26. Temporary paving, as specified in Section 39A-2.01, shall be placed over the work each day, leaving not more than 25 feet unpaved. This temporary paving shall be removed for final street reconstruction and/or trench paving. The 25 feet of unpaved trench shall be covered with skid resistant steel plates (with a coefficient of friction of 0.35 or greater per CTM342), capable of sustaining normal (H2O) traffic loads without shifting or bouncing and shall be secured per Caltrans requirements. Plates that have areas where the skid resistant material is missing shall not be used and must be removed from the job site. Hot mix asphalt concrete shall be placed and compacted around all edges of steel plates with a sufficient width and gradual slope in order to provide a smooth transition to existing pavement. The Contractor shall only be allowed to plate one lateral trench at a time.

Temporary and permanent asphalt trench paving shall be even and smooth riding.

The Contractor shall monitor and maintain all temporary paving to the satisfaction of the Engineer.

Asphalt concrete used for temporary trench paving shall be removed and disposed of in accordance with Section 124 "Material Recycling" of these Technical Specifications.

Any existing manholes or valves that are encountered within the trench paving limits must be adjusted to grade per the requirements of Section 15 of these Technical Specifications. The Contractor is responsible for all coordination with the various utility company owners and their representatives, as well as the cost to adjust the various utilities to grade.

**39A-6.03 Compacting:** Compaction shall be in accordance with Section 39-6.03 of the City Specifications, except as modified below.

The basis for approval shall be the attainment of 93% relative compaction and satisfactory surface condition following final rolling. The number of coverages required shall be the minimum number required to obtain 93% relative compaction, in accordance with Section 39-3.04 of these Technical Specifications.

**39A-8.02 Payment:** Full compensation for furnishing and installing **temporary paving asphalt** shall be considered as included in the prices paid for the **various contract items** of work and no additional allowance will be made therefor.

**Permanent Trench Paving** shall be paid for at the contract price per **ton** of asphalt concrete surface paving only, which price shall include full compensation for furnishing all labor, materials, tools, equipment and doing all work involved in placing permanent trench paving, including but not limited to: saw cutting, tack coat, compaction and any other work required for permanent trench paving not specifically enumerated in the City Standards, these Technical Specifications or on the Project Plans and no additional allowance will be made therefor.

Asphalt concrete base used in the Permanent Trench Paving structural section is considered as included in the prices paid for various contract items of work and no additional allowance will be made therefore.

The estimated quantity of Permanent Trench Paving is for bidding purposes only. This quantity may be increased, decreased or eliminated in its entirety based on field condition evaluation by the Engineer and no adjustment in the contract bid price or other contract items shall be made therefor. The provisions in Section 9-1.06(B)(C) of the Standard Specifications shall not apply.

[Revised: 8/28/13 STD2010]

## 51 CONCRETE STRUCTURES

**51-7.01A Description:** Minor Structures shall be constructed in accordance with the applicable sections of the City Standards, Section 51-7 of the Standard Specifications, the details shown on the plans, and these Special Provisions. Minor concrete structures are pipe headwalls, end walls, drainage inlets, and manholes.

Minor Concrete shall conform to the provisions of Section 90-2 of the Standard Specifications.

Concrete shall be cured in accordance with Section 90-1.03B of the Standard Specifications.

Placing of concrete under water will not be permitted.

### **51-7.01D Payment:**

**Storm Drain Manhole** shall be paid for at the contract price **each** for the type of structure indicated on the plans. Metal frames and covers or frames and grates are included in the payment for Storm Drain Manhole.

**Catch Basin** shall be paid for at the contract price **each** for the type of structure indicated on the plans. Metal frames and covers or frames and grates are included in the payment for Catch Basin.

**Catch Basin/Manhole Lid Replacement** shall be paid for at the contract price **each** for the type of structure indicated on the plans. Metal frames and covers or frames and grates are included in the payment for Catch Basin/Manhole Lid Replacement.

## SECTION 56 SIGNS

**56-2.01 Description:** This work shall consist of installation of roadside signs as shown on the plans, where directed by the Engineer, and shall conform to the City Specifications.

Street name signs and traffic regulatory signs and hardware which are not to be mounted on traffic signal mastarms or poles shall be provided and installed by the Contractor at the locations shown on the plans per Part II of the City Traffic Standards.

Existing street name signs and traffic regulatory signs which are not on traffic signal mastarms or poles shall be relocated as shown on the plans by the Contractor.

Salvaged signs shall be returned to the City of Santa Rosa Sign Shop at 55 Stony Point Road.

**56-2.06 Payment:** **Install Sign** shall be paid for at the contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work involved in providing and installing signs, and sign mounting hardware, and no additional allowance will be made therefor.

**Install 2-Inch Sign Post** shall be paid for at the contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work involved in providing and installing 2" sign posts complete, including excavating, coring sidewalk, backfill, concrete, and replacing landscaping, as specified herein, and no additional allowance will be made therefor.

**Remove Sign** shall be paid for at the contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work involved in removal and salvage of signs, as specified herein, and no additional allowance will be made therefor.

**Remove Sign Post** shall be paid for at the contract unit price **each**, which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work involved in removal and disposal of sign posts, as specified herein, and no additional allowance will be made therefor.

[Version: 3/8/10]

## 65 REINFORCED CONCRETE PIPE

**65-1.01 Description:** Reinforced concrete pipe shall be installed on the alignment and grade as shown on the plans and in accordance with the applicable provisions of Section 65 of the City Specifications and the Standard Specifications.

**65-1.08 Video Inspection of Reinforced Concrete Pipe:** The contractor shall hire an independent television inspection service to perform a closed circuit television inspection of all newly constructed reinforced concrete pipe systems per Section 79 of the City Standards.

**65-1.10 Payment: 18" Reinforced Concrete Pipe** shall be paid for at the contract price per **linear foot**, which price shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all the work involved in installing the pipe complete in place as shown on the plans, as specified herein, and no additional allowance will be made therefor.

Compensation for Video Inspection of reinforced concrete pipe systems shall be considered included in various contract items, which price shall include full compensation for furnishing all labor, materials, tools, and equipment and doing all work involved in recording the storm drain pipes per these specifications, including production and delivery of a color VHS video tape or DVD to the Engineer and no additional compensation will be made therefor.

### **65-2 Trench Bracing and Shoring**

**65-2.01 Description:** All bracing and shoring shall conform to Section 7-1.02K(6)(b)(1) of the Standard Specifications and the Division of Industrial Safety Construction Safety Orders which are currently in use.

The Contractor shall take all necessary measures to protect the workmen and adjacent areas and structures from the hazards of the trenching or excavation operations.

**65-2.05 Payment: Trench Bracing and Shoring – Reinforced Concrete Pipe** shall be paid for at the contract **lump sum** price, which price shall include full compensation for furnishing all labor, materials, tools and equipment and doing all work involved in trench bracing and shoring as specified herein, and no additional allowance will be made therefor.



## 73 CONCRETE CURBS AND SIDEWALKS

**73-1.01A Summary:** This work shall consist of curbs, gutters, sidewalks, driveways, island paving, curb ramps, and gutter depressions and shall be constructed in accordance with the details and at the location shown on the plans and in conformance to the requirements of Section 73 of the City Specifications, and Standard Specifications.

**73-1.01E Color:** A colored pigment designed for the integral coloring of concrete shall be added to the concrete mix. The pigment shall contain pure concentrated mineral pigments specifically processed for mixing into concrete and complying with ASTM C979. The colored pigment shall be Davis Colors color #860, applied in a dosage of 1 pound per 94 pound sack of cement (approximately 6 pounds per cubic yard of concrete for a 6 sack mix), or L. M. Scofield color #SG860 applied in a dosage to produce an equivalent color, or an approved equal.

**73-2.03 Construction:** Curb construction shall be in accordance with Section 73-1.05 of the City Standards. Curb construction shall be in conformance to the details and at the locations shown on the plans and in accordance with City Specifications.

Curb and gutter shall be constructed in conformance to City STD-241, the details and locations shown on the plans and in accordance with the City Specifications.

Curb openings, for driveways, shall be constructed at existing driveways, and at locations indicated on the plans or directed by the Engineer.

All concrete which is to be removed from curb, gutter, and driveway areas shall be removed to the nearest construction joint or as directed by the Engineer.

Median curb per City STD-242 shall be constructed in conformance to the details and at the locations shown on the plans and in accordance with the City Specifications.

Curb and gutter and median curb shall be cured in accordance with the requirements of Section 90-1.03B of the Standard Specifications except that the Contractor may substitute other than a pigmented sealer upon the approval in writing of such substituted sealer by the Engineer.

All oil, paint, tire marks, and other discoloring shall be removed from the curb and gutter by sandblasting prior to acceptance by the Engineer. Cement mortar will not be an acceptable substitute for sandblasting. Vandalism to uncured concrete surface shall be removed. If it cannot be removed from the surface, then the vandalized concrete shall be removed and replaced to the nearest scoremark.

Curb Ramp shall be constructed in accordance with the details and at the locations shown on the plans per Caltrans Standard plan A88A except the thickness shall be 4" minimum. For purposes of payment, curb ramp will be measured between the outside border of the ramp and landing, and exclude the curb and gutter. The area of concrete beneath the detectable warning surface shall be paid for at the contract price per square foot of curb ramp.

No deduction in measured length of curb and gutter to be paid for will be made for curb openings for driveways.

**73-3.03 Sidewalk, Gutter Depression, Island Paving (Median Curb), Curb Ramp, and Driveway Construction:** Sidewalk, gutter depression, median curb, curb ramp, and driveway

shall be constructed in accordance with the details and at the location shown on the plans and in conformance to the requirements of Section 73-1.07 of the City Specifications with the following modifications and additional requirements.

All concrete which is to be removed from sidewalk and driveway areas shall be removed to the nearest transverse score mark across the full width of sidewalk or construction joint as directed by the Engineer.

Driveways shall be removed and replaced as shown in Plans and in accordance with City standards. Driveway removal and replacement shall be limited to driveway ramp, flares, curb and gutter pan, and sidewalk section behind ramp terminating at back of sidewalk, property line, or where specified in Plan.

Soft or spongy material shall be removed and replaced with suitable material as required by the Engineer.

Sidewalks, gutter depression, median curb, curb ramps, and driveways shall be cured in accordance with the requirements of Section 90-1.03B of the Standard Specifications except that the Contractor may substitute other than pigmented sealer upon approval in writing of such substituted sealer by the Engineer.

All oil, paint, tire marks, and other discoloring shall be removed from the Sidewalks, gutter depression, median curb, curb ramps, and driveways by sandblasting prior to acceptance by the Engineer. Cement mortar will not be an acceptable substitute for sandblasting. Vandalism to uncured concrete surface shall be removed. If it cannot be removed from the surface, then the vandalized concrete shall be removed and replaced to the nearest scoremark.

Curb Ramp shall be constructed in accordance with the details and at the locations shown on the plans and in accordance with Caltrans standard details (current edition). Curb ramp construction is limited to include ramp, flares, curb, gutter pan, detectable warning surface, and level landing areas as shown in standard details.

Gutter Depression shall be constructed in accordance with the details and at the location shown on the plans and in conformance to the requirements of City STD-243 Standard Valley Gutter.

**73-3.04 Payment: Remove and Replace Curb and Gutter** shall be paid for at the contract price per **linear foot**, which price shall include full compensation for furnishing and applying curing materials, forming and constructing curb openings for driveways, removing discoloring, furnishing all labor, materials, tools and equipment and doing all the work involved in constructing curb and gutter complete in place as specified, including furnishing and placing expansion joint filler, constructing weakened plane joints, excavating, and backfilling.

**Median Curb** shall be paid for at the contract price per **linear foot**, which price shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all the work involved in constructing median curb complete in place as specified.

**Median Passageway** shall be paid for at the contract price per **square foot**, which price shall include full compensation for furnishing and applying curing materials, removing discoloring, furnishing all labor, materials, tools and equipment and doing all the work involved in constructing vertical curb and walkway surface complete in place as specified, including furnishing and placing expansion joint filler, constructing weakened plane joints, excavating, and backfilling.

**Curb Ramp** shall be paid for at the contract price per **square foot**, which price shall include full compensation for furnishing and applying curing materials, removing discoloring, furnishing all labor, materials, tools and equipment and doing all the work involved in constructing curb ramp complete in place as specified, including furnishing and placing expansion joint filler, constructing weakened plane joints, excavating, and backfilling.

**Remove and Replace Sidewalk** shall be paid for at the contract price per **square foot**, which price shall include full compensation for furnishing and applying curing materials, removing discoloring, furnishing all labor, materials, tools and equipment and doing all the work involved in constructing sidewalk complete in place as specified, including furnishing and placing expansion joint filler, constructing weakened plane joints, excavating, and backfilling.

**Remove and Replace Driveway** shall be paid for at the contract price **square foot**, which price shall include full compensation for furnishing and applying curing materials, removing discoloring, furnishing all labor, materials, tools and equipment and doing all the work involved in constructing driveway complete in place as specified, including furnishing and placing expansion joint filler, constructing weakened plane joints, excavating, and backfilling.

[Version: 08/22/18 CDA STD2010]

# 84 MARKINGS

## 84-2 TRAFFIC STRIPES AND PAVEMENT MARKINGS

### 84-2.01 General

84-2.01A Summary: Attention is directed to Section 12 “Temporary Traffic Control” and Section 15 “Existing Facilities” of these Special Provisions. Traffic stripes and pavement markings shall conform to the applicable provisions of Section 84 of the Standard Specifications, The City Traffic Standards, CAMUTCD, and these Special Provisions and shall be placed at the locations shown on the Plans.

Striping details on the plans refer to 2018 Caltrans Standard Plans and the CAMUTCD. For any plan detail that references a deleted 2018 Standard Plan detail, you shall reference the 2010 Standard Plans for the detail.

You shall provide and install temporary retro-reflective pavement markings on the same day as the existing permanent markings are removed or destroyed, or as directed by the Engineer, and maintain them until the new permanent markings are in place in accordance with Section 15-2.02 of these Special Provisions.

Prior to existing striping removal, you shall layout reference markings indicating locations of all pavement markings to be replaced in kind. Plans showing locations and details of existing pavement markings are not available and you shall be responsible for accurate replacement.

Temporary striping on all ground surfaces shall be paint (white and/or yellow) with retro-reflective glass beads, temporary reflective tape, or an approved equivalent and shall be installed the same day as the existing permanent striping is removed, or as directed by the Engineer. Temporary striping shall be maintained until new permanent striping is in place.

Temporary markers shall be removed or cut flush to the grade of the new pavement surface and to the satisfaction of the Engineer immediately prior to installing permanent markings.

Full compensation for temporary markings shall be considered as included in the price paid for various contract items of work involved and no additional compensation will be allowed therefor.

All thermoplastic shall be white except where yellow thermoplastic is shown on the plans or in these Special Provisions. No additional compensation will be made for yellow thermoplastic.

You shall remove all existing traffic striping and pavement marking in conflict with proposed improvements, as shown on the Plans, and as directed by the Engineer, and shall be responsible for the proper disposal of their grindings away from site work.

Existing stripes and pavement markings to remain, which are damaged by the work, including oil tracking, shall be replaced at your expense. This includes areas outside the immediate project limits.

Painted curbs which are damaged or replaced as part of the work shall be repainted to match existing conditions.

Following completion of roadway striping application, you shall sweep and vacuum all lines and markings where retroreflective beads have been applied. Street sweeping and vacuuming shall be done at the end of each day striping activities are performed. There shall be no loose accumulation of beads left on the roadway after application.

**84-2.03C Application:** Existing crosswalks, within the slurry limits, at locations without stop control (mid-block crossings) shall be re-installed as “Continental” style per CAMUTCD Section 3B.17, Figure 3B-16 as shown on the plans.

**84-2.03C(2)(b) Extruded Thermoplastic:** 12-Inch Thermoplastic Crosswalk, 8-Inch Channelizing Line, 6-inch and 4-inch traffic striping, Double Yellow Centerline, Two-Way Left Turn Lane, Lane Line, Thermoplastic Legends and Symbols, and Thermoplastic Turn and Merge Arrows shall be extruded thermoplastic. Extruded thermoplastic material shall be PTH-02ALKYD. No additional compensation will be made for yellow thermoplastic.

Double Yellow Centerline, Two-Way Left Turn Lane, and Lane Line shall be 4-Inch stripes with reflective pavement markers.

**84-2.03D Measurement:** The quantity of thermoplastic traffic stripes to be paid for will be determined by measuring the length of traffic stripes applied. No deductions will be made for gaps in traffic striping. A 4-inch, 6-inch, and 8-inch traffic stripe is measured as one traffic stripe.

Thermoplastic double yellow centerline, 2010 Std. Plan A20A-Detail 22 quantities will be measured along the center of the detail in place and measured as one traffic stripe. Pavement markers shall be included in the paid contract unit quantities for Raised Pavement Markers, Reflective.

**84-2.04 Payment: 4” Thermoplastic Pavement Marking, 6” Thermoplastic Pavement Marking, 8” Thermoplastic Pavement Marking and 12” Thermoplastic Pavement Marking** will be paid for at the contract price per **linear foot** which price shall include furnishing all thermoplastic pavement marking material, glass beads, and furnishing all equipment, tools, and labor, and doing all the work involved as herein specified, including eradication of existing traffic stripes and pavement markings, temporary traffic stripes and pavement markings and replacement of damaged stripes and markings, and no additional allowance will be made therefor.

**Thermoplastic Continental Crosswalk and Thermoplastic Legend Pavement Marking** will be paid for at the contract price per **square foot**, which price shall include furnishing all thermoplastic pavement marking material, glass beads and furnishing all equipment, tools, and labor, and doing all the work involved as herein specified, including eradication of existing traffic stripes and pavement markings, temporary traffic stripes and pavement markings and replacement of damaged stripes and markings, and no additional allowance will be made therefor.

**Red Painted Curb** will be paid for at the contract price per **linear foot** which price shall include furnishing all paint pavement marking material, and furnishing all equipment, tools, and labor, and doing all the work involved as herein specified, including eradication of existing pavement markings, temporary traffic stripes and pavement markings and replacement of damaged stripes and markings, and no additional allowance will be made therefor.

**Thermoplastic Turn Arrow Pavement Marking and Thermoplastic Lane Merge Arrow Pavement Marking** will be paid for at the contract price per **each**, which price shall include furnishing all thermoplastic pavement marking material, glass beads and furnishing all equipment, tools, and labor, and doing all the work involved as herein specified, including eradication of existing traffic stripes and pavement markings, temporary traffic stripes and pavement markings and replacement of damaged stripes and markings, and no additional allowance will be made therefor.

**84-2.05 Green Preformed Thermoplastic Bike Lane Marking:** Green Preformed Bike Lane Markings shall meet requirements of FHWA Interim Approval IA-14 and Chromaticity Requirements for Green-Colored Pavement as outlined in FHWA Interpretation Letter 9(09)-86(l). Green Bike Lane Markings shall have a minimum thickness of 90mil and skid resistance of greater than 45 BPN when tested according to ASTM E 303. Green Bike Lane Markings shall be installed in 4' by 3' rectangles, centered within the dashed bike lane markings, with the 4' dimension perpendicular to the direction of travel and the 3' dimension parallel to the direction of travel. Install Green Preformed Thermoplastic Bike Lane Marking per the manufacturer recommendations.

**84-2.06 Payment:** **Green Thermoplastic Bike Lane** will be paid for at the contract price per **square foot**, which price shall include furnishing all thermoplastic pavement marking material, glass beads and furnishing all equipment, tools, and labor, and doing all the work involved as herein specified, including eradication of existing traffic stripes and pavement markings, temporary traffic stripes and pavement markings and replacement of damaged stripes and markings, and no additional allowance will be made therefor.

## 85 PAVEMENT MARKERS

**85-1.01 General:** Raised pavement markers shall be placed at the same locations that existed prior to removal except as directed by the Engineer and in accordance with the applicable provisions of Section 85 of the Standard Specifications, these Special Provisions, and the City of Santa Rosa Traffic Standards. Attention is directed to Section 15 “Existing Facilities” of these Special Provisions.

**85-1.02 Materials:** All raised pavement markers (RPMs) shall conform to the most current State Specifications.

**85-1.02B Nonreflective Pavement Markers:** All nonreflective pavement markers shall be ceramic.

**85-1.02C Retroreflective Pavement Markers:** Blue reflective raised pavement markers are to be placed per City STD 857 for each fire hydrant within the construction limits of the project. Where a hydrant, whether existing or new, is located at the corner of two streets, a blue RPM shall be placed in each street.

**85-1.03 Construction:** Existing raised pavement markers to remain, which are damaged by Contractor, shall be replaced as determined by the Engineer, at Contractor’s expense. This includes areas outside the immediate project limits.

Existing raised pavement markers shall be removed, temporarily replaced, and maintained in accordance with Section 15-2.02 “Removal Methods”.

Contractor shall provide, install, and maintain temporary markers on the same day that the existing permanent markers are removed, or as directed by the Engineer, and maintain this delineation until new permanent markers are in place. Temporary markers on non-ground surfaces shall be plastic adhesive retroreflective delineators.

Temporary markers shall be removed or cut flush to the grade of the new pavement surface and to the satisfaction of the Engineer immediately prior to installing permanent markers.

Existing raised pavement markers conflicting with the proposed striping shall be removed immediately prior to placement of new markers.

Divots left in the pavement due to the removal of raised pavement markers shall be filled with enough adhesive to replace any asphalt which comes off with the removal of the pavement marker, leaving a level driving surface.

**85-1.04 Payment: Pavement Markers (Reflective) and Pavement Markers (Non-reflective),** shall be paid for at the contract unit price each, which price shall include full compensation for furnishing all labor, materials, tools and equipment, and doing all work involved in placing raised pavement markers, complete in place, including removing existing pavement markers, temporary pavement markers, and adhesives, and no additional allowance will be made therefor.

## 86 ELECTRICAL SYSTEMS

### 86-1 General

**86-1.01 Description:** The Contractor shall furnish and install sign posts for new or relocated signs, coordinate with the General Contractor, and replace sidewalk around sign posts as necessary, at the locations shown on the plans in conformance with the applicable provisions of Section 56, "Overhead Sign Structures, Standards, and Poles", of the Standard Specifications, Standard Plans, the City Traffic Standards, these Special Provisions, and as directed by the Engineer.

**86-1.07 Scheduling of Work:** Scheduling of work shall conform to Section 86-1.07 of the Standard Specifications except that no traffic signal system turn-on shall be scheduled for Monday, Friday, or the day before or after a legal State holiday.

### 86-2 Materials and Installation

**86-2.01 Excavating and Backfill:** All trench spoils shall be removed from the work area as they are generated.

Native material shall not be used as trench backfill.

Where conduit containing conductors of 100 volts or less is installed parallel and adjacent to the existing gutter lip, the trench shall be approximately two inches wider than the outside diameter of the conduit and shall not exceed six inches in width. Trench depth shall not exceed conduit trade-diameter plus ten inches, except that at pull boxes the trench may be hand dug to required depth. The conduit under pavement shall be placed in the bottom of the trench with the top of the conduit a minimum of 30 inches below finish grade.

Install conduit to a depth of:

1. 18 inches, minimum, under sidewalk and curbed paved median areas
2. 42 inches, minimum, below the bottom of the rail of railroad tracks
3. 30 inches, minimum, everywhere else below grade.

When conduit containing conductors of 100 volts or less is installed under pavement but not installed adjacent to the lip of gutter it shall be installed with a minimum of 30 inches of cover.

All conduit containing conductors of more than 100 volts shall be installed with a minimum of 30 inches of cover.

Where existing facilities prevent installing conduit with the minimum 18 or 30 inches of cover, depending on the location, the Contractor shall depress the new conduit under the existing facilities without exception.

Trench backfill and surfacing for trenches shall conform to City STD.-215 or as shown on the plans.



**86-2.02 Removing and Replacing Improvements:** Concrete removal shall conform to the applicable provisions of Section 15-3 of the Standard Specifications and these Special Provisions.

All concrete to be removed shall be disposed of by the Contractor away from the site of the work. Burying of broken concrete within the limits of the project will not be allowed.

All concrete which is to be removed from sidewalk, curb, gutter, and driveway slab areas shall be removed to the nearest score mark or construction joint as directed by the Engineer.

Reinforcing steel may be encountered in portions of concrete to be removed and no additional allowance will be made for the removal of such steel.

All sidewalk and curb and gutter which are removed shall be reconstructed in accordance with Section 73 of the City of Santa Rosa Construction Specifications.

**86-2.03 Foundations:** The Contractor shall construct foundations for traffic signal standards and PBA Posts per Caltrans Standard Plans and Specifications.

Minor portland cement concrete shall be produced from commercial quality aggregates and cement and shall contain not less than six sacks of cement per cubic yard and with a minimum 28-day compressive strength of 3000 psi.

#### **86-2.04 STANDARDS, POLES, STEEL PEDESTALS, AND POSTS**

**86-2.04A General:** Traffic signal standards, arms, and related appurtenances shall be installed per Part IV of the City Traffic Standards.

Mast arms shall be drilled out and a threaded fitting factory-installed to accept 3/4-inch male threads ten feet from the end of the mast arm for installation of optical detectors at the locations shown on the plans.

**86-2.05 Conduit:** Conduit shall conform to Standard Specifications and Part IV-F of the City Traffic Standards.

Trenching depth shall be per Section 86-2.01 of these Special Provisions.

**86-2.06 Pull Boxes:** Pull boxes shall conform to STD 730 of the City Traffic Standards, these Special Provisions and Section 86-2.06 of the Caltrans Standard Specifications. Pull boxes for fiber optic cable shall be 17" x 30" as noted on the plans, of depth required to coil fiber optic cable.

All existing pull boxes to receive new conductors and/or conduits shall be cleaned out, all existing grout removed, and the bottoms re-grouted with a drain hole or the boxes replaced to meet current City Standards.

### **86-2.08 Conductors and Cables**

**86-2.08A General:** All conductors for traffic signal or street lighting systems shall conform to Section 86 of the Standard Specifications, Part IV-G of the City Traffic Standards, as shown on the plans, or as specified herein.

**86-2.09 Wiring:** Wiring shall conform to the Standard Specifications and PART IV-G of the City Traffic Standards.

**86-2.10 Bonding and Grounding:** Grounding jumper shall be attached by a 3/16- inch or larger brass bolt in the standard and shall be run to the ground. Grounding jumper shall be visible after cap has been poured on foundation.

**86-2.14C Functional Testing:** The functional test for each traffic signal or beacon system shall consist of not less than 48 hours of continuous, satisfactory operation. If unsatisfactory performance of the system develops, the conditions shall be corrected and the test shall be repeated until the 48 hour of continuous, satisfactory operation is obtained.

**86-2.16 Painting:** All exposed metal signal housings, doors, visors, back plates, and framework parts shall be powder coated by a City approved process.

### **86-3.01 Controller Assemblies**

Controller assemblies are existing to remain.

### **86-4 Traffic Signals and Fittings**

**86-4.01 Vehicle Signal Faces:** Vehicle signal faces shall be 12-inch LEDs furnished and installed by the Contractor. Circular modules shall conform to Section 86-1.02R(4)(b) LED Signal Modules of the Standard Specifications.

**86-4.01A Signal Sections:** Each signal-section housing shall be either die-cast or permanent mold-cast aluminum conforming to ANSI Standard D-10. 1 and shall conform to the requirements of the Standard Specifications. Structural plastic shall not be accepted.

**86-4.01C Visors:** Visors shall be full circle type, with a flat black finish.

**86-4.03 Pedestrian Signal Faces:** Pedestrian signal heads shall be 16-inch by 18-inch countdown LED in accordance with Part IV-E.1 of the City of Santa Rosa Traffic Standards. Pedestrian modules shall be GTX City LED Countdown Pedestrian Signals, PS7-CFF1-VLA, or approved equal.

**86-4.04 Signal Mounting Assemblies:** Terminal compartments shall be cast bronze.

**86-4.03H Audible Pedestrian Signals:** The audible pedestrian signals shall be Polara Navigator Accessible Pedestrian Signals, iNS 2-wire unit, with a rack mounted CCU. This equipment shall be installed at the locations shown on the plans and in accordance with the manufacturers' recommendations.

APS units are required with a configurator to remain in the controller cabinet. APS shall meet current standards in the latest California Manual on Uniform Traffic Control Devices.

[iNS2-CutSheet\\_r200205 \(polara.com\)](http://iNS2-CutSheet_r200205(polara.com))

### **General Description**

1. The System shall consist of a Central Control Unit (CCU) and Pedestrian Push Button Stations (PBS), as described below, and be capable of communicating with and programming with devices that support an iOS client application, or an Android client application, or Windows PC with Bluetooth® Low Energy dongle and Windows client application, for programming the system settings.
2. The System shall be manufactured by an ISO 9001:2015 (minimum) registered company.
3. The System shall meet the requirements of Made in America and/or The Buy American Act.

### **Design Compliance**

1. The System shall meet the functionality requirements of MUTCD 2009 – 4E and CAMUTCD 2011 – 4E.
2. The System shall meet NEMA TS 2 Section 2.1 Temperature & Humidity requirements, or TS4 equivalent.
3. The System shall meet NEMA TS 2 Section 2.1 Transient Voltage Protection requirements, or TS4 equivalent.
4. The System shall meet NEMA TS 2 Section 2.1 Mechanical Shock and Vibration requirements, or TS4 equivalent.
5. The System shall meet IEC 61000-4-4, IEC 61000-4-5 Transient Suppression requirements.
6. The System shall meet FCC Title 47, Part 15, Class A Electronic Noise requirements.
7. The Push Button Station (PBS) Enclosure shall meet NEMA 250 – Type 4X requirements.
8. The Central Control Unit (CCU) Enclosure shall meet NEMA 250 – Type 1 requirements.

## **Functional Requirements**

1. The System shall support at least 16 PBS's per intersection (on at least 1 channel) controlled by a single base unit located in the traffic control cabinet.
2. The System shall vibrate a tactile arrow button during the WALK interval following a button push and/or every time the walk comes up.
3. The System shall have the field-selectable function known as "LOCATE TONE". This means that during the FLASHING DON'T WALK and DON'T WALK intervals, the system shall provide a locating tone that emanates from the PBS. The system shall provide at least 3 different sounds to choose from.
4. The System shall have the field selectable function known as "Extended Push Activation". This is defined as the audible WALK message shall only be activated and audible during the WALK interval if the button is depressed for a field selectable minimum period of time (from 0.5 to 6 seconds). Also, for the walk and clearance intervals that follow an extended push, the volumes shall have a separately settable minimum and maximum volume level.
5. The System shall have the field selectable function known as "Informational Message". This means that a custom message giving the location of the street to cross and the intersection (or other information) will be vocalized only when the button is depressed for a minimum field selectable time.
6. The System shall provide a "Wait" message that plays once the button is activated, and until the Walk cycle goes into effect. This message must have the field selectable option of OFF, or repeating every 4, 6, 8 or 10 seconds.
7. The System shall have standard "Travel Direction" options that can be selected at the time of installation.
8. The System shall have at least 10 field selectable WALK sound options including a cuckoo, a chirp, an MUTCD rapid tick or custom voice message.
9. The System shall provide at least 7 Ped-clearance sound choices including audible countdown (field selectable). The audible countdown shall represent the time remaining during the pedestrian Clearance interval. Timing is automatically adjusted to the CLEARANCE INTERVAL timing, provided by the Traffic Controller. Due to flasher relay timing variables, audible and PED Head numbers may vary by approximately one second.
10. The System shall provide 2 language capabilities, selectable by user (as a field selectable feature).
11. The PBS's shall have wireless synchronization capabilities, from button to button, (including between a 2 wire PBS and a 3 wire PBS), matched to a phase partner. Sync distance may vary based on the environment. Pedestrian button presses are communicated between phase partners in order to keep the pilot LED in sync, as well as the audible messages during the Walk and Clearance PED intervals. This shall be implemented on corners that do not contain button wires. The wireless synchronization capability shall include sending Standard and Extended Push information to allow a call to be placed from a PBS without button wires (or

degraded button wires) via a phase partner PBS that does have button wires to the traffic controller.

12. The System shall provide an Emergency Preemption Message in conjunction with a preemption system (selectable feature).
13. The System LOCATE TONE, WALK, and DON'T WALK audible features shall have independent assignable minimum and maximum volume limits. CLEARANCE volume level shall be controlled by WALK volume setting.
14. All sounds for all PBS's shall be synchronized.
15. The System shall have a non-visible, ambient sensing microphone located in the pedestrian station in an environmentally protected housing.
16. The LOCATE TONE volume shall adjust automatically in response to ambient noise with field selectable adjustment levels from -30dB below to +20dB above ambient in 2.5dB increments.
17. All other sound volumes shall adjust automatically in response to ambient noise with field selectable adjustment levels from -30dB below to +20dB above ambient in 5dB increments.
18. The System shall utilize high quality digital audio technology, with a minimum 16-bit sample at a 48 kHz sample rate.
19. The PBS firmware and voice messages shall be updatable via Bluetooth Low Energy level 5 at a minimum. There shall be no requirement for IC chips or module hardware to be removed or exchanged in order to complete a firmware or audio update.
20. The System shall have the option to mute sounds on all crosswalks except activated crosswalk (selectable feature).
21. The System shall have a real time clock capable of keeping time when there is no system power, for at least 2 years from the date of manufacture.
22. The System shall have the ability to have four separate program configurations with all features available, and any single configuration can be selected through an external input.
23. The System shall provide a user settable calendar function, allowing four separate configuration profiles to be configured to become active at different times of the day on a daily, weekly, or holiday basis.
24. The entire System shall be configurable from any PBS over Bluetooth Low Energy.
25. The entire System shall be configurable from the CCU over Wi-Fi or Ethernet.
26. All field access to selectable options using Bluetooth Low Energy, Wi-Fi or Ethernet devices shall be protected using password security.
27. Each PBS shall be capable of interacting with a pedestrian app on iOS or Android smart phones, via Bluetooth Low Energy.
28. Each PBS shall be capable of interacting with the PedApp® smartphone App to allow pedestrians to remotely actuate ped call into PBS. PedApp can be configured to help provide visually impaired and all pedestrians location/directionality information, as well as place calls, and receive ped interval

information via smartphone.

**Central Control Unit (CCU) - The CCU is the control unit that provides data for the Push Button Stations. The CCU shall be either a shelf mount (CCU-S) or card rack mount (CCU-C) assembly.**

1. The CCU-S shall be installed inside the Traffic Cabinet and powered by the AC supply mains (115 VAC).
2. The CCU-C shall be installed inside a 300 series Traffic Cabinet's Input File, replacing 2 PED isolator boards and receiving power from the rack (24VDC).
3. The CCU-S shall provide internal power to operate up to 16 PBS's.
4. A 24-volt power brick shall power up to 16 PBS's in a CCU-C configuration.
5. The CCU shall control at least 16 PBS's.
6. The CCU shall be logically configurable to assign any PBS to one of 16 traffic/PED phases.
7. The CCU through SDLC shall be able to place PED calls on up to 8 phases.
8. The CCU-S shall receive pedestrian phase Walk, Don't Walk and Clearance inputs from either the traffic cabinet load switches or an SDLC input.
9. The CCU-C shall receive pedestrian phase Walk, Don't Walk and Clearance inputs from a Transport Electrical Equipment Specification (TEES) C4S connector.
10. The CCU shall be able to self-test all PBS's and put a corresponding phase into recall should a PBS assigned to a phase fail the self-test.
11. The CCU-S shall provide optically isolated general-purpose inputs.
12. The CCU-S shall incorporate four separate cable assemblies to access all functions, so any combination of the four cable assemblies can be used to access any combination of functions.
13. The CCU shall have internal storage to log several thousand events with a date-time stamp for each event.
14. The CCU shall have an internal real-time clock capable of being set in the field and propagating the time to each connected PBS.
15. The CCU firmware shall be updatable via either Wi-Fi or Ethernet. There shall be no requirement for IC chips or module hardware to be removed or exchanged in order to complete the firmware update.
16. The CCU shall monitor PED interval conflicts and set affected PBS's to an off/safe mode when a conflict occurs.
17. The CCU-S shall meet NEMA 250 – Type 1 enclosures requirements.
18. The CCU shall have a backlit LCD screen and button interface to allow placing test calls and display status.

**Pedestrian Push Button Station (PBS) – The PBS allows the pedestrian to place calls to the Traffic Controller and provides vibro-tactile feedback during the Walk cycle. This equipment is typically mounted on a pole, near the start of the crossing.**

1. The PBS shall be mounted to a pole by banding or bolting.
2. The PBS shall be a single fixture that contains a 2" activation area, in which resides an ADA compliant vibro-tactile push button with a raised directional tactile arrow,

- and a sign mounted above the button.
3. The PBS Speaker shall be 8 Ohms, 6 Watt, and weather-proof.
  4. The button shall be cast aluminum, nickel-plated and powder coated black around the arrow, to provide high contrast to arrow color. The PBS arrow shall allow for change in orientation to one of four directions.
  5. The PBS button actuation shall use Hall Effect Sensor technology rated to greater than 20 million operations.
  6. The PBS button push force shall have three adjustable pressure settings “Light, Medium, and Firm” over a range of approximately .5 LB to 3.5 LBS to activate a button push.
  7. The PBS button shall pulse and vibrate at approximately 20 Hz with displacement factor based on pounds of force used to actuate.
  8. The PBS shall have a rear facing speaker projecting sound from front and back, providing 360° omnidirectional sound performance.
  9. The PBS shall include internal Conflict Monitoring that monitors WALK, and DON'T WALK input signals for conflict conditions; disables system operation and logs errors if conflict occurs.
  10. The PBS firmware and voice messages shall be updatable via Bluetooth Low Energy. There shall be no requirement for the hardware to be changed out to update.
  11. The system shall operate with the vendor's client application to record and upload cumulative PED count & call data.
  12. The PBS shall meet or exceed NEMA 250 type 4X enclosure requirements.
  13. The PBS Construction shall be:
    - I. FRAME and BUTTON COVER: Cast Aluminum, Powder Coated.
    - II. HOUSING: Reinforced, UL-listed Thermoplastic.
    - III. MESSAGE SIGN: Aluminum, Powder Coated, Ink Markings, or Reflective Vinyl Sheeting
    - IV. PUSH BUTTON: Aluminum, Nickel Plated, Powder Coated.
  14. Electronic circuits (printed circuit board assemblies) shall be in a thermoplastic housing/enclosure having a UL94- V0 flammability rating. The housing/enclosure shall provide NEMA 250 4X protection to all covered components.
  15. At time of order customer shall be able to specify sign size, and Message Sign Markings to be either the International Walking Person or the Informational Explanations for the three (3) distinct pedestrian displays (WALK, DON'T WALK, and PED CLEARANCE) that a pedestrian would see on an active pedestrian signal.
  16. The PBS shall be a modular design with a separate speaker compartment that can be field-replaced.
  17. A 2-Wire PBS shall include a 3-position terminal block to support the capability of operating as a 3-Wire PBS (3- Wire Ped Head Based System) by adding a Control Unit in the pedestrian signal head that converts 115 VAC to 24VDC, and a 3 wire cable that carries power, data, and ground wires from Control Unit to the

PBS.

18. The PBS shall have Bluetooth Low Energy communication that allows a pedestrian to use an app to get PED status information, and place a PED call when in close proximity to a button, without having to touch/push the button.

**Field Programming via Client Application (Apple iOS v9.0 or higher devices, or Android 5.0 or a PC with Windows 8 or 10)**

1. The System shall use Bluetooth Low Energy 5 or higher technology to program firmware and audio voice messages, and to communicate to other buttons or external devices.
2. The System shall be password protected through the programming/configuration interface.
3. The iOS, Android, and PC applications shall be upgradable.
4. The iOS, Android, and PC applications shall notify the user when a newer version of the application is available.
5. The iOS, Android, and PC applications shall notify the user when newer PBS and CCU firmware is available.
6. The iOS, Android, and PC applications shall provide the mechanism to download the latest PBS and CCU firmware.
7. The iOS, Android, and PC applications shall be capable of setting all volumes and features of the APS system specific to the PBS's.
8. The iOS, Android, and PC applications shall be capable of setting/updating configuration options for a single PBS or all PBS's on the intersection for most functions from a single PBS or CCU. (Global updating).
9. The iOS, Android, and PC applications shall be capable of storing, modifying, loading, and emailing PBS configuration settings, audio files and health logs.

The minimum volumes will be adjusted by the Contractor as directed by the Engineer.

The body housing and button shall be powder coated the color green.

The face plate for the pedestrian push button shall be a R10-3e (MUTCD 2014 Edition) with the appropriate (left or right) arrow representing the direction of the pedestrian crossing that the push button serves. Size of the sign shall be 5" x 7".

**86-5 Detectors**

Detection systems are existing to remain, except where individual loop replacement is noted on the plans. Detector loop replacement shall conform to Sections 86 and 87 of the Standard Specifications, Part IV-H of the City Traffic Standards, as shown on the plans, or as specified herein.



## **86-7 Lighting**

**86-7.01A Light Emitting Diode (LED) Luminaires:** The Contractor shall supply and install the type and wattage of LED luminaire noted on the plans, or approved equal.

The Contractor shall submit the proposed type of luminaire to the Engineer for approval before ordering.

**86-7.11 Photoelectric Control:** The photoelectric unit shall be installed on a traffic signal standard, the location of which is shown on the plans. A separate contactor shall be located in the service cabinet.

**86-7.11A Types:** Photoelectric control shall be Type II with a Ripley RD8645-5.0 long life PEC.

## **86-8 RRFB system**

### **1. JSF Solar RRFB Beacon System PN#: AB-9407-20W-DC**

- a. JSF Technologies Solar RRFB Beacons operate on 12 volts DC power.
- b. All beacons conform to MUTCD standards and are in conformance and exceed the minimum specifications as set forth in the 2018 FHWA Memorandum IA-21, Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons.
- c. Beacon system consists of two or three pieces: one or two light bars (for single or dual-sided RRFBs), and one solar enclosure to house all controller components and batteries with pole-top mounting collar. No separate panel, box or cabinet is required, and all wiring and mounting hardware is included, as is powder-coating.
- d. AB Beacons can be push button activated or wirelessly activated via an AB Transmitter
- e. All wires used within beacon systems conform to UL 1015 MTW/AWM, 600 Volt 105°C or UL 1032 MTW/AWM, 1,000 Volt 105°C, which is equivalent to MIL-W-16878D, Type D.
- f. All LED connectors within beacons are Quick Clip Deutsch DTM series, which conform to Ingress Protection, IP-67 rating, dust-proof, and protected from temporary immersion in water up to 1 meter deep for 30 minutes.
- g. All Cable connectors within beacons are Quick Clip Deutsch DTM series, allowing for ease of installation
- h. Standard operating temperature ranges from -10C (14F) to +74C (165F).
- i. Cold Weather upgrade operating temperature -40C (-40F) to +74C (165F).

- j. Units are compatible with all AB family Beacons.
- k. All components are cross compatible with all JSF AB Series Beacons (Solar or AC Compatible)
- l. JSF Technologies systems are **designed and manufactured in Canada**

## 2. Solar Engine:

- a. Solar panel assemblies (Compact Solar Engines) shall be available in 20W size.
- b. 20W Solar Engines are equipped with **Maximum Power Point Tracking (MPPT)** energy management system to ensure operation under all environmental conditions
- c. All solar panels are secured in aluminum housings and are mounted at an angle of approximately 44° to attain maximum solar collection. Panels should be oriented for southern exposure.
- d. Solar enclosure is NEMA TS-2 certified.
- e. Solar engine is 6061-T6 powder-coated aluminum, available in yellow, green, black or custom colors upon request.
- f. Minimum solar requirement for operation is 48 minutes insolation/day.
- g. Standard Batteries are UL certified Deep Cycle AGM 12V, 18Ah, sealed lead-acid, and are field-replaceable. -10C (14F) to +74C (165F).
- h. Cold weather battery upgrade batteries are UL certified Deep Cycle AGM 12V, 16Ah each, sealed lead-acid, and are field-replaceable. -40C (-40F) to +74C (165F)
- i. Mounting options include Telespar and U-Channel, round poles 2", 3", 4.5" or 6" in diameter; 4" x 4", 4" x 6", or 6" x 6" square, and 12" or 18" Side Mount Brackets. Custom mounting configurations also available upon request.
- j. Solar Engine can be installed directly on pole-top or paired with Side-Arm Mount. Requiring single-point contact for installation.

## 3. Controller/Circuit Board:

- a. Controller input voltage is 12.8 V DC, output voltage is 11.5 V DC.
- b. Controller is FCC EMC Class A verified, and MUTCD and FHWA compliant, as per Memorandum IA-21, Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons.

- c. Circuit board has two outputs and is upgradeable to six to accommodate for additional LEDs.
- d. Controller is designed and engineered by JSFT, which enables it to be continually improved for efficiency and adapted for new flash patterns and functions as needed.
- e. Beacons feature Automatic Light Control (ALC) which allows for various stages of brightness.
- f. Beacons feature a visual notification of sub-optimal operation through an alteration in flash pattern.
- g. Automatic Light Control (ALC) function can be disabled during production to prevent dimming if needed
- h. Control board has internal watchdog to restart the system in the event of lightning or power surges.

#### **4. RRFB Lightbar, LEDs and Flash Pattern:**

- a. Rectangular LED Modules are SAE J595 and SAE-J578 certified, and approximate size is 3" x 7" each (AB-9207 or AB-9407). Side-mounted tell-tale LEDs are approximately 1" x 2" each. Color of LEDs is amber, and horizontal LED pivot is 30 degrees for adjustable visibility.
- b. Tell-Tale LED's can be equipped with quick-clip connectors, allowing user to add or subtract Tell-Tale LED modules from the RRFB Lightbar as needed.
- c. Each RRFB Lightbar will include 2 x Tell-Tale LEDs on delivery, each equipped with quick-clip connectors, allowing user to add or subtract Tell-Tale LED modules from the RRFB Lightbar as needed.
- d. Hardware kit will include surface plug in the event Tell-Tale is to be removed.
- e. RRFB LED indications are aligned horizontally, with the longer dimension horizontal, space between indications being approximately 11", measured from inside edge of one indication to inside edge of other indication.
- f. When activated, the two amber indications in each RRFB shall flash in a rapidly alternating "wig-wag" flashing sequence (left light on, then right light on) as per the WW+S pattern specified by FHWA IA-21, which is a pattern based on a flash cycle length of 800 milliseconds, which results in 75 flash cycles per minute.
- g. Beacons feature an auto-brightness function which allows six stages of output for differing light conditions and provides visual notification of sub-optimal operation through an alteration in flash pattern.

- h. Auto-brightness function can be disabled during production to prevent dimming if needed
- i. Each RRFB Lightbar includes 2 x High Performance is 3" x 7" each LED Modules
- j. Each RRFB Lightbar is provided with a Universal Jaw-Mount, allowing for installation on all pole types.
- k. Each RRFB Lightbar is equipped with Quick Clip Deutsch DTM series connectors, allowing for ease of installation

**5. Wireless Communication:**

- a. Communication between the beacons occurs via ISM spread spectrum radio, 902-928 MHz, and standard range between beacons is 1600 ft.
- b. Beacon communication network provides 16 unique addresses to avoid interference between multiple crosswalk locations.

**6. Warranty:**

- a. Manufacturer's warranty is 5 years on the system for defects in workmanship and materials. Warranty does not cover vandalism or batteries.

**7. Push button assembly:**

The audible pedestrian signals shall be Polara Navigator Accessible Pedestrian Signals, iDX 2-wire unit, with a rack mounted CCU. This equipment shall be installed at the locations shown on the plans and in accordance with the manufacturers' recommendations. The unit shall be capable of touchless actuation.

APS units are required with a configurator to remain in the controller cabinet. APS shall meet current standards in the latest California Manual on Uniform Traffic Control Devices.

**General Description**

- 8. The System shall consist of a Central Control Unit (CCU) and Pedestrian Push Button Stations (PBS), as described below, and be capable of communicating with and programming with devices that support an iOS client application, or an Android client application, or Windows PC with Bluetooth® Low Energy dongle and Windows client application, for programming the system settings.
- 9. The System shall be manufactured by an ISO 9001:2015 (minimum) registered company.
- 10. The System shall meet the requirements of Made in America and/or The Buy American Act.
  - a. Push button assembly shall be Polara iDXsystem.

### **86-8.10 Payment:**

**Traffic Signal Modification – Santa Rosa Ave/Maple Street, Traffic Signal Modification – Santa Rosa Ave/Sonoma Ave** shall be paid for at the contract **lump sum** prices for the various traffic signal, which prices shall include full compensation for furnishing all labor, materials, tools and equipment to modify traffic signals complete in place, including but not limited to all excavation and backfill, foundations , anchor bolts, standards , steel pedestals and posts, conduit, conductors , wiring, service cabinet, traffic signals and fittings, electrical components, pedestrian signal faces, and testing, as shown on the plans, as specified , and no additional allowance will be made therefor.

**Detector Loop** shall be paid for under various items for detector loop under Section 15, which prices shall include full compensation for furnishing all labor, materials, tools and equipment to install detector loops, including but not limited to protecting adjacent loops in place, sawcutting, potholing, splicing detector wires to existing DLC, sealant, pavement and/or curb and gutter restoration as needed, and testing, as shown on the plans, as specified, and no additional allowance will be made therefor.

Compensation for removing and replacing existing improvements including curb and gutter and sidewalk in areas not shown as being replaced on the project plans shall be considered as included in the contract prices paid for the appropriate contract item, and no additional allowance will be made therefor.

Accessible Pedestrian Signals (APS) shall be paid for at the unit price for APS, which prices shall include full compensation for furnishing all labor, materials, tools and equipment to install the APS, including but not limited to, the Central Control Unit (CCU) and Pedestrian Push Button Stations (PBS) and programming with devices that support an iOS client application, or an Android client application, or Windows PC with Bluetooth® Low Energy dongle and Windows client application, for programming the system settings.

**Street Light Removal and Relocation** shall be paid for at the contract **lump sum** price, which price shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all work including removal of existing pole and foundation, furnishing and installing lamps, ballasts, and photo cell controls, foundations, No. 5 pull boxes, conduit, conductors, excavation, and backfilling, and no additional allowance will be made therefor.

**Rapid Rectangular Flashing Beacon System**, will be measured and paid for at the contract **lump sum** price, which shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work required specified herein for the **Rapid Rectangular Flashing Beacon System**, including, but not necessarily limited to, providing and installing complete and in-place Rectangular Rapid Flashing Beacon (RRFB) Assemblies, additional traffic signs and plaques, pedestrian push button stations, conduit, poles and foundations, mounting hardware, programming, testing, warranty, and all incidentals needed thereto.

## 90 CONCRETE

**90-1.01C(6) Mix Design:** The proportions of the water, sand and aggregate shall be regulated so as to produce a plastic, workable and cohesive mixture.

**90-1.01D(2) Cementitious Material Content:** Concrete shall contain a minimum of 564 pounds of cementitious material per cubic yard. The amount of cement by weight of the specified cementitious material shall be 75 to 85 percent.

**90-1.01D(5) Compressive Strength:** The 28 day compressive strength of concrete shall be 4000 pounds per square inch (psi) or greater.

**90-1.01D(6) Curing Compound:** Concrete shall be cured per Section 90-1.03B of the Standard Specifications. Pigmented curing compound or any other material that will leave a noticeable residue shall not be allowed.

**90-1.02E(2) Chemical Admixtures:** An admixture shall not be used to reduce the amount of cementitious material content.

## 112 TREE PROTECTION

**112-1.01 General:** The following requirements shall apply to any contractor who works on any property upon which a protected tree is located.

If tree trimming is required/requested for operations, but not included in this Project Plans it the responsibility of the contractor to consult with an certified arborist and pay for all expenses of tree trimming or tree removal required per the arborist report.

Protected tree means any tree, including a Heritage tree, designated to be preserved on the plans, or as directed by the Engineer. Heritage tree is any of the trees listed under Section 17-24.010 of the City of Santa Rosa Tree Ordinance.

**112-1.02 Scope:** Before the start of any clearing, excavation, construction or other work on the site, every protected tree shall be securely fenced off at the protected perimeter. Protected perimeter shall be either the root zone or other limit as directed by the Engineer. Such fences shall remain continuously in place for the duration of all work undertaken in connection with this project. The area so fenced off shall not be used as a storage area, altered, or disturbed except as may be permitted under this section.

If any of the site work encroaches upon the protected perimeter of a protected tree, special measures shall be utilized as approved by the Engineer to ensure that the roots obtain oxygen, water, and nutrients as needed. Any excavation, cutting, filling, or compaction of the existing ground surface within the protected perimeter, if authorized by the Engineer, shall be minimized and subject to such conditions as may be imposed by the Engineer. No significant change in existing ground level shall be made within the drip line of the protected tree except as directed by the Engineer and as shown on the plans. No burning or use of equipment with an open flame shall occur near or within the protected perimeter. All brush, earth, and other debris shall be removed in a manner which prevents injury to the protected tree.

No oil, gas, chemicals, or other substances that may be harmful to trees shall be stored or dumped within the protected perimeter or any other location on the site from which such substances might enter the protected perimeter.

Underground trenching for utilities shall avoid major support and absorbing tree roots of protected trees. If avoidance is impracticable, tunnels shall be made below the roots. Trenches shall be consolidated to serve as many units as possible. Trench within the drip line of the tree shall be avoided and only be done at the approval and direction of the Engineer.

No concrete or asphalt paving shall be placed over the root zones of protected trees. No artificial irrigation shall occur within the root zone of oaks.

No compaction of the soil within the root zones of protected trees shall occur.

**112-1.03 Payment:** Full compensation for work in this section shall be considered as included in the prices paid for the various contract items of work and no additional allowances will be made therefor.

# 121 NOTIFICATION

## 121 NOTIFICATION

**121-1.01:** The Contractor shall notify the Engineer of any work to be performed on any given work day either on the afternoon of the prior working day or before 8:30 a.m. on the given working day. Any work completed for which the Engineer has not received prior notification of its scheduling may not be accepted for payment.

The Contractor shall provide a written notice of pending construction to, and attempt to make personal contact with all businesses and residents in the vicinity of the project 5 working days prior to mobilizing to the site. The notice shall inform the recipients of the type of work, the scheduled date(s) and work hours, and the potential impacts for the neighborhood, such as road closures and/or detours. Provide a map for any approved detour. The notice shall inform all recipients that they will be allowed access to their property at all times. The notice shall also request that cars be parked out of the roadway by 7:30am and shall have contact information for the following personnel; Contractor's onsite Supervisor, Contractor's Project Manager and the City of Santa Rosa's onsite Inspector.

If loading or unloading of equipment and/or materials has the possibility to impact access to private property, the Contractor shall notify and coordinate this work with the business or resident.

The Contractor shall keep the City of Santa Rosa Fire Department informed regarding the closure of any traveled way. At a minimum, the Contractor shall call the Fire Department at 543-3535 **and** the Communications Center at 543-3666 **daily** to report any traveled way closure. This

means immediately upon closure for that day and again immediately after removal of the closure. For closures over multiple days, the daily notification still applies. This requirement does not apply for single lane closures on multiple lane streets.

The Contractor shall notify Santa Rosa City Bus at (707) 543-3922, the local Postal Service at (707) 526-0113 and Santa Rosa Recycling and Collection at (707) 586-8234 at least 5 calendar days prior to any lane closures or restrictions in turning movements. If unanticipated work requires the Contractor to access private property the Contractor shall first notify the business or resident and the Engineer, and all work shall be coordinated through the Engineer or their representative.

All written notices to residents or businesses shall be submitted to the Engineer for approval prior to distribution. The Engineer shall be allowed two working days to review notices.

**121-3.01 Payment:** Full compensation for conforming to the provisions of this section shall be considered as included in the prices paid for the **various contract items** of work involved and no additional compensation will be allowed therefor.

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## 132 WATER DISTRIBUTION SYSTEM

**132-1.01 Description:** Water Distribution System and related appurtenances shall conform to the requirements as specified in the City of Santa Rosa Water Distribution System Construction Standard Specifications Section 132, the Project Plans, and modifications herein.

**132-1.11 Excavation, Backfill, and Resurfacing:** The Contractor shall remove and replace sidewalk and planter strips as required for all water work to the nearest transverse score mark on both sides and full sidewalk width. All areas of sidewalk removed for construction shall be backfilled and compacted level with temporary asphalt concrete or covered with 1 inch thick plywood, laid flat with ADA compliant temporary asphalt concrete taper on both ends.

**132-1.12 Laying and Handling Pipe Materials:** If the Contractor installs a highpoint in the water system not shown on the Project Plans the Engineer may require the installation of a new combination air and vacuum valve, per City Standards, at no additional cost to the City.

**132-1.15A Water Services:** New service laterals shall be installed with a minimum horizontal clearance of 3 feet from gas laterals. Water services shall be installed via 'open trench' construction methods only, unless otherwise specified herein.

### **132-1.30 Payment:**

**Water Main Lowering/Overstructure** shall be paid for at the contract price **each** for the specified sizes, which price shall include full compensation for furnishing all labor, materials, tools, equipment, incidentals, and doing all the work involved in water main lowering/overstructure installation, including but not limited to: potholing other than as specified in Section 15 to facilitate the progress of work; excavation and disposal of excavated materials; hand digging *if needed*; root pruning; dewatering and disposal of trench groundwater; contamination awareness; supporting or removal and disposal of existing utilities in the same trench *if required*; pipe in excess of horizontal distance between beginning and end of lowered section for lowering or raised section for overstructure; connecting to non-lowered or non-raised portion of water mains; fittings *as required*; installing restrained joints, thrust blocking and harnesses; placing and compacting all required bedding and backfill including control density fill *if required*; trench plates *as needed*; testing and chlorination; temporary trench paving; removal and replacement of valley gutter, median curb and island *as needed*; as specified herein, and no additional allowance will be made therefor.

**1-1/2-inch Water Service Plumbed for 1-inch Meter** shall be paid for at the contract price **each**, which price shall include full compensation for furnishing all labor, materials, tools, equipment, incidentals, and doing all work involved in water service installation, including but not limited to: excavation and disposal of excavated materials; dewatering and disposal of trench groundwater; contamination awareness; saddle and valve; proper size penetration in main; water service tubing and fittings *as required*; manifold; meter boxes and lids to grade; meter shut off valves; tie-ins at back of sidewalk; meter transfers; placing and compacting all required bedding and backfill; trench plates *as needed*; testing and chlorination; temporary trench paving; removal and replacement of median curb and island, curb, gutter, sidewalk and driveways *as needed*; restoration/reconstruction of landscaping/irrigation *as needed*; as specified herein, and no additional allowance will be made therefor.

**Backflow Device Testing** shall be paid for at the contract price for various items of work, which price shall include full compensation for furnishing all labor, materials, tools, equipment, incidentals, and doing all work involved to perform backflow device testing, including but not limited to:

coordination, notification, preparatory work, testing, and all paperwork as specified herein, and no additional allowance will be made therefor.

**Trench Bracing and Shoring-Water** shall be paid for at the contract for various items of work, which price shall include full compensation for furnishing all labor, materials, tools, equipment, incidentals, and any other work involved in trench bracing and shoring, as specified herein, and no additional allowance will be made therefor.

Version Date: 11/28/17

**APPROVED LIST OF BACKFLOW CONTRACTORS  
INSTALLATION, TESTING & REPAIR**

<p><b>ACCO ENGINEERED SYSTEMS</b> 1111 ALADDIN AVE. SAN LEANDRO, CA 94577 PHONE: (510) 346-4300 LICENSE #: 120696</p>	<p><b>ALL OUT PLUMBERS/C. CROSS</b> P.O. BOX 599 CLOVERDALE, CA 95425 PHONE: (707) 894-8434 LICENSE #: 812540</p>	<p><b>ALL PRO BACKFLOW/J.LOTITO</b> P.O. BOX 2193 FOLSOM, CA 95763 PHONE: (916) 276-7162 FAX: (916) 435-4167 LICENSE #: 934557</p>
<p><b>APB BACKFLOW, INC.</b> 1599 FELTA RIDGE ROAD HEALDSBURG, CA 95448 PHONE: (888) 356-7761 LICENSE: 1032328</p>	<p><b>A.S.T.I SERVICES/M.DESCHLER</b> 102 COUCH ST. VALLEJO, CA 94590 PHONE: (707) 645-1782 FAX: (707) 645-1807 LICENSE #: 742693</p>	<p><b>BANNER ENTERPRISES</b> P.O. BOX 1457 SANTA ROSA, CA 95402 PHONE: (707) 523-1244 LICENSE #: 376828</p>
<p><b>C.V. PLUMBING/C. VINE</b> P.O. BOX 219 CLOVERDALE, CA 95425 PHONE: (707) 894-8580 FAX: (707) 894-9642 LICENSE #: 843366</p>	<p><b>CAGWIN &amp; DORWAN</b> P.O. BOX 1600 NOVATO, CA 94948-1600 PHONE: (800) 891-7710 FAX: (415) 897-7864 LICENSE #: 202399</p>	<p><b>CARRIER CORPORATION</b> 600 MCCORMICK ST., SUITE B SAN LEANDRO, CA 94577 PHONE: (510) 347-2000 FAX: (510) 347-2099 LICENSE #: 499642</p>
<p><b>CHECKRITE BACKFLOW SERV.</b> 3618 CHANATE RD. SANTA ROSA, CA 95404 PHONE: (707) 575-5296 FAX: (707) 578-6595 LICENSE #: 836022</p>	<p><b>DEVOTO PLUMBING*</b> 1345 TRIPLE OAK WAY FULTON, CA 95439 PHONE: (707) 545-0734 LICENSE #: 824608</p>	<p><b>ECONOMY PLUMBING</b> P.M.B. #287, 1275 4<sup>TH</sup> ST. SANTA ROSA, CA 95404 PHONE: (707) 545-4455 FAX: (707) 543-8111 LICENSE #: 748220</p>
<p><b>GROUND HOG CONSTRUCTION</b> 5353 HESSEL RD. SEBASTOPOL, CA 95472 PHONE: (707) 529-2085 FAX: (707) 823-9389 LICENSE #: 723766</p>	<p><b>JV PLUMBING &amp; BACKFLOW*</b> 2911 MONTECITO AVE. SANTA ROSA, CA 95404 PHONE: (707) 799-2692 LICENSE #: 955698</p>	<p><b>LEDUC &amp; DEXTER PLUMBING</b> 2833 DOWD DR., SUITE A SANTA ROSA, CA 95407 PHONE: (707) 575-1500 FAX: (707) 527-0281 LICENSE #: 651401</p>
<p><b>NORTHBAY BACKFLOW</b> P.O. BOX 2765 PETALUMA, CA 94953 PHONE: (707) 484-3949 LICENSE #: 878332</p>	<p><b>NORTHWOOD BACKFLOW</b> 911 LAKEVILLE ST., #369 PETALUMA, CA 94952 PHONE: (800) 750-4547 LICENSE #: 749187</p>	<p><b>ONGARO AND SONS PLUMBING</b> 2995 DUTTON AVE. SANTA ROSA, CA 95407 PHONE: (707) 579-3511 LICENSE #: 215233</p>
<p><b>PUMPMAN NORCAL</b> 4000 S. MOORLAND AVE. SANTA ROSA, CA 95407 PHONE: (707) 584-9191 LICENSE: 200068</p>	<p><b>RH &amp; SONS WATER SERVICES</b> 225 GOLDEN RIDGE AVE. SEBASTOPOL, CA 95472 PHONE: (800) 675-3569 LICENSE #: 698774</p>	<p><b>ROBERTS MECHANICAL &amp; ELECTRICAL, INC.</b> 4649 DOWDELL AVE. SANTA ROSA, CA 95407 PHONE: (707) 584-5880 LICENSE #: 556014</p>
<p><b>ROBERTSON'S BACKFLOW</b> 6229 SPECKLED RD. POLLOCK PINES, CA 95726 PHONE: (530) 306-1056 FAX: (530) 303-1497 LICENSE #: 972547</p>	<p><b>SCOTT CRAMER PLUMBING</b> P.O. BOX 750084 PETALUMA, CA 94975 PHONE: (707) 778-8789 FAX: (707) 658-1043 LICENSE #: 889152</p>	<p><b>STEAD BACKFLOW PREVENTION</b> 2715 W. KETTLEMAN LN., #203-321 LODI, CA 95242 PHONE: (209) 327-3900 LICENSE #: 848490</p>
<p><b>NOTE:</b> These contractors have a C-16 or C-36 State Contractor's License or an A-General Engineering License. They are licensed and certified to test, repair, and install any type of backflow device. They are also licensed to work on fire protection backflow devices or fire protection systems. When installing a backflow device, a City Plumbing Permit is required, and if working in the City right-of-way, an Encroachment Permit is needed. All testers are required to have a City Business License.</p>		
<p><i>*Spanish speaking</i></p>		<p>(Updated List Only: 9/9/2019)</p>

## **A - FEES AND PERMITS**

The Contractor shall obtain all necessary and required permits for the project, except the discharge permit attached here and referenced in section 13-8.02D, and the Caltrans Encroachment Permit attached here under Permit No. 04-22-N-TK-4661. All permits issued by the City Building Department will be issued at no cost to the Contractor; these fees will be paid by an appropriate City department. All other required permits shall be obtained at the Contractor's expense.

All electrical service charges or fees that may be required by Pacific Gas and Electric Company shall be paid for by an appropriate City department.

Contractor shall comply with all notifications and requirements put forth in the Caltrans Encroachment Permit attached here under Permit No. 04-22-N-TK-4661 attached.

**ENCROACHMENT PERMIT**

TR-0120 (REV 09/2022)

Permit No.  
04-22-N-TK-4661In compliance with your application of October 13, 2022Dist/Co/Rte/PM  
04/SON/12/PM R16.27

## Reference Documents:

- Utility Notice No. \_\_\_\_\_ of \_\_\_\_\_
- Agreement No. \_\_\_\_\_ of \_\_\_\_\_
- R/W Contract No. \_\_\_\_\_ of \_\_\_\_\_
- Project code (ID): \_\_\_\_\_ CFC #: \_\_\_\_\_
- Utility Work Order #: City of SR C01620; BKF 20169088-24

Permit Approval Date  
December 12, 2022

Performance Bond Amount (1)	Payment Bond Amount (2)
\$0	\$0

Bond Company  
N/A

Bond Number (1)	Bond Number (2)
\$ N/A	\$ N/A

TO: City of Santa Rosa  
C/O: Rick Carlile  
200 4th St., Suite 300,  
Santa Rosa CA 95401

, **PERMITEE**

and subject to the following, PERMISSION IS HEREBY GRANTED to:

Perform traffic control within State Right-of-Way, on 04-SOL-12 at Post Miles 16.27, to reconfigure the traffic lanes from 4 lanes to 2 lanes, add a median, and reconstruct curb ramps to meet accessibility standards. located within Santa Rosa Avenue under the State Route 12 overpass. no improvements are proposed within State Right-of-Way, All work located in the City of Santa Rosa Right-of-Way.

A minimum of 7 days prior to the start of work under this encroachment permit, notice must be given to State Representative Soratha Sing, 2019 West Texas Street, Fairfield, CA, 94533, at soratha.sing@dot.ca.gov or (510) 520-0853, weekdays between 7:00 a.m. and 3:30 p.m., excluding holidays.

**THIS PERMIT IS NOT A PROPERTY RIGHT AND DOES NOT TRANSFER WITH THE PROPERTY TO A NEW OWNER.**

The following attachments are also included as part of this permit (check applicable):

- YES  NO General Provisions
- YES  NO Utility Maintenance Provisions
- YES  NO Storm Water Special Provisions
- YES  NO Special Provisions
- YES  NO A Cal-OSHA Permit, if required: Permit No. \_\_\_\_\_
- YES  NO As-Built Plans Submittal Route Slip for Locally Advertised Projects
- YES  NO Storm Water Pollution Protection Plan

In addition to fee, the permittee will be billed actual costs for:

- YES  NO Review
- YES  NO Inspection
- YES Field Work  
(if any Caltrans effort expended)

- YES  NO The information in the environmental documentation has been reviewed and considered prior to approval of this permit.

This permit is void unless the work is completed before December 31, 2023

This permit is to be strictly construed and no other work other than specifically mentioned is hereby authorized.

No project work shall be commenced until all other necessary permits and environmental clearances have been obtained.

CC:  
#1: ROLI ELSOTARI  
#2: MOHAMMAD R SHIRAZI  
#3:  
#4:

APPROVED:  
Dina El-Tawansy  
, District Director

BY:  
CHRIS E MASTER *Chris Master*  
, District Permit Engineer

**ADA Notice**

This document is available in alternative accessible formats. For more information, please contact the Forms Management Unit at (279) 234-2284, TTY 711, in writing at Forms Management Unit, 1120 N Street, MS-89, Sacramento, CA 95814, or by email at Forms.Management.Unit@dot.ca.gov.

Notwithstanding General Provision 35, lane closures and other activities that may cause a traffic impact requires the permittee to apply for and obtain a closure ID prior to the start of work. Requests must be submitted using the attached "Encroachment Permit Work Scheduling Request Form."

In addition to the 2018 Standard Specifications and Standard Plans (available at <https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications>), the attached "Encroachment Permit General Provisions" (TR-0045), (available at <https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/encroachment-permits/ep-general-provisions-all.pdf>), "Hazardous Materials and Hazardous Waste Management Special Provisions" (TR-0408), and "Storm Water Special Provisions for Minimal or No Impact (TR-0400)" (available at <http://dot.ca.gov/programs/traffic-operations/ep/ep-manual/>), all work permitted herein must comply with the following provisions:

A pre-job meeting with the State Representative is required at least 7 days prior to the start of any work under this encroachment permit. Failure to do so may result in permit revocation with no prejudice.

The permittee must provide the stage construction plans, traffic handling plans, work schedule, and a list of all sub-contractors to the State Representative at the time of the pre-job meeting.

Certain details of work authorized herein are shown on the approved plans and specifications submitted by the permittee, and attached to this encroachment permit.

All the permittee's personnel must wear appropriate and approved personal protective equipment per Chapter 12 of Caltrans "Safety Manual", including hard hats and bright-colored safety vests, shirts or jackets with retro-reflective material, while on the State right-of-way.

Permittee must give the State Representative at least 7 days advance notice for lane closure requests.

Permittee must stop work and notify the State Representative immediately upon encountering field safety or environmental issues.

Permittee must coordinate all scheduled construction activities with other construction activities which may be in progress in the same general area.

Request for rider permit must be made minimum two weeks prior to start of the construction.

Additional inspection hours will be charged at the current State hourly rate.

Signs, lights, flags or other protective devices must not obscure the visibility of, nor conflict in intent, meaning, and function of either existing signs, lights and traffic control devices, or any construction area signs.

On conventional highways, permittee's vehicles and equipment not involved in the permitted activities must be legally located off the traveled way and not interfere with free traffic and pedestrian flow.

On freeways and expressways, permittee's vehicles and equipment not involved in the permitted activities must be legally located outside the State highway right-of-way.

No vehicle or equipment must be stored overnight within the State highway right-of-way. All vehicles and equipment must be removed immediately at the completion of the day's work. Refueling of vehicle or equipment within the State highway right-of-way is strictly prohibited.

Traffic control must comply with the 2018 Caltrans Standard Plans T9 through T14 (available at <https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications>), and the California MUTCD, Part 6, "Temporary Traffic Control" (available at <https://dot.ca.gov/programs/traffic-operations/camutcd/>).

All traffic control devices must be installed, maintained, and removed by a qualified traffic control contractor.

Construction activities must not inconvenience the public or abutting property owners. Maintain access to driveways, houses, and buildings.

The State Representative and CHP reserve the right to require reopening the highway at any time as necessary. All cost must be borne by the permittee.

The permittee must coordinate bus stop restrictions with the transit agency.

Permittee must place public notification signs at locations designated on the permittee's signing plan a minimum of 7 calendar days before the permitted activity begins. Signs must be constructed and installed to Caltrans specifications and standards.

Permittee must place detour signs prior to the permitted activity in accordance with Caltrans Standard Specifications.

Traffic control using flagging, must comply with the California MUTCD, Part 6E, "Flagger Control" (available at <https://dot.ca.gov/programs/safety-programs/camutcd/camutcd-files>), and Cal/OSHA Construction Safety Orders, Section 1599, "Flaggers", (available at <https://www.dir.ca.gov/title8/1599.html>).

Portable changeable message signs must comply with the California MUTCD, Chapter 2L, "Changeable Message Signs", and Section 6F.60, "Portable Changeable Message Signs" (available at <https://dot.ca.gov/programs/safety-programs/camutcd/camutcd-files>).

Temporary pedestrian facilities must comply with the Caltrans Temporary Pedestrian Facilities Handbook (available at <https://dot.ca.gov/-/media/dot-media/programs/construction/documents/contract-administration/temporary-pedestrian-facilities-handbook-all-y.pdf>) and the California MUTCD Part 6, Chapter 6D – "Pedestrian and Worker Safety" (available at <https://dot.ca.gov/programs/safety-programs/camutcd/camutcd-files>).

Notwithstanding General Provision 13, temporary pedestrian access routes must comply with the 2018 Caltrans Standard Plans T30 through T34 (available at <https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications>).

Temporary pedestrian walkways and canopies must comply with the requirements of the applicable local agency or the latest edition of the International Building Code whichever contains the higher standards.

Streets and highways in the San Francisco Bay Area contain a significant number of existing underground utilities. This includes traffic signal conduits that are installed 9 inches or less in depth. The permittee is responsible for necessary site investigations for identification of the location and depth of existing underground facilities prior to excavation (e.g., pothole or hand-dig) to avoid damage or disruption in services.

All pavement must be saw cut prior to removal, or removed by grinding

Obliterated pavement markings must be replaced in kind.

All signs and markings must comply with the California MUTCD (available at <https://dot.ca.gov/programs/safety-programs/camutcd/camutcd-files>).

Where Asphalt Concrete (AC) has been placed, temporary painted traffic striping and pavement markings must be installed within 24 hours. Where shown on the plans, after 30 days curing time, thermoplastic materials must be applied in accordance with the 2018 Caltrans Standard Specifications, Section 84, "Markings" (available at <https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications>).

Permittee must verify to the State Representative that local or regional media, including radio, television or newspapers serving the area affected by the scheduled permitted activity have been notified by letter or press release format. Media contact must allow sufficient time for print or broadcast two days prior to the permitted activity. Letter or press release must include date, time, location, duration, permitted activity, and identify detours for impacted State highways and local roads.

Permittee must make written notice to, and coordinate with, CHP, local emergency services, law enforcement agencies and public road departments 7 calendar days prior to the scheduled permitted activity. Letter copies must be provided to the State Representative to evidence contacts.

Changes to the provisions herein require an Encroachment Permit Rider, except for minor changes authorized by the State Representative.

Time extension requests must be made a minimum 2 weeks prior to permit expiration.

Neither materials nor waste must be stockpiled within the State highway right-of-way.

All mud, dirt, and gravel tracked onto the roadway must be immediately removed.

Any damage to State facilities must be repaired to the same state as before the damage and the cost of repairs must be the responsibility of the permittee.

Upon completion of work authorized by this encroachment permit, the permittee must provide the State Representative with As-Built plans, in accordance with General Provision 22

Upon completion of work authorized by this encroachment permit, permittee must provide the State Representative with "Notice of Completion" (TR-0128) (available at <http://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmId=TR0128>).

**Additional Enclosure(s):**

1. Notice of Completion (TR-0128)
2. Work Authorization Instruction and Request Form
3. Plan Set



## **ENCROACHMENT PERMIT GENERAL PROVISIONS**

TR – 0045 (REV. 7/2022)

1. **AUTHORITY:** The California Department of Transportation (“Department”) has authority to issue encroachment permits under Division 1, Chapter 3, Article 1, Sections 660 through 734 of the Streets and Highways Code.
2. **REVOCACTION:** Encroachment permits are revocable on five (5) business days’ notice unless otherwise stated on the permit and except as provided by law for public corporations, franchise holders, and utilities. Notwithstanding the foregoing, in an emergency situation as determined by the Department, an encroachment permit may be revoked immediately. These General Provisions and any applicable Special Provisions are subject to modification or abrogation by the Department at any time. Permittees’ joint use agreements, franchise rights, reserved rights or any other agreements for operating purposes in State of California (“State”) highway right-of-way may be exceptions to this revocation.
3. **DENIAL FOR NONPAYMENT OF FEES:** Failure to pay encroachment permit fees when due may result in rejection of future applications and denial of encroachment permits.
4. **ASSIGNMENT:** This encroachment permit allows only the Permittee or Permittee’s authorized agent to work within or encroach upon the State highway right-of-way, and the Permittee may not assign or transfer this encroachment permit. Any attempt to assign or transfer this encroachment permit shall be null and void.
5. **ACCEPTANCE OF PROVISIONS:** Permittee understands and agrees to accept and comply with these General Provisions, the Special Provisions, any and all terms and/or conditions contained in or incorporated into the encroachment permit, and all attachments to the encroachment permit (collectively “the Permit Conditions”), for any encroachment, work, and/or activity to be performed under this encroachment permit and/or under color of authority of this encroachment permit. Permittee understands and agrees the Permit Conditions are applicable to and enforceable against Permittee as long as the encroachment remains in, under, or over any part of the State highway right-of-way.
6. **BEGINNING OF WORK:** When traffic is not impacted (see General Provision Number 35), the Permittee must notify the Department’s representative two (2) business days before starting permitted work. Permittee must notify the Department’s representative if the work is to be interrupted for a period of five (5) business days or more, unless otherwise agreed upon. All work must be performed on weekdays during regular work hours, excluding holidays, unless otherwise specified in this encroachment permit.
7. **STANDARDS OF CONSTRUCTION:** All work performed within State highway right-of-way must conform to all applicable Departmental construction standards including but not limited to: Standard Specifications, Standard Plans, Project Development Procedures Manual, Highway Design Manual and Special Provisions.  
Other than as expressly provided by these General Provisions, the Special Provisions, the Standard Specifications, Standard Plans, and other applicable Departmental standards, nothing in these General Provisions is intended to give any third party any legal or equitable right, remedy, or claim with respect to the encroachment permit and/or to these General Provisions or any provision herein. These General Provisions are for the sole and exclusive benefit of the Permittee and the Department.  
Where reference is made in such standards to “Contractor” and “Engineer,” these are amended to be read as “Permittee” and “Department’s representative,” respectively, for purposes of this encroachment permit.
8. **PLAN CHANGES:** Deviations from plans, specifications, and/or the Permit Conditions as defined in General Provision Number 5 are not allowed without prior approval from the Department’s representative and the Federal Highway Administration (“FHWA”) representative if applicable.
9. **RIGHT OF ENTRY, INSPECTION AND APPROVAL:** All work is subject to monitoring and inspection. The United States, the State, the Department, and the Directors, officers, employees, agents, and/or contractors of the State and/or of the Department, and other state, and federal agencies, and the FHWA, through their agents or representatives, must have full access to highway facilities/encroachment area, at any and all times for the purpose of inspection, maintenance, activities needed for construction/reconstruction, and operation of the State highway right-of-way.  
Upon completion of work, Permittee must request a final inspection for acceptance and approval by the Department. The local public agency Permittee must not give final construction approval to its contractor until final acceptance and approval by the Department is obtained.
10. **PERMIT AT WORKSITE:** Permittee must keep the permit package or a copy thereof at the work site at all times and must show it upon request to any Department representative or law enforcement officer. If the permit package, or a copy thereof, is not kept and made available at the work site at all times, the work must be suspended.
11. **CONFLICTING ENCROACHMENTS:** Permittee must yield start of work to ongoing, prior authorized work adjacent to or within the limits of the Permittee’s project site. When existing encroachments conflict with Permittee’s work, the Permittee must bear all cost for rearrangements (e.g., relocation, alteration, removal, etc.).

**ENCROACHMENT PERMIT GENERAL PROVISIONS**

- 12. PERMITS, APPROVALS, AND CONCURRENCES FROM OTHER AGENCIES AND/OR ENTITIES:** This encroachment permit is invalidated if the Permittee has not obtained all permits and approvals necessary and required by law, including but not limited to permits from the California Public Utilities Commission (“CPUC”), California Occupational Safety and Health Administration (“Cal-OSHA”), and any other public agency and/or entity having jurisdiction. Permittee must also obtain concurrences from public or private entities that will be affected by the scope of work described in this encroachment permit. Permittee warrants all such permits, approvals, and concurrences have been obtained before beginning work under this encroachment permit. The Department may, at the Department’s discretion, require the Permittee to demonstrate that Permittee has obtained all such permits/approvals/concurrences, and Permittee shall demonstrate this at the time and in the manner specified by the Department.
- 13. PEDESTRIAN AND BICYCLIST SAFETY:** A safe continuous passageway must be maintained through the work area at existing pedestrian or bicycle facilities. At no time must pedestrians be diverted onto a portion of the street used for vehicular traffic. At locations where safe alternate passageways cannot be provided, appropriate signs and barricades must be installed at the limits of construction and in advance of the limits of construction at the nearest crosswalk or intersection to detour pedestrians to facilities across the street. Attention is directed to Section 7-1.04 “Public Safety,” and to Section 12-4.04 “Temporary Pedestrian Access Routes,” and to Section 16-2.02 “Temporary Pedestrian Facility,” of the Department’s Standard Specifications, and to California Vehicle Code section 21760, subdivision (c).
- 14. PUBLIC TRAFFIC CONTROL:** The Permittee must provide traffic control protection, warning signs, lights, safety devices, etc., and take all other measures necessary for the traveling public’s safety as required by law and/or the Department. While providing traffic control, the needs of all road users, including but not limited to motorists, bicyclists and pedestrians, including persons with disabilities in accordance with the Americans with Disabilities Act, must be an essential part of the work activity.
- Lane, Bike Lane, Sidewalk, Crosswalk, and/or shoulder closures must comply with the Department’s Standard Specifications and Standard Plans for Temporary Traffic Control Systems & Temporary Pedestrian Access Routes, and with the applicable Special Provisions. Where issues are not addressed in the Standard Specifications, Standard Plans, and/or Special Provisions, the California Manual on Uniform Traffic Control Devices (Part 6, Temporary Traffic Control) must be followed.
- 15. MINIMUM INTERFERENCE WITH TRAFFIC:** Permittee must plan and conduct work so as to create the least possible inconvenience to the traveling public (motorized vehicles, unmotorized vehicles such as bicycles,

pedestrians, person(s) with disabilities, etc.), such that traffic is not unreasonably delayed.

- 16. STORAGE OF EQUIPMENT AND MATERIALS:** The storage of equipment or materials is not allowed within State highway right-of-way, unless specified within the Special Provisions of this encroachment permit. If encroachment permit Special Provisions allow for the storage of equipment or materials within the State highway right-of-way, the equipment and material storage must also comply with Section 7-1.04, Public Safety, of the Department’s Standard Specifications.
- 17. CARE OF DRAINAGE:** Permittee must provide alternate drainage for any work interfering with an existing drainage facility in compliance with the Department’s Standard Specifications, Standard Plans, and/or as directed by the Department’s representative.
- 18. RESTORATION AND REPAIRS IN STATE HIGHWAY RIGHT-OF-WAY:** Permittee is responsible for restoration and repair of State highway right-of-way resulting from permitted work (Streets and Highways Code, section 670 et seq.).
- 19. STATE HIGHWAY RIGHT-OF-WAY CLEAN UP:** Upon completion of work, Permittee must remove and dispose of all scraps, refuse, brush, timber, materials, etc. off the State highway right-of-way. The aesthetics of the highway must be as it was before work started or better.
- 20. COST OF WORK:** Unless stated otherwise in the encroachment permit or a separate written agreement with the Department, the Permittee must bear all costs incurred for work within the State highway right-of-way and waives all claims for indemnification or contribution from the United States, the State, the Department, and from the Directors, officers, and employees of the State and/or the Department. Removal of Permittee’s personal property and improvements shall be at no cost to the United States, the State, and the Department.
- 21. ACTUAL COST BILLING:** When specified in the permit, the Department will bill the Permittee actual costs at the currently set Standard Hourly Rate for encroachment permits.
- 22. AS-BUILT PLANS:** When required, Permittee must submit one (1) set of folded as-built plans within thirty (30) calendar days after completion and acceptance of work in compliance with requirements listed as follows:
- Upon completion of the work provided herein, the Permittee must submit a paper set of As-Built plans to the Department’s representative.
  - All changes in the work will be shown on the plans, as issued with the permit, including changes approved by Encroachment Permit Rider.
  - The plans are to be prominently stamped or otherwise noted “AS-BUILT” by the Permittee’s representative who was responsible for overseeing the work. Any original plan that was approved with a Department stamp, or by signature of the Department’s representative, must be used for producing the As-Built plans.
  - If construction plans include signing or striping, the dates of signing or striping removal, relocation, or

**ENCROACHMENT PERMIT GENERAL PROVISIONS**

- installation must be shown on the As-Built plans when required as a condition of the encroachment permit. When the construction plans show signing and striping for staged construction on separate sheets, the sheet for each stage must show the removal, relocation, and installation dates of the appropriate staged striping and signing.
- e) As-Built plans must contain the Encroachment Permit Number, County, Route, and Post Mile on each sheet.
- f) The As-Built Plans must not include a disclaimer statement of any kind that differs from the obligations and protections provided by sections 6735 through 6735.6 of the California Business and Professions Code. Such statements constitute non-compliance with Encroachment Permit requirements and may result in the Department retaining Performance Bonds or deposits until proper plans are submitted. Failure to comply may also result in denial of future encroachment permits or a provision requiring a public agency to supply additional bonding.
23. **PERMITS FOR RECORD PURPOSES ONLY:** When work in the State highway right-of-way is within an area under a Joint Use Agreement (JUA) or a Consent to Common Use Agreement (CCUA), a fee exempt encroachment permit is issued to the Permittee for the purpose of providing a notice and record of work. The Permittee's prior rights must be preserved without the intention of creating new or different rights or obligations. "Notice and Record Purposes Only" must be stamped across the face of the encroachment permit.
24. **BONDING:** The Permittee must file bond(s), in advance, in the amount(s) set by the Department and using forms acceptable to the Department. The bonds must name the Department as obligee. Failure to maintain bond(s) in full force and effect will result in the Department stopping all work under this encroachment permit and possibly revoking other encroachment permit(s). Bonds are not required of public corporations or privately-owned utilities unless Permittee failed to comply with the provisions and/or conditions of a prior encroachment permit. The surety company is responsible for any latent defects as provided in California Code of Civil Procedure section 337.15. A local public agency Permittee also must comply with the following requirements:
- a) In recognition that project construction work done on State property will not be directly funded and paid by State, for the purpose of protecting stop notice claimants and the interests of State relative to successful project completion, the local public agency Permittee agrees to require the construction contractor to furnish both a payment and performance bond in the local public agency's name with both bonds complying with the requirements set forth in Section 3-1.05 Contract Bonds of the Department's Standard Specifications before performing any project construction work.
- b) The local public agency Permittee must defend, indemnify, and hold harmless the United States, the State and the Department, and the Directors, officers, and employees of the State and/or Department, from all project construction related claims by contractors, subcontractors, and suppliers, and from all stop notice and/or mechanic's lien claimants. The local public agency also agrees to remedy, in a timely manner and to the Department's satisfaction, any latent defects occurring as a result of the project construction work.
25. **FUTURE MOVING OF INSTALLATIONS:** Permittee understands and agrees to relocate a permitted installation upon notice by the Department. Unless under prior property right or agreement, the Permittee must comply with said notice at the Permittee's sole expense.
26. **ENVIRONMENTAL:**
- a) **ARCHAEOLOGICAL/HISTORICAL:** If any archaeological or historical resources are identified or encountered in the work vicinity, the Permittee must immediately stop work, notify the Department's representative, retain a qualified archaeologist who must evaluate the site at Permittee's sole expense, and make recommendations to the Department's representative regarding the continuance of work.
- b) **HAZARDOUS MATERIALS:** If any hazardous waste or materials (such as underground storage tanks, asbestos pipes, contaminated soil, etc.) are identified or encountered in the work vicinity, the Permittee must immediately stop work, notify the Department's representative, retain a qualified hazardous waste/material specialist who must evaluate the site at the Permittee's sole expense, and make recommendations to the Department's representative regarding the continuance of work. Attention is directed to potential aerially deposited lead (ADL) presence in unpaved areas along highways. It is the Permittee's responsibility to take all appropriate measures to protect workers in conformance with California Code of Regulations Title 8, Section 1532.1, "Lead," and with Cal-OSHA Construction Safety Orders, and to ensure roadway soil management is in compliance with Department of Toxic Substances Control (DTSC) requirements.
- c) **Biological:** If any regional, state, or federally listed biological resource is identified or encountered in the work vicinity, the Permittee must immediately stop work, notify the Department's representative, retain a qualified biologist who must evaluate the site at Permittee's sole expense, and make recommendations to the Department's representative regarding the continuance of work.
27. **PREVAILING WAGES:** Work performed by or under an encroachment permit may require Permittee's contractors and subcontractors to pay appropriate prevailing wages as set by the California Department of Industrial Relations. Inquiries or requests for interpretations relative to enforcement of prevailing wage requirements must be directed to the California Department of Industrial Relations.

**ENCROACHMENT PERMIT GENERAL PROVISIONS**

**28. LIABILITY, DEFENSE, AND INDEMNITY:** The Permittee agrees to indemnify and save harmless the United States, the State, the Department, and the Directors, officers, employees, agents and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind, and description, including but not limited to those brought for or on account of property damage, invasion of privacy, violation or deprivation of a right under a state or federal law, environmental damage or penalty, or injury to or death of any person including but not limited to members of the public, the Permittee, persons employed by the Permittee, and/or persons acting on behalf of the Permittee, arising out of or in connection with: (a) the issuance and/or use of this encroachment permit; and/or (b) the encroachment, work, and/or activity conducted pursuant to this encroachment permit, or under color of authority of this encroachment permit but not in full compliance with the Permit Conditions as defined in General Provision Number 5 (“Unauthorized Work or Activity”); and/or (c) the installation, placement, design, existence, operation, and/or maintenance of the encroachment, work, and/or activity; and/or (d) the failure by the Permittee or anyone acting on behalf of the Permittee to perform the Permittee’s obligations under any part of the Permit Conditions as defined in General Provision Number 5, in respect to maintenance or any other obligation; and/or (e) any change to the Department’s property or adjacent property, including but not limited to the features or conditions of either of them, made by the Permittee or anyone acting on behalf of the Permittee; and/or (f) a defect or obstruction related to or caused by the encroachment, work, and/or activity whether conducted in compliance with the Permit Conditions as defined in General Provision Number 5 or constituting Unauthorized Work or Activity, or from any cause whatsoever. The duty of the Permittee to indemnify and save harmless includes the duties to defend as set forth in Section 2778 of the Civil Code.

It is the intent of the parties that except as prohibited by law, the Permittee will defend, indemnify, and hold harmless as set forth in this General Provision Number 28 regardless of the existence or degree of fault or negligence, whether active or passive, primary or secondary, on the part of: the United States, the State; the Department; the Directors, officers, employees, agents and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors; the Permittee; persons employed by the Permittee; and/or persons acting on behalf of the Permittee.

The Permittee waives any and all rights to any type of expressed or implied indemnity from or against the United States, the State, the Department, and the Directors, officers, employees, agents, and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors.

The Permittee understands and agrees to comply with the obligations of Titles II and III of the Americans with Disabilities Act in the conduct of the encroachment, work, and/or activity whether conducted pursuant to this encroachment permit or constituting Unauthorized Work or Activity, and further agrees to defend, indemnify, and save harmless the United States, the State, the Department, and the Directors, officers, employees, agents, and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, penalties, liability, suits, or actions of every name, kind, and description arising out of or by virtue of the Americans with Disabilities Act.

The Permittee understands and agrees the Directors, officers, employees, agents, and/or contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, are not personally responsible for any liability arising from or by virtue of this encroachment permit.

For the purpose of this General Provision Number 28 and all paragraphs herein, “contractors of the State and/or of the Department” includes contractors, and their subcontractors, under contract to the State and/or the Department.

This General Provision Number 28 and all paragraphs herein take effect immediately upon issuance of this encroachment permit, and apply before, during, and after the encroachment, work, and/or activity contemplated under this encroachment permit, whether such work is in compliance with the Permit Conditions as defined in General Provision Number 5 or constitutes Unauthorized Work or Activity, except as otherwise provided by California law. The Permittee’s obligations to defend, indemnify, and save harmless under this General Provision Number 28 take effect immediately upon issuance of this encroachment permit and have no expiration date, including but not limited to situations in which this encroachment permit expires or is revoked, the work or activity performed under this encroachment permit is accepted or not accepted by the Department, the encroachment, work, and/or activity is conducted in compliance with the Permit Conditions as defined in General Provision Number 5 or constitutes Unauthorized Work or Activity, and/or no work or activity is undertaken by the Permittee or by others on the Permittee’s behalf.

If the United States or an agency, department, or board of the United States is the Permittee, the first two paragraphs of this General Provision Number 28 (beginning “The Permittee agrees to indemnify...” and “It is the intent of the parties...”) are replaced by the following paragraph:

Claims for personal injury, death, or property damage allegedly caused by the negligent or wrongful act or omission of any employee of the United States acting within the scope of their official duties are subject to the Federal Tort Claims Act, as amended, 28 U.S.C. § 1346 and § 2671 et seq. (Chapter 171).

**ENCROACHMENT PERMIT GENERAL PROVISIONS**

29. **NO PRECEDENT ESTABLISHED:** This encroachment permit is issued with the understanding that it does not establish a precedent.
30. **FEDERAL CIVIL RIGHTS REQUIREMENTS FOR PUBLIC ACCOMMODATION:**
- a) As part of the consideration for being issued this encroachment permit, the Permittee, on behalf of Permittee and on behalf of Permittee's personal representatives, successors in interest, and assigns, does hereby covenant and agree that:
    - i) No person on the grounds of race, color, or national origin may be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
    - ii) That in connection with the construction of any improvements on said lands and the furnishings of services thereon, no discrimination must be practiced in the selection and retention of first-tier subcontractors in the selection of second-tier subcontractors.
    - iii) That such discrimination must not be practiced against the public in their access to and use of the facilities and services provided for public accommodations (such as eating, sleeping, rest, recreation), and operation on, over, or under the space of the State highway right-of-way.
    - iv) That the Permittee must use the premises in compliance with all other requirements imposed pursuant to Title 15, Code of Federal Regulations, Commerce and Foreign Trade, Subtitle A. Office of the Secretary of Commerce, Part 8 (15 C.F.R. Part 8) and as said Regulations may be amended.
  - b) That in the event of breach of any of the above nondiscrimination covenants, the State and the Department have the right to terminate this encroachment permit and to re-enter and repossess said land and the facilities thereon and hold the same as if said permit had never been made or issued.
31. **MAINTENANCE:** The Permittee is responsible at Permittee's sole expense for the encroachment, and the inspection, maintenance, repair, and condition thereof, so that it does not negatively impact State highway safety, maintenance, operations, construction, activities needed for construction/reconstruction, State facilities, or other encroachments. Additional permits or approval documents may be required authorizing additional work related to inspection, repair, and/or maintenance activities.
32. **SPECIAL EVENTS:** In accordance with subdivision (a) of Streets and Highways Code section 682.5 and 682.7, the Department is not responsible for the conduct or operation of the permitted activity, and the applicant agrees to defend, indemnify, and hold harmless the United States, the State, the Department, and the Directors, officers, employees, agents, and contractors of the State and/or of the Department, including but not limited to the Director of Transportation and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description arising out of any activity for which this encroachment permit is issued.
- The Permittee is required, as a condition of this encroachment permit, for any event that awards prize compensation to competitors in gendered categories, for any participant level that receives prize compensation, to ensure the prize compensation for each gendered category is identical at each participant level. (Streets and Highways Code, section 682.7.)
- The Permittee understands and agrees to comply with the obligations of Titles II and III of the Americans with Disabilities Act in the conduct of the event, and further agrees to defend, indemnify, and save harmless the United States, the State and the Department, and the Directors, officers, and employees of the State and/or Department, including but not limited to the Director of the Department and the Deputy Directors, from any and all claims, demands, damages, costs, liability, suits, or actions of every name, kind and description arising out of or by virtue of the Americans with Disabilities Act.
33. **PRIVATE USE OF STATE HIGHWAY RIGHT-OF-WAY:** State highway right-of-way must not be used for private purposes without compensation to the State. The gifting of public property uses and therefore public funds is prohibited under the California Constitution, Article XVI, Section 6.
34. **FIELD WORK REIMBURSEMENT:** Permittee must reimburse the Department for field work performed on Permittee's behalf to correct or remedy hazards or damaged facilities, or to clear refuse, debris, etc. not attended to by the Permittee.
35. **LANE CLOSURE REQUEST SUBMITTALS AND NOTIFICATION OF CLOSURES TO THE DEPARTMENT:** Lane closure request submittals and notifications must be in accordance with Section 12-4.02, and Section 12.4-04, of the Department's Standard Specifications or as directed by the Department's representative. The Permittee must notify the Department's representative and the Traffic Management Center ("TMC") before initiating a lane closure or conducting an activity that may cause a traffic impact. In emergency situations when the corrective work or the emergency itself may affect traffic, the Department's representative and the TMC must be notified as soon as possible.
36. **SUSPENSION OF TRAFFIC CONTROL OPERATION:** The Permittee, upon notification by the Department's representative, must immediately suspend all traffic lane, bike lane, sidewalk, crosswalk, and/or shoulder closure operations and any operation that impedes the flow of traffic. All costs associated with this suspension must be borne by the Permittee.
37. **UNDERGROUND SERVICE ALERT (USA) NOTIFICATION:** Any excavation requires compliance with the provisions of Government Code section 4216 et seq., including but not limited to notice to a regional notification center, such as Underground Service Alert

**ENCROACHMENT PERMIT GENERAL PROVISIONS**

(USA). The Permittee must provide notification to the Department representative at least five (5) business days before, and the regional notification center at least forty-eight (48) hours before, performing any excavation work within the State highway right-of-way.

38. **COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA):** All work within the State highway right-of-way to construct and/or maintain any public facility must be designed, maintained, and constructed strictly in accordance with all applicable Federal Access laws and regulations (including but not limited to Section 504 of the Rehabilitation Act of 1973, codified at 29 U.S.C. § 794), California Access laws and regulations relating to ADA, along with its implementing regulations, Title 28 of the Code of Federal Regulations Parts 35 and 36 (28 C.F.R., Ch. I, Part 35, § 35.101 et seq., and Part 36, § 36.101 et seq.), Title 36 of the Code of Federal Regulations Part 1191 (36 C.F.R., Ch. XI, Part 1191, § 1119.1 et seq.), Title 49 of the Code of Federal Regulations Part 37 (49 C.F.R., Ch. A, Part 37, § 37.1 et seq.), the United States Department of Justice Title II and Title III for the ADA, and California Government Code section 4450 et seq., which require public facilities be made accessible to persons with disabilities.

Notwithstanding the requirements of the previous paragraph, all construction, design, and maintenance of public facilities must also comply with the Department's

Design Information Bulletin 82, "Pedestrian Accessibility Guidelines for Highway Projects" and Standard Plans & Specifications on "Temporary Pedestrian Access Routes."

39. **STORMWATER:** The Permittee is responsible for full compliance with the following:
- a) For all projects, the Department's Storm Water Program and the Department's National Pollutant Discharge Elimination System (NPDES) Permit requirements under Order No. 2012-0011-DWQ, NPDES No CAS000003; and
  - b) In addition, for projects disturbing one acre or more of soil, with the California Construction General Permit Order No. 2009-0009-DWQ, NPDES No CAS000002; and
  - c) In addition, for projects disturbing one acre or more of soil in the Lahontan Region with Order No. R6T-2016-0010, NPDES No CAG616002.
  - d) For all projects, it is the Permittee's responsibility to install, inspect, repair, and maintain all facilities and devices used for water pollution control practices (Best Management Practices/BMPs) before performing daily work activities.

**ENCROACHMENT PERMIT SPECIAL PROVISIONS****STORMWATER SPECIAL PROVISIONS FOR MINIMAL OR NO IMPACT (SWSP)**

TR-0400 (Rev 05/2018)

1. **GENERAL:** The purpose of these Special Provisions is to provide the Permittee with specifications for water pollution control to minimize, prevent, or control the discharge of material into the air, surface waters, groundwater, and storm sewers owned by the State or local agencies. These provisions are not intended to take the place of the Caltrans Water Pollution Control Program (WPCP) for projects where soil disturbance from work activities less than one acre, or work activities of one acre or more subject to the preparation of the Caltrans Storm Water Pollution Prevention Plan (SWPPP). The Permittee must comply with the following Special Provisions and the direction of the State Representative. All Stormwater Best Management Practices (BMPs) must conform to Section 13 Water Pollution Control of Caltrans' Standard Specifications.
2. **NPDES REQUIREMENTS:** The Permittee must be responsible for full compliance with the Caltrans Storm Water Program and the Caltrans National Pollutant Discharge Elimination System (NPDES) Permit requirements (*Order No. 2012-0011-DWQ, NPDES No CAS000003*) and for and projects disturbing one acre or more of soil, full compliance with the California Construction General Permit (*Order No. 2009-0009-DWQ, NPDES No CAS000002*) or for projects for projects that have one acre or more of soil disturbance in the Lahontan Region (*Order No. R6T-2016-0010, NPDES No CAG616002*). It is the Permittee's responsibility to install, inspect, and repair or maintain facilities and devices used for water pollution control practices (BMPs) before performing daily work activities. Installation, inspection and maintenance responsibilities on the job site include: 1) soil stabilization materials in work areas that are inactive or prior to storm events, 2) water pollution control devices to control sediment and erosion, 3) implementation of spill and leak prevention procedures for chemical and hazardous substances stored on the job site, 4) material storage, 5) stockpile management, 6) waste management, 7) non-stormwater management, 8) water conservation, 9) tracking controls and 10) illicit connection, illegal discharge detection and reporting. The Permittee must report to the State representative when discharges enter into receiving waters, adjacent property, drainage systems or when discharges could be a cause or a threat for water pollution. The Permittee must also control illicit discharges or illegal dumping prior to start of daily work schedule. Copies of written notices or orders from the Regional Water Quality Control Board or other regulatory agency must be provided to the State representative within 48 hours of reported activity. For additional information on stormwater compliance, visit the State Water Resources Control Boards storm water Website at:
 

[http://www.waterboards.ca.gov/water\\_issues/programs/stormwater](http://www.waterboards.ca.gov/water_issues/programs/stormwater)
3. **RESPONSIBILITY FOR DEBRIS REMOVAL:** The Permittee must be responsible for preventing sediment, trash, debris, and other construction waste from entering the street, the storm drains, local creeks, or any other bodies of water.
4. **SPOILS AND RESIDUE:** The Permittee must vacuum any saw-cut concrete waste material, debris, residue, etc. No spoils, debris, residue, etc. must be washed into a drainage system.
5. **SWEEPING:** Sweep paved roads at construction entrance and exit locations and surrounding paved areas daily within the job site during: 1) clearing and grubbing, 2) earthwork, 3) trenching, 4) soil disturbance, 5) pavement grinding and/or cutting, and 6) after observing tracking of material onto or off the State property. Keep dust to a minimum during sweeping activities. Use vacuum whenever dust generation is excessive or sediment pickup is ineffective. Roadways or work areas must not be washed down with water. Street sweeping operations must conform to Section 13 Water Pollution Control of Caltrans' Standard Specifications.
6. **VEHICLES AND EQUIPMENT:** Permittee must prevent all vehicles, equipment, etc. from leakage or mud tracking onto roadways. If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.
7. **MAINTENANCE AND FUELING OF VEHICLES AND EQUIPMENT:** Maintenance and fueling of equipment must not result in any pollution at the job site. The Permittee must immediately clean up spills/leaks, and properly dispose of contaminated soil and materials.
8. **CLEANING VEHICLES AND EQUIPMENT:** Limit vehicle and equipment cleaning or washing at the job site except what is necessary to control vehicle tracking or hazardous waste. The Permittee must clean all equipment within a bermed area or over a drip pan large enough to prevent run-off. No soaps, solvents, degreasers, etc. must be used in State right-of-way. Any water from this operation must be collected and disposed of at an appropriate site. Containment berms or dikes must be used for fueling, washing, maintaining and washing vehicles or equipment in outside areas. Containment must be performed at least 100 feet from concentrated flows of

**ENCROACHMENT PERMIT SPECIAL PROVISIONS**

- storm water, drainage courses, and storm drain inlets if within a flood plain, otherwise at least 50 feet if outside the floodplain. Keep adequate quantities of absorbent spill- cleanup material and spill kits in the fueling or maintenance area and on fueling trucks.
9. **DIESEL FUELS:** The use of diesel fuel from petroleum or other fossil fuel as a form-oil or solvent is not allowed.
  10. **WEATHER CONDITIONS AT WORKSITE:** Any activity that would generate fine particles or dust that could be transported off site by stormwater must be performed during dry weather.
  11. **WIND EROSION PROTECTION:** The use of Wind Erosion BMPs must be deployed year-round in instances where dust or fine particles could be transported off site.
  12. **HOT MIX ASPHALT:** Runoff from washing hot mix asphalt must not enter into any drainage conveyances.
  13. **PROTECTION OF DRAINAGE FACILITIES:** The Permittee must protect/cover gutters, ditches, drainage courses, and inlets with gravel bags, fiber rolls, State approved fabric filters, etc., to the satisfaction of the State representative during grading, paving, saw-cutting, etc. and materials must conform to Section 13-4.02 Materials for Water Pollution Control of Caltrans' Standard Specifications. No such protection measures must cause an obstruction to the traveling public. The Permittee must implement spill and leak prevention procedures for chemicals and hazardous substances stored on the job site (including secondary containment requirements) in accordance with section 13-4.03B Spill Prevention and Control, and 14-11 Hazardous Waste and Contamination, Water Pollution Control of Caltrans' Standard Specifications.
  14. **PAINT:** Rinsing of painting equipment and materials is not permitted in State right-of-way. When thoroughly dry, dispose of the following as solid waste: dry latex paint, paint cans, used brushes, rags, gloves, absorbent materials, and drop cloths. Oil based paint sludge and unusable thinner must be disposed of at an approved hazardous waste site.
  15. **CONSTRUCTION MATERIALS:** Stockpile of all construction materials, including, but not limited to; pressure treated wood, asphalt concrete, cold mix asphalt concrete, concrete, grout, cement containing premixes, and mortar, must conform to section 13-4.03C (2) Material Storage & 13-4.03C (3) Stockpile Management of Caltrans' Standard Specifications.
  16. **CONCRETE EQUIPMENT:** Concrete equipment must be washed in a designated washing area in a way that does not contaminate soil, receiving waters, or storm drain systems.
  17. **EXISTING VEGETATION:** Established existing vegetation is the best form of erosion control. Minimize disturbance to existing vegetation. Damaged or removed vegetation must be replaced as directed by the State Representative.
  18. **SOIL DISTURBANCE:** Soil disturbing activities must be avoided during the wet weather season. If construction activities during wet weather are allowed in your permit, all necessary erosion control and soil stabilization measures must be implemented in advance of soil disturbing activity.
  19. **SLOPE STABILIZATION AND SEDIMENT CONTROL:** Consider a certified expert in Erosion and Sediment control in cases where slopes are disturbed during construction. The Permittee is directed to comply with Section 13.5 Temporary Soil Stabilization and Section 21 Erosion Control of Caltrans' Standard Specifications during application of temporary soil stabilization measures to the soil surface. Fiber rolls or silt fences may be required down slope until permanent soil stabilization is established. Remove the accumulated sediment whenever the sediment accumulates to 1/3 of the linear sediment barrier height. The Permittee must limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist or when environmental regulations prohibit their use within the project.
  20. **STOCKPILES:** Stockpiles containing aggregate and/or soil must be stored at least 100 feet from concentrated flows of storm water, drainage courses, and storm drain inlets if within a flood plain, otherwise at least 50 feet if outside the floodplain, and must be covered and protected with a temporary perimeter sediment barrier. Cold mix stockpiles must be stored on an impermeable surface and covered with 9 mil plastic to prevent contact with water. Minimize stockpiling of materials on the job site. Manage stockpiles by implementing the water pollution control practices in Section 13-4.03C (3) Stockpile Management of the State of California standard specifications for construction.
  21. **DISCOVERY OF CONTAMINATION:** The State Representative must be notified in case any unusual discoloration, odor, or texture of ground water, is found in excavated material or if abandoned, underground tanks, pipes, or buried debris are encountered.
  22. **SANITARY AND SEPTIC WASTE:** Do not bury or discharge wastewater from a sanitary or septic system within the highway. Properly connected sewer facilities are free from leaks. With State Representative approval place portable sanitary facility at least 50 feet away from storm drains, receiving waters, and flow lines. Permittee must comply with local health agency provisions when using an on-site disposal system.
  23. **LIQUID WASTE:** Prevent job site liquid waste from entering storm drain systems and receiving waters. Drilling slurries, grease or oil-free waste water or rinse water, dredging, wash water or rinse water running off a surface or other non-storm water liquids not covered



**ENCROACHMENT PERMIT SPECIAL PROVISIONS**

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under separate waste water permits must be held in structurally sound, leak-proof containers, such as portable bins or portable tanks. Store containers at least 50 feet away from moving vehicles and equipment. Liquid waste may require testing to determine hazardous material content prior to disposal. All measures must conform to section 13-4.03D (5) Liquid Waste, Water Pollution Control of Caltrans' Standard Specifications.

**24. WATER CONTROL AND CONSERVATION:**

Manage water use in a way that will prevent erosion and the discharge of pollutants into storm drain systems and receiving waters. Direct runoff, including water from water line repair from the job site to areas where it can infiltrate into the ground. Direct water from off-site sources around the job site or from contact with jobsite runoff.

**25. PILE DRIVING:** Keep spill kits and cleanup materials at pile driving locations. Park pile driving equipment over drip pans, absorbent pads, or plastic sheeting with absorbent material, and away from stormwater run-on when not in use.**26. DEWATERING:** Dewatering consists of discharging accumulated storm water, groundwater, or surface water from excavations or temporary containment facilities. All dewatering operations must comply with the latest Caltrans guidelines including the Field Guide for Construction Site Dewatering. Contact State representative for approval of dewatering discharge by infiltration or evaporation, otherwise, any effluent discharged into a permitted storm water system requires approval from the Regional Water Quality Control Board. Prior to the start of dewatering, the Permittee must provide the State Representative with a dewatering and discharge work plan that complies with section 13-4.03G Dewatering, Water Pollution Control of Caltrans' Standard Specifications. A copy of the Waste Discharge Permit and a copy of a valid WDID number issued by the Regional Board must be provided to the State representative.

**HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT SPECIAL PROVISIONS**

TR-0408 (New 09/2017)

By acceptance of this encroachment permit, Permittee hereby agrees that:

1. All construction debris/materials/water/excess soil must become the property of the Permittee, and must be transported and disposed of, outside of Caltrans' right-of-way, in accordance with all applicable environmental laws and regulations. The Permittee must be identified as the generator for all construction debris/materials/water/excess soil and must be responsible for proper identification (including sampling and analysis) and management of all construction and contaminated debris/materials/water/excess soil that are removed, and/or excavated, from the work site. If hazardous waste is generated, the Permittee must obtain an Environmental Protection Agency (EPA) Identification Number issued in their name. State Permit Inspector does not sign any manifests or shipping papers. The Permittee must be named as the generator on all Uniform Hazardous Waste Manifests and shipping papers. Caltrans must not be identified or written anywhere on the manifests or shipping papers. Prior to waste disposal, the Permittee should submit the waste generator form(s) to State Permit Inspector for verification. The Permittee must submit to the State Permit Inspector, a copy of all manifests and/or shipping papers generated for materials removed, transported and/or excavated from the state right-of-way.
2. If contaminated material is encountered, Permittee is to stop work and contact the State Permit Inspector immediately. The Permittee must submit a Sampling and Analysis Plan (SAP), and a Health and Safety Plan (HaSP) prepared by a Certified Industrial Hygienist (CIH) and in conformance with California Code of Regulations title 8, section 5192, "Hazardous Waste Operations and Emergency Response" for sampling activity through a separate permit application. Upon the permit review, additional environmental documents may be required prior to resumption of construction activity.
3. Permittee is responsible for any violation, penalty, enforcement action, corrective action, remedial action, and any other type of consequences resulting from cross contamination of groundwater (including perched groundwater), improper handling/managing of hazardous materials and/or placement of contaminated materials inside Caltrans right-of-way.
4. It is the Permittee's responsibility to comply with the Department of Toxic Substances Control (DTSC) ADL requirements for roadway soil management. Reuse of soils containing greater than 80 mg/kg total lead is not allowed without written approval of the DTSC and Caltrans. The Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils between Caltrans and the DTSC does not constitute written approval for the Permittee to reuse soils containing greater than 80 mg/kg total lead.
5. The Permittee must implement the emergency notification requirements established in the California Office of Emergency Management Hazardous Materials, Spill / Release Notification Guidance (<http://www.caloes.ca.gov/>).
6. Any imported material used for backfill must be free of contamination, and a certificate of the material as "clean" with the source area of the material must be provided to Permit Inspector upon request. Importing soils containing greater than 80 mg/kg total lead for use in state right-of-way is not allowed.
7. Stockpiles of material containing aerially deposited lead shall not be placed where affected by surface run-on or run-off. Stockpiles shall be covered with plastic sheeting 13 mils minimum thickness or with one foot of nonhazardous material. Stockpiles shall not be placed in environmentally sensitive areas. Stockpiled material shall not enter storm drains, inlets, or waters of the State.



**ONE-TIME DISCHARGE PERMIT  
SR-1X09585**

**Issued To:**

**Lisa Welsh  
City of Santa Rosa Public Works  
69 Stony Circle  
Santa Rosa, CA 95401**

**Located At:**

**Santa Rosa Avenue  
Santa Rosa, CA 95401**

**EFFECTIVE DATE: 06/01/2022**

**EXPIRATION DATE: Notice of Completion Date**

**CIP Project Name: 1X CIP Santa Rosa Ave. Corridor Plan**

The contractor to be awarded the City of Santa Rosa Capital Improvement Project (CIP) project referenced above is authorized to discharge any generated non-contaminated groundwater and/or trench water to the City of Santa Rosa's sewer collection system. This discharge will be in accordance with the City of Santa Rosa's Most Current Sewer Code and/or Ordinance, any applicable provisions of federal or state law or regulation, and in accordance with discharge point(s), effluent limitations, monitoring requirements, and other conditions set forth herein.

**PERMITTEE SHALL COMPLY WITH ALL ITEMS BELOW:**

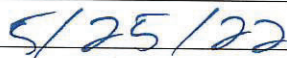
1. Sediment must be removed prior to any discharge to the sanitary sewer.
2. The required analysis shall be performed by a California State Certified Laboratory and all test procedures must comply with EPA Solid Waste 846 and Title 40 Code of Federal Regulations, Part 136 testing protocol.
3. The laboratory analysis can be submitted by e-mail to this office at [envcompliance@srcity.org](mailto:envcompliance@srcity.org) and upon review by Environmental Compliance Personnel the stored wastewater may be discharged direct to the sanitary sewer if it meets the local limits and the sediment is removed.
4. Any wastewater not meeting local limits shall either be disposed through a licensed hazardous waste treatment, storage, and disposal or recycling facility or alternatively be treated on-site to meet the local limits prior to being discharged to the sanitary sewer.
5. Discharge Limitation Parameters and daily maximum milligrams/Liter: EPA 8260 - 2.13mg/L, TPH Gas and Diesel - 100mg/L.
6. The test results shall be submitted to this office within 5 days of the sampling event in order to confirm ground water quality. Any test result exceeding the local limit for the required parameter shall immediately cease the discharge of groundwater from this project to the sanitary sewer.

7. The permittee shall be responsible for all liability imposed by law for personal injury or property damage caused by work done by permittee under this permit, including work beyond the scope of this permit. If any claim of such liability is made against the City, its officers or employees, permittee shall defend, indemnify and hold them, and each of them, harmless from such claim and liability insofar as permitted by law.
8. The discharge rate to the sanitary sewer shall be at a discharge rate that will not result in any spillage or surcharging of the sewer system.
9. Perchloroethylene/tetrachloroethylene is prohibited from being discharged to the sanitary sewer.
10. Due to the potential for groundwater contamination, wastewater generated from this project between Wheeler Street and Sonoma Avenue shall be collected, stored, and tested for EPA 8260 and THP-gas & THP-diesel including oxygenates prior to any discharge to the sanitary sewer. Approval to discharge will be required by Environmental Compliance Personnel.

Deputy Director Environmental Services:



Date:



**SUBREGIONAL WATER RECLAMATION SYSTEM**

**Environmental Compliance Section, 4300 Llano Road, Santa Rosa, CA 95407**  
**PH (707) 543-3369 FX (707) 543-3398 email: envcompliance@srcity.org**



BID FORMS

**CITY OF SANTA ROSA**

**STATE OF CALIFORNIA**

SANTA ROSA AVENUE CORRIDOR IMPROVEMENTS

The work to be performed and referred to herein is in the City of Santa Rosa, California and consists of improvements to be constructed in accordance with the provisions of the Invitation for Bids, containing the Notice to Bidders, the Special Provisions, the Project Plan(s), the Bid Forms and the Contract, all of which are by reference incorporated herein, and each Addendum, if any is issued, to any of the above which is also incorporated by reference herein.

TO THE AWARD AUTHORITY OF THE CITY OF SANTA ROSA

The undersigned, as bidder, declares that the only person or parties interested in this bid as principals are those named herein; that this bid is made without collusion with any other person, firm, or corporation; that Contractor has carefully examined the Project Plans, Invitation for Bids and conditions therefor, and is familiar with all bid requirements, that Contractor has examined this Contract and the provisions incorporated by reference herein, and Contractor hereby proposes, and agrees that if its bid is accepted by the City, Contractor will provide all necessary machinery, tools, apparatuses, and other means of construction, and to do all the work and furnish all the materials and services required to complete the construction in accordance with the Contract, the Special Provisions, the Project Plan(s), and Addenda to any of the above as incorporated by reference, in the time stated herein, for the unit prices and/or lump sum prices as follows:

**CITY OF SANTA ROSA  
C01620 SANTA ROSA AVENUE CORRIDOR IMPROVEMENTS  
UNIT PRICE SCHEDULE**

Bidder Name: \_\_\_\_\_

<b>Item</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>
1	MOBILIZATION AND DEMOBILIZATION (MAX 3% OF BID)	1	LS	\$ _____	\$ _____
2	TRAFFIC CONTROL	1	LS	\$ _____	\$ _____
3	WATER POLLUTION CONTROL	1	LS	\$ _____	\$ _____
4	ADJUST EXISTING MANHOLES TO GRADE	2	EA	\$ _____	\$ _____
5	REPLACE ADVANCED TRAFFIC LOOP DETECTORS	2	EA	\$ _____	\$ _____
6	DIG-OUT REPAIR	2,200	SY	\$ _____	\$ _____
7	ROADWAY EXCAVATION (F)	250	CY	\$ _____	\$ _____
8	1 GALLON PLANTS	575	EA	\$ _____	\$ _____
9	TREES (24" BOX)	20	EA	\$ _____	\$ _____
10	IMPORTED PLANTING SOIL	603	CY	\$ _____	\$ _____
11	ROOT BARRIER	400	LF	\$ _____	\$ _____
12	MULCH AND SHEET MULCH CARDBOARD	5,425	SF	\$ _____	\$ _____
13	COBBLE PAVERS	1,405	SF	\$ _____	\$ _____
14	6" WIDE FLUSH CONCRETE CURB	60	LF	\$ _____	\$ _____
15	BENCH	9	EA	\$ _____	\$ _____
16	BICYCLE RACK	15	EA	\$ _____	\$ _____
17	IRRIGATION SYSTEM	1	LS	\$ _____	\$ _____
18	PLANT ESTABLISHMENT	1	LS	\$ _____	\$ _____
19	HIGH TRAFFIC SLURRY SEAL	140	TON	\$ _____	\$ _____
20	PREPARATION FOR HIGH VOLUME TRAFFIC SLURRY SEAL	128,349	SF	\$ _____	\$ _____
21	BITUMINOUS CHIPSEAL	7,600	SY	\$ _____	\$ _____
22	ASPHALT CONCRETE SURFACE	55	TON	\$ _____	\$ _____
23	ASPHALT CONCRETE BASE	90	TON	\$ _____	\$ _____
24	PERMANENT TRENCH PAVING	35	TON	\$ _____	\$ _____
25	STORM DRAIN MANHOLE	4	EA	\$ _____	\$ _____
26	CATCH BASIN	7	EA	\$ _____	\$ _____
27	CATCH BASIN/MANHOLE LID REPLACEMENT	1	EA	\$ _____	\$ _____
28	INSTALL SIGN	45	EA	\$ _____	\$ _____
29	INSTALL 2-INCH SIGN POST	31	EA	\$ _____	\$ _____
30	REMOVE SIGN	8	EA	\$ _____	\$ _____
31	REMOVE SIGN POST	8	EA	\$ _____	\$ _____
32	18" REINFORCED CONCRETE PIPE	298	LF	\$ _____	\$ _____
33	TRENCH BRACING AND SHORING - REINFORCED CONCRETE PIPE	1	LS	\$ _____	\$ _____
34	REMOVE AND REPLACE CURB AND GUTTER	1,000	LF	\$ _____	\$ _____
35	MEDIAN CURB	2,541	LF	\$ _____	\$ _____
36	MEDIAN PASSAGEWAY	460	SF	\$ _____	\$ _____
37	CURB RAMP	1,600	SF	\$ _____	\$ _____
38	REMOVE AND REPLACE SIDEWALK	6,620	SF	\$ _____	\$ _____
39	REMOVE AND REPLACE DRIVEWAY	680	SF	\$ _____	\$ _____
40	4" THERMOPLASTIC PAVEMENT MARKING	2,900	LF	\$ _____	\$ _____
41	6" THERMOPLASTIC PAVEMENT MARKING	4,600	LF	\$ _____	\$ _____
42	8" THERMOPLASTIC PAVEMENT MARKING	400	LF	\$ _____	\$ _____
43	12" THERMOPLASTIC PAVEMENT MARKING	1,600	LF	\$ _____	\$ _____

44	THERMOPLASTIC CONTINENTAL CROSSWALK	640	SF	\$ _____	\$ _____
45	THERMOPLASTIC LEGEND PAVEMENT MARKING	260	SF	\$ _____	\$ _____
46	PAINTED RED CURB	15	LF	\$ _____	\$ _____
47	THERMOPLASTIC TURN ARROW PAVEMENT MARKING	24	EA	\$ _____	\$ _____
48	THERMOPLASTIC LANE MERGE ARROW PAVEMENT MARKING	6	EA	\$ _____	\$ _____
49	GREEN THERMOPLASTIC BIKE LANE	690	SF	\$ _____	\$ _____
50	PAVEMENT MARKERS (REFLECTIVE)	1,700	EA	\$ _____	\$ _____
51	PAVEMENT MARKERS (NON-REFLECTIVE)	40	EA	\$ _____	\$ _____
52	TRAFFIC SIGNAL MODIFICATION - SANTA ROSA AVE/MAPLE ST	1	LS	\$ _____	\$ _____
53	TRAFFIC SIGNAL MODIFICATION - SANTA ROSA AVE/SONOMA AVE	1	LS	\$ _____	\$ _____
54	STREET LIGHT REMOVAL AND RELOCATION	1	LS	\$ _____	\$ _____
55	RAPID RECTANGULAR FLASHING BEACON SYSTEM	1	LS	\$ _____	\$ _____
56	WATER MAIN LOWERING/OVERSTRUCTURE	3	EA	\$ _____	\$ _____
57	1-1/2-INCH WATER SERVICE PLUMBED FOR 1-INCH METER	1	EA	\$ _____	\$ _____

**Grand Total Bid** \$ \_\_\_\_\_

In the case of any discrepancy between the unit price and the total set forth for the item, the unit price shall prevail; provided, however, that if the amount set forth as a unit price is ambiguous, unintelligible or uncertain for any reason, or is omitted, or in the case of lump sum items, is not the same amount as the entry in the "Total" column, then the amount set forth in the "Total" column for the item shall prevail in accordance with the following:

1. As to lump sum items, the amount set forth in the "Total" column shall be the unit price;
2. As to unit basis items, the amount set forth in the "Total" column shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price.

The Total Base Bid shall be the sum of the "Total" column. In case of discrepancy between the sum of the "Total" column and the amount entered as Total Base Bid, the sum of the "Total" column shall prevail. The bid comparison will be based on the sum of the "Total" column for each bidder.

If this Contract Bid is accepted by the City and the undersigned fails to execute the Contract and to give all the bonds required under the Contract, with a surety satisfactory to the Award Authority of the City of Santa Rosa, within ten calendar days after bidder has received the Notice of Award from the Engineer, then the Award Authority may, at its option, determine that the bidder has abandoned the Contract, and thereupon this bid and the acceptance thereof shall be null and void, and the forfeiture of the security accompanying this bid shall be in accordance with California Public Contract Code section 20172.

The undersigned understands and agrees that the City is not responsible for any error or omissions on the part of the undersigned in making this bid.

The bidder to whom the Contract is awarded agrees to execute the Contract in favor of the City, in the form attached, and to deliver any and all required bond(s) and insurance certificates within ten calendar days from the date of Contractor's receipt of the Notice of Award. Following the award of the Contract, Contractor shall commence work within ten calendar days from the day authorized in the Notice to Proceed and diligently prosecute the same to completion in accordance with Section 8-1.04.



## LIST OF SUBCONTRACTORS

**NAME OF BIDDER:** \_\_\_\_\_

The following is a list of each subcontractor who will perform work or labor or render services to the undersigned for the construction of the project in an amount in excess of ½ of 1% of the total amount of this bid.

The undersigned agrees that any portion of the work in excess of ½ of 1% of the total amount of this bid and for which no subcontractor is designated herein will be performed by the undersigned.

SUBCONTRACTOR NAME	SUBCONTRACTOR LICENSE NUMBER	SUBCONTRACTOR DIR REGISTRATION NUMBER	SUBCONTRACTOR BUSINESS ADDRESS	DESCRIPTION OF WORK (ITEM NO.)



NONCOLLUSION DECLARATION  
TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

The undersigned declares:

I am the \_\_\_\_\_ of \_\_\_\_\_, the party making the foregoing bid. The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

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

NOTE: The above Noncollusion Declaration is part of the Contract Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Noncollusion Declaration.

BID BOND AFFIDAVIT AND BIDDER'S SIGNATURE PAGE

Accompanying this bid is a guaranty in the form of (Notice: Insert the words "cash \$," "Cashier's Check," "Certified Check," or "Bidder's Bond" as the case may be):

\_\_\_\_\_

in an amount equal to at least ten percent of the total of this bid.

The undersigned further agrees that if Contractor does not execute the Contract and deliver the necessary bonds to the City within the period of time specified in this Invitation for Bids, the proceeds of the security accompanying this bid shall become the property of the City of Santa Rosa, California, and this bid and the acceptance thereof may, at the option of the City, be considered null and void.

The undersigned is licensed in accordance with an act providing for the registration of Contractors, License No. \_\_\_\_\_, Class \_\_\_\_\_, expiration date \_\_\_\_\_.

The undersigned in registered with the Department of Industrial Relations, Registration No. \_\_\_\_\_.

**IMPORTANT NOTICE:** If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager of the corporation; if a partnership, state true name of partnership, also the names of all partners in the partnership; if the bidder is a sole proprietor, state the business name and the proprietor's name in full.

Secretary of State Business Entity Number: \_\_\_\_\_.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Business Address

\_\_\_\_\_  
Telephone Number

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

BIDDER'S SIGNATURE: \_\_\_\_\_

TITLE: \_\_\_\_\_

DATE: \_\_\_\_\_

**CONTRACT**

**CITY OF SANTA ROSA**

CALIFORNIA

CONTRACT NO. C01620  
SANTA ROSA AVENUE CORRIDOR IMPROVEMENTS

This Contract is made and entered into as of \_\_\_\_\_, 2023 at Santa Rosa, California, between the City of Santa Rosa ("City") and \_\_\_\_\_ of \_\_\_\_\_ ("Contractor").

ARTICLE I - For and in consideration of the payment and agreement hereinafter mentioned, to be made and performed by City, and under the conditions expressed in the required bonds hereunto annexed, Contractor agrees that for the benefit of City, at its own cost and expense, to do all the work and furnish all the materials, except such as are mentioned in the Special Provisions to be furnished by City, necessary to construct and complete the work herein described in a good, workmanlike, and substantial manner. The work embraced herein shall be done in accordance with the Standard Specifications of the State of California Department of Transportation, dated 2010, insofar as the same may apply (Standard Specifications); in accordance with the City of Santa Rosa Construction Specifications for Public Improvements (City Specifications); in accordance with the City of Santa Rosa Design and Construction Standards, (City Standards); in accordance with the State of California Department of Transportation Standard Plans, dated 2010 (Standard Plans), (collectively, "Contract Documents") and in accordance with the Special Provisions hereinabove set forth, all of which are hereby incorporated into and made part of this Contract.

The work to be performed is further shown upon a plan consisting of 30 sheets entitled, Santa Rosa Avenue Corridor Improvements, File Number 2022-0013, approved by the Deputy Director of Transportation and Public Works, hereinafter referred to as the Project Plan(s).

ARTICLE II - Contractor agrees to receive and accept the following prices as full compensation for furnishing all materials and doing all the work contemplated and embraced in this Contract; also for all loss or damages arising out of the nature of the work aforesaid, or from the acts of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by City and for all expenses incurred by or in consequence of the suspension or discontinuance of work, and for well and faithfully completing the work, and the whole thereof in the manner and according to the Project Plans and Invitation for Bids therefor, and the requirements of the Engineer under them to wit:

ITEM NUMBER	QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL
			\$ _____	\$ _____
TOTAL BASE BID (SUM OF "TOTAL" COLUMN)			\$ _____	

**BID ITEMS IN THIS SECTION WILL BE INSERTED  
UPON AWARD OF THE CONTRACT AND SHALL BE  
THE SAME AS THOSE BID UPON.**

ARTICLE III - City and Contractor hereby promise and agree that Contractor shall provide the materials and do the work according to the terms and conditions herein contained and referred to, for the prices aforesaid, and City hereby agrees to pay for the same at the time, in the manner, and upon the conditions set forth; and the parties for themselves, their heirs, executors, administrators, successors, and assigns, do hereby agree to full performance of the covenants herein stated.

ARTICLE IV - By execution of this Contract, Contractor hereby represents and certifies that Contractor is aware of the provisions of Labor Code section 3700 which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor hereby agrees to comply with such provisions before commencing the performance of the work of this Contract.

ARTICLE V - It is further expressly agreed by and between the parties hereto that the Invitation for Bids, containing the Notice to Bidders including any required Bonds, the Contract Documents, and any Addenda are all essential parts of this Contract and are specially referred to and by such reference made a part hereof. In the event of any conflict in the provisions thereof, the terms of said documents shall control each over the other, in the following order:

1. Special Provisions
2. Project Plans
3. City Standards
4. City Specifications
5. Standard Specifications
6. Standard Plans

ARTICLE VI - Contractor agrees to commence work pursuant to this Contract within ten calendar days from the date authorized in the Notice to Proceed and to diligently prosecute the same to completion in accordance with Section 8-1.04C of the Special Provisions.

This Contract shall not be transferred or assigned without the prior written consent of City, which may be withheld by City in its sole and absolute discretion.

If Contractor is a corporation, two corporate officers of Contractor, one from each of the following two groups shall execute this Contract: a) the chairman of the board, president or any vice-president; b) the secretary, any assistant secretary, chief financial officer, or any assistant treasurer. The name and title of the corporate officers shall be printed under the signature.

In witness whereof, the parties hereto have executed this Contract as of the date first written above.

**City:**

City of Santa Rosa,  
a Municipal corporation

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

Title: \_\_\_\_\_

**ATTEST:**

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

Title: \_\_\_\_\_

Approved as to form:

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

Office of City Attorney

**Contractor:**

Name of Contractor,  
Type of entity

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

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

Title: \_\_\_\_\_

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

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

Title: \_\_\_\_\_

# Notice to Bidders for C01620 Santa Rosa Avenue Corridor Improvements

Final Audit Report

2022-12-15

Created:	2022-12-15
By:	Aimee Hennessy (AHennessy@srcity.org)
Status:	Signed
Transaction ID:	CBJCHBCAABAABiMClrJgLDK7qILTYGGbyJeMQ2muRC4H

## "Notice to Bidders for C01620 Santa Rosa Avenue Corridor Improvements" History

 Document created by Aimee Hennessy (AHennessy@srcity.org)

2022-12-15 - 8:25:22 PM GMT

 Document emailed to lwelsh@srcity.org for signature

2022-12-15 - 8:26:32 PM GMT

 Email viewed by lwelsh@srcity.org

2022-12-15 - 8:33:40 PM GMT

 Signer lwelsh@srcity.org entered name at signing as Lisa Welsh

2022-12-15 - 9:44:53 PM GMT

 Document e-signed by Lisa Welsh (lwelsh@srcity.org)

Signature Date: 2022-12-15 - 9:44:55 PM GMT - Time Source: server

 Agreement completed.

2022-12-15 - 9:44:55 PM GMT