OmniTrans
Connecting Our Community.

# BOARD OF DIRECTORS
# JULY 1, 2020
# SUPPLEMENTAL INFORMATION

**ITEM #E11 TRANSIT ASSET MANAGEMENT SYSTEM**
**ITEM #F5 CONCRETE REPAIRS AT THE WEST VALLEY FACILITY**

## REVISED, COST FILE - BEST AND FINAL OFFER

Consultant shall furnish all direct and indirect costs in accordance with the Scope of Work. Consultant's pricing shall be inclusive of all direct and indirect costs and remain firm for a period of ninety (90) days after the stated RFP deadline date. Omnitrans reserves the right to accept or reject all or any part of a proposal, to waive minor technicalities, and to award the contract to the Consultant(s) that best serve the interests of Omnitrans.

| **Transit Asset Management System** | **Description** | **Amount** |
|---|---|---|
| Task 1 | Project Plan, Schedule and Remote Interviews | $ 59,904.00 |
| Task 2 | Needs Analysis Report | $ 37,440.00 |
| Task 3 | Asset Management System Report | $ 52,416.00 |
| Task 4 | Develop, test and implement Transit Asset Management Reports | $ 151,680.00 |
| | | |
| **Total** | | **$** 301,440.00 |

Proposer's Company Name: Phoenix Business Inc.

Legal Structure (corp./partner/proprietor): Corporation

Principle Office Address: 6021 Midnight Pass Rd, Unit 3

City, St., Zip: Sarasota, FL 34242

Phone Number: 626-375-3994

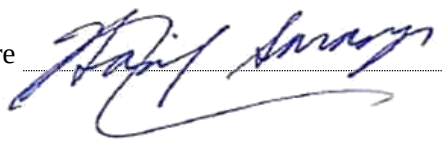
Fax Number: 817-549-0261

E-Mail: rfpteam@phoenixteam.com

Federal Employer Identification Number: 36-4217363

Title of Person Authorized to Sign: President

Print Name of Person Authorized to Sign: Hanif Sarangi

Date Signed and Authorized Signature:  05/18/2020

OmniTrans

# CONTRACT AGREEMENT

between

CONTRACTOR
Golden Gate Steel, Inc.
dba Golden Gate Construction
14709 Carmenita Road
Norwalk, CA 90650

(hereinafter "CONTRACTOR")
Contact: Stephen Lim, Project Manager
Telephone: (310) 387-7997
Email: Stephen.goldengate@gmail.com

Remit Address
same
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**CONTRACT DOCUMENTS**

**CONTRACT NO. MNT20-32**

**Concrete Repairs at the West Valley Facility**

And

Contract Amount: $788,476

Omnitrans
1700 West Fifth Street
San Bernardino, CA 92411
(hereinafter "OMNITRANS")

Omnitrans Project Manager:
Name: Tom Dahlin
Title: Capital Projects Services Mrg.
Telephone: (909) 379-7215
Email:
thomas.dahlin@omnitrans.org

Contract Administrator:
Name: Christine Van Matre
Title: Contract Administrator
Telephone: (909) 379-7122
Email: christine.vanmatre@omnitrans.org




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This Agreement is made and entered into as of this ___ day of _____, by and between Omnitrans (hereinafter referred to as "OMNITRANS") and Golden Gate Steel, Inc. dba Golden Gate Construction (hereinafter referred to as "CONTRACTOR").

## RECITALS

WHEREAS, OMNITRANS is a joint powers authority organized under Section 6500 et seq. of the California Government Code with power to contract for services described in Attachment A to this Agreement entitled "Attachment A, Scope of Work" (hereinafter referred to as "Work");

WHEREAS, CONTRACTOR has indicated it is qualified to perform such services and (1) has reviewed all the available data furnished by OMNITRANS pertinent to the Work to be rendered; (2) has inspected and reviewed the Work to be rendered; (3) will exercise the ordinary care and skill expected of a practitioner in its profession; and (4) is willing to accept responsibility of performing the Work set forth in this Agreement for the compensation and in accordance with the terms, requirements and conditions herein specified;

NOW, THEREFORE, for the consideration hereinafter stated, the parties agree as follows:

## 1. SCOPE OF WORK

A. CONTRACTOR will perform the Work and related tasks as described in Attachment A, Scope of Work hereto and is incorporated by reference into and made a part of this Agreement.

B. This is a non-exclusive Agreement, whereby OMNITRANS may, at its sole discretion, augment or supplant the Work with its own forces or forces of another contractor or entity. CONTRACTOR will cooperate fully with OMNITRANS' staff or other contractor or entity that may be providing similar or the same Work for OMNITRANS.

## 2. PERIOD OF PERFORMANCE

The term of this Agreement shall be from the date of execution of this Agreement and continue in effect through _____, unless terminated as specified in Section 10 and 11 of this Agreement. Omnitrans has no obligation to purchase any specified amount of products/services. All applicable indemnification provisions in this Agreement shall remain in effect following the termination of this Agreement.

Omnitrans' election to extend the Agreement beyond the Initial Term shall not diminish its right to terminate the Agreement for Omnitrans' convenience or CONTRACTORS default as provided elsewhere in this Agreement.

## 3. CONTRACT OPTIONS

A. Omnitrans will have the unilateral right in the contract by which, for a specified time, Omnitrans may elect to purchase additional services called for by the contract, or may elect to extend the term of the contract. The requirements below apply:

1) Any options that were requested by Omnitrans and/or contained in the Contractor's PROPOSAL or offer must have been evaluated in making the contract award prior to exercising any such options.

2) Since Contractor's proposed pricing for the option years and additional services are considered in evaluating the Contractor's original proposal and form the basis for awarding the contract, Contractor shall be bound by the proposal pricing for additional services and/or option years, unless otherwise provided herein.

B. Omnitrans will provide a minimum of thirty days (30) written notice to the Contractor of Omnitrans' exercise of its option to extend the contract years. Omnitrans may give notice of its exercise of the option for additional services at any time during the term of the contract. The minimum time for the written notice may be waived by mutual agreement.

## 4. COMPENSATION

For CONTRACTOR's full and complete performance of its obligations under this Agreement, OMNITRANS shall pay CONTRACTOR on a FIXED PRICE basis at the fully burdened fixed rates shown in Attachment C, and subject to the maximum cumulative payment obligation.

OMNITRANS' maximum cumulative payment obligation under this Agreement shall not exceed Seven Hundred Eighty-Eight Thousand Four Hundred Seventy-Six Dollars ($788,476), including all amounts payable to CONTRACTOR for all costs, including but not limited to direct labor, other direct costs, subcontracts, indirect costs including, but not limited to, leases, materials, taxes, insurance, and profit.

## 5. INVOICING AND PAYMENT

A. CONTRACTOR shall invoice OMNITRANS on a monthly basis no later than the 15th of each month. CONTRACTOR shall furnish information as may be requested by OMNITRANS to substantiate the validity of an invoice.

CONTRACTOR shall submit invoices in duplicate to:

OMNITRANS
1700 West Fifth Street
San Bernardino, CA 92411
Attn: Accounts Payable

Accountspayable@omnitrans.org

A separate invoice shall be used for each shipment. Each invoice shall include, at minimum, the following information:

- Contract number
- Invoice number
- Description of delivery
- Delivery Date
- Total quantity delivered
- Information as requested by OMNITRANS

B. OMNITRANS shall remit payment within thirty (30) calendar days of approval of the invoices by OMNITRANS' Project Manager.

In the event OMNITRANS should overpay CONTRACTOR, such overpayment shall not be construed as a waiver of OMNITRANS' right to obtain reimbursement for the overpayment. Upon discovering any overpayment, either on its own or upon notice of OMNITRANS, CONTRACTOR shall immediately reimburse OMNITRANS the entire overpayment or, at its sole discretion, OMNITRANS may deduct such overpayment amount from monies due to CONTRACTOR under this Agreement or any other Agreement between OMNITRANS and CONTRACTOR.

C. Prompt Payment Clause

Omnitrans has, by a contract clause pursuant to 49 CFR 26.29; "Prompt Payment Mechanisms for Recipients", adopted a prompt payment provision on all DOT-assisted contracts, to facilitate timely payment to all subcontractors. This provision, governing the payment to subcontractors (DBEs and non-DBEs), requires the Prime Contractor to issue payment to all subcontractors for satisfactory work performed, no later than seven (7) days from Contractor's receipt of payment from Omnitrans. A provision will also apply to the disbursement of retention proceeds withheld by Prime Contractor, requiring the prompt return of retention payments from Contractor to the subcontractor no later than seven (7) days Omnitrans after the subcontractor's work is satisfactorily completed. Prime Contractor will

incorporate these prompt payment provisions in all subcontract agreements issued by Prime Contractor with respect to this Contract.

In accordance with §26.29 "Prompt Payment Provisions", Omnitrans at its discretion, utilizes the following method to comply with the prompt payment of retainage requirement:

Hold retainage from the Prime Contractor and require a contract clause obligating Prime Contractor to make prompt and full payment of any retainage kept by Prime Contractor to the subcontractor within 7 days after the subcontractor's work is satisfactorily completed.

Failure to comply with these prompt payment provisions or delay in issuing payment without prior written approval from Omnitrans will constitute noncompliance, which will result in the application of appropriate administrative sanctions, including, but not limited to, a penalty of 1% of the amount due per month to the affected subcontractor for every month that payment is not made.

Contractor will not be reimbursed for work performed by subcontractors unless and until the contractor ensures that the subcontractors are promptly paid for the work performed. Contractor shall include a prompt payment clause that complies with local, state, and federal prompt payment requirements in all subcontracts entered into under this contract. Should contractor fail to meet subcontractor prompt payment requirements for two (2) consecutive subcontractor payments without good cause, OMNITRANS may impose appropriate penalties for failure to comply with prompt payment requirements.

D. TITLE

a. Title shall pass to Omnitrans at the time of payment.

b. The title transferred as above shall in each case be good, and free and clear from any and all security interests, liens, and/or other encumbrances.

c. The transfer of title as specified above shall not imply Acceptance by Omnitrans, nor relieve the Contractor from the responsibility for strict compliance with the Contract, including warranty as specified in the Article entitled Warranty of Work, and for any loss of or damage to the Work.

d. The Contractor at its own expense shall promptly execute, acknowledge, and deliver to the Omnitrans proper bills of sale or other written instruments of title in a form as required by Omnitrans; said instruments shall convey to the Omnitrans' title free and clear of debts, claims, liens, mortgages, taxes, and/or encumbrances.

e. Contractor shall have title to and bear the risk of any loss of or damage to Work purchased hereunder until they are delivered, unloaded, and

received by Omnitrans at the FOB Destination specified herein. Contractor's responsibility for loss or damage except for loss or damage resulting from Contractor's negligence, shall cease when title passes to Omnitrans.

## 6. AUDIT AND INSPECTION OF RECORDS

CONTRACTOR agrees that OMNITRANS or any duly authorized representative shall have access to and the right to examine, audit, excerpt, copy or transcribe any pertinent transaction, activity, time cards, employment records or other records relating to this Agreement. Such material, including all pertinent cost, accounting, financial records, and proprietary data must be kept and maintained by CONTRACTOR for a period of three (3) years after completion of this Agreement unless OMNITRANS' written permission is given to CONTRACTOR to dispose of material prior to this time.

## 7. NOTIFICATION

All notices hereunder concerning this Agreement and the Work to be performed shall be physically transmitted by courier, overnight, registered or certified mail, return receipt requested, postage prepaid and addressed as follows:

| To OMNITRANS: | To CONTRACTOR: |
|---|---|
| Omnitrans<br>1700 West Fifth Street<br>San Bernardino, CA 92411<br>Attn: Christine Van Matre<br>Title: Contract Administrator | Golden Gate Steel, Inc.<br>dba Golden Gate Construction<br>14709 Carmenita Road<br>Norwalk CA 90650<br>Yohann Chang, President<br>(562) 210-8108 Office<br>yahannchang@gmail.com |

## 8. OMNITRANS' AND CONTRACTOR'S REPRESENTATIVES

### A. OMNITRANS' Project Manager

Contracting Officer: OMNITRANS' CEO/General Manager or his authorized designee who has authority to execute contracts on behalf of OMNITRANS.

Project Manager: Tom Dahlin, Capital Projects Services Manager

a. Except as expressly specified in this Agreement, the Contracting Officer may exercise any powers, rights and/or privileges that have been lawfully delegated by OMNITRANS. Nothing in this Agreement should be construed to bind OMNITRANS for acts of its officers,

employees, and/or agents that exceed the delegation of authority specified herein.

b. The Contracting Officer has delegated to the Project Manager certain powers and duties in connection with this Agreement. The Project Manager is the authorized representative of the Contracting Officer for matters related to this Agreement. The Project Manager or his/her designee is empowered to:

1. Have general oversight of the Work and this Agreement, including the power to enforce compliance with this Agreement.

2. Reserve the right to remove any portion of the Work from CONTRACTOR which have not been performed to OMNITRANS' satisfaction.

3. Subject to the review and acceptance by OMNITRANS, negotiate with CONTRACTOR all adjustments pertaining to this Agreement for revision.

c. In addition to the foregoing, the Project Manager shall have those rights and powers expressly set forth in other sections of this Agreement.

B. **Contractor's Key Personnel**

The following are CONTRACTOR's key personnel and their associated roles in the Work to be provided:

| Name | Role |
|---|---|
| Stephen Lim | Project Manager |
| Terry Kim | Superintendent |
| Davis Lim | Project Coordinator |

Any proposed/substitution or replacement by Contractor of Contractor's key personnel shall ensure that such person possesses the same or better expertise and experience than the key personnel being substituted or replaced. Omnitrans reserves the right to interview such person to ascertain and verify if such proposed substitution or replacement does indeed possess such expertise and experience.

OMNITRANS awarded this Agreement to CONTRACTOR based on OMNITRANS' confidence and reliance on the expertise of CONTRACTOR's key personnel described above. CONTRACTOR shall not reassign key personnel or assign other personnel to key personnel roles until CONTRACTOR obtains prior written approval from OMNITRANS.

## 9. DISPUTE RESOLUTION

Any disputes between the successful CONTRACTOR and OMNITRANS relating to the implementation or administration of the Contract shall be resolved in accordance with this section.

A. The parties shall first attempt to resolve the dispute informally in meetings or communications between proposer and OMNITRANS.

B. If the dispute remains unresolved fifteen (15) days after it first arises, proposer may request that Omnitrans' CEO/General Manager issue a recommended decision on the matter in dispute. Omnitrans' CEO/General Manager shall issue the recommended decision in writing and provide a copy to proposer.

C. If the dispute remains unresolved after review by Omnitrans' CEO/General Manager, either party may seek judicial resolution of the dispute in an appropriate Court of the State of California.

D. Pending final resolution of a dispute under this section, proposer shall proceed diligently with performance in accordance with the Contract and Omnitrans' CEO/General Manager's recommended decision.

## 10. TERMINATION FOR CONVENIENCE

OMNITRANS may terminate this Agreement in whole or in part for OMNITRANS' convenience. Omnitrans' CEO/General Manager shall terminate this Agreement by a written Notice of Termination to CONTRACTOR specifying the nature, extent, and effective date of the termination. Upon receipt of the notice of termination, CONTRACTOR shall immediately discontinue all Work affected and deliver all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this Agreement, whether completed or in process, to Omnitrans' CEO/General Manager. OMNITRANS shall make an equitable adjustment in the Agreement for Work already performed, but shall not allow anticipated profit on unperformed services. Force Majeure shall apply.

## 11. TERMINATION FOR BREACH OF AGREEMENT

A. If CONTRACTOR fails to perform any of the provisions of this Agreement or so fails to make progress as to endanger timely performance of this Agreement, OMNITRANS may give CONTRACTOR written notice of such default. If CONTRACTOR does not cure such default or provide a plan to cure such default which is acceptable to OMNITRANS within the time permitted by OMNITRANS, then OMNITRANS may terminate this Agreement due to CONTRACTOR's breach of this Agreement.

B. If a federal or state proceeding for relief of debtors is undertaken by or against CONTRACTOR, or if CONTRACTOR makes an assignment for the benefit of creditors, then OMNITRANS may immediately terminate this Agreement.

C. If CONTRACTOR violates Section 29, Compliance with Lobbying Policies, of this Agreement, then OMNITRANS may immediately terminate this Agreement.

D. In the event OMNITRANS terminates this Agreement as provided in this Section, OMNITRANS may procure, upon such terms and in such manner as OMNITRANS may deem appropriate, work similar in scope and level of effort to those so terminated, and CONTRACTOR shall be liable to OMNITRANS for all of its costs and damages, including, but not limited, any excess costs for such Work.

E. All finished or unfinished documents and materials produced or procured under this Agreement shall become OMNITRANS' property upon date of such termination.

F. If, after notice of termination of this Agreement under the provisions of this Section, it is determined for any reason that CONTRACTOR was not in default under the provisions of this Section, or that the default was excusable under the terms of this Agreement, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to Section 10, Termination for Convenience.

G. The rights and remedies of OMNITRANS provided in this Article shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Agreement.

## 12. ASSIGNMENT

This Agreement, any interest herein or claim hereunder, may not be assigned by CONTRACTOR either voluntarily or by operation of law, nor may all or any part of this Agreement be subcontracted by CONTRACTOR, without the prior written consent of OMNITRANS. Consent by OMNITRANS shall not be deemed to relieve CONTRACTOR of its obligations to comply fully with all terms and conditions of this Agreement.

## 13. SUBCONTRACTING

A. OMNITRANS hereby consents to CONTRACTOR's subcontracting of portions of the Work to the parties identified below for the functions described in CONTRACTOR's proposal. CONTRACTOR shall include in each subcontract agreement the stipulation that CONTRACTOR, not OMNITRANS, is solely responsible for payment to the subcontractor for all amounts owing and that the subcontractor shall have no claim, and shall take

no action against OMNITRANS, Member Agencies or officers, directors, employees or sureties thereof for nonpayment by CONTRACTOR.

B. CONTRACTOR shall not, without the express written consent of Omnitrans, either:

a. Substitute any person, firm, or corporation as subcontractor in place of the subcontractors identified below; or

b. Permit any subcontract to be assigned or transferred; or

c. Allow work to be performed by anyone other than the original subcontractor listed below.

| Subcontractor's Name | License # | Work to Be Performed |
|---|---|---|
| Towo Enterprise, Inc. | 986567 | Demo, Concrete $220,000 |
| O'Conner Plumbing | 998720 | Catch Basin, Clarifier Tank, Drain Pipes $124,000 |
| ABC Resources | 538680 | Asphalt, Marking, Striping, Signage $16,190 |

C. CONTRACTOR shall report subcontractor awards and payments via a Web-based system on a monthly basis unless Omnitrans approves in writing the use of a Subcontractors Paid Report and Payment Verification form.

## 14. INDEPENDENT CONTRACTOR

CONTRACTOR's relationship to OMNITRANS in the performance of this Agreement is that of an independent Contractor. CONTRACTOR's personnel performing Work under this Agreement shall at all times be under CONTRACTOR's exclusive direction and control and shall be employees of CONTRACTOR and not employees of OMNITRANS. CONTRACTOR shall pay all wages, salaries and other amounts due its employees in connection with this Agreement and shall be responsible for all reports and obligations respecting them, such as social security, income tax withholding, unemployment compensation, workers' compensation and similar matters.

## 15. INSURANCE

### A. INSURANCE REQUIREMENTS

1) **General Requirements for Contractor**

a. Without limiting or diminishing the Contractor's obligation to indemnify or hold Omnitrans harmless, Contractor shall procure, prior to commencement of the services required under this contract and maintain for the duration of the contract at its own expense, insurance of the kinds and in the amounts as indicated below;

b. Provide Omnitrans with valid original certificates of insurance and endorsements showing Omnitrans as an additional insured.

2) **Deductibles or Self-Insured Retention (SIR)**

SIR must be declared to and approved by Omnitrans. At the option of Omnitrans, either: the insurer shall reduce or eliminate such deductibles or SIR or Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

3) **Other Insurance Provisions**

**a. Commercial General Liability and Automobile Liability**

Commercial General Liability insurance coverage, including but not limited to, premises liability, contractual liability, products and completed operations liability, personal and advertising injury covering claims which may arise from or out of Contractor's performance of its obligations hereunder and if Contractor's vehicles or mobile equipment are used in the performance of the obligations under this Agreement, then Contractor shall maintain liability insurance for all owned, non-owned or hired vehicles so used. Policy shall name **Omnitrans, its officers, officials, employees, agents and volunteers** as additional insured as respects: liability arising out of activities performed by or on behalf of Contractor; products and completed operations of Contractor; premises owned, occupied or used by Contractor; or automobiles owned, leased, hired or borrowed by Contractor. The coverage shall contain no special limitations of the scope of protection afforded Omnitrans, its officers, officials, employees, agents, and volunteers.

1. For any claims related to this project, Contractor's insurance coverage shall be primary insurance as respects Omnitrans, its officers, officials, employees, agents, and volunteers. Any insurance and/or deductibles and/or self-insured retentions or self-insured programs maintained by Omnitrans, its officers, officials, employees, agents, and volunteers shall be excess of

Contractor's insurance and shall not be construed as contributory.

2. Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
3. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to Omnitrans.

**b. Workers' Compensation**

If the Contractor has employees as defined by the State of California, the Contractor shall maintain statutory Workers' compensation Insurance (Coverage A) as prescribed by the laws of the State of California. Policy shall include Employers' Liability (Coverage B) including Occupational Disease with limits not less than $1,000,000 per person per accident. The policy shall be endorsed to waive subrogation in favor of Omnitrans and, if applicable, to provide a Borrowed Servant/Alternate Employer Endorsement.

**c. Care, Custody, and Control**

Contractor shall insure any Omnitrans property while under its Care, Custody, and Control according to the requirements listed in the insurance coverage required.

4) **Acceptability of Insurers**

Insurance companies shall be State of California admitted or approved and have a current **A.M. Best's** rating of no less than **A:VIII.**

5) **Verification of Coverage**

a. Contractor shall furnish Omnitrans with original endorsements affecting coverage required by this clause. The endorsements are to be signed by a person authorized by that insurer to bind coverage on its behalf. All insurance certificates and endorsements are to be received and approved by Omnitrans before work commences.

b. As an alternative, Contractor's insurer may provide complete, certified copies of all required insurance policies, including endorsements affecting the coverage required by these specifications.

c. In lieu of purchasing insurance and providing original endorsements and or certificates of insurance, the Contractor may provide proof of self-insurance; such proof must be to the satisfaction of Omnitrans.

6) **Subcontractors**

Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

7) **Notification of Terminated Insurance**

Insurance shall not be terminated or expire without thirty (30) days written or electronic notice, and are required to be maintained in force until completion of the contract.

## B. MINIMUM INSURANCE COVERAGE

If the Contractor maintains broader coverage and/or higher limits than the minimum requirements shown below, Omnitrans requires and shall be entitled to the broader coverage and/or higher limits maintained by the Contractor.

1) ☒ **Commercial General Liability including Products/Completed Operations:** $1,000,000; per occurrence for bodily and property damage liability and $2,000,000 aggregate; *Omnitrans named and endorsed as an Additional Insured.*

2) ☒ **Automobile Liability:** $1,000,000; per occurrence for bodily and property damage liability and aggregate; *Omnitrans named and endorsed as an Additional Insured.*

3) ☐ **Errors and Omissions Liability:** $1,000,000; combined single limit bodily and property damage liability per occurrence and $ 3,000,000 aggregate or,

4) ☐ **Professional Liability:** $1,000,000; per occurrence and aggregate.

5) ☒ **Workers' Compensation:** statutory limits or,

6) ☐ **Self Insurance Program:** a State Approved program in an amount and form that meets all applicable requirements of the Labor Code of the State of California.

7) ☒ **Employer's Liability**: $1,000,000; per occurrence.

8) ☐ **Environmental Liability:** $1,000,000; per occurrence and aggregate; *Omnitrans named and endorsed as an Additional Insured.*

9) ☐ **Umbrella Policy:** $4,000,000; per occurrence and aggregate Additional coverage for the above policies, *Omnitrans Additional Insured.*

10) ☒ **Hazardous Materials Endorsement:** All drivers making deliveries of products specified on this solicitation shall have Hazardous Materials Endorsements on their Commercial Drivers License, and such other Endorsements as may be required by relevant laws and/or regulations.

11) ☒ **Builders Risk Insurance:** Contractor shall maintain in force, at its own expense, Builder's Risk insurance on all risks of direct physical loss basis, excluding damage caused by an act of God, pursuant to California Public Contract Code §7105, for an amount equal to the full completed value of the covered structure or replacement value of alterations or additions. The policy shall include Omnitrans, Contractor and its subcontractors as loss payee as their interest may appear. Omnitrans shall not be responsible for the theft of any materials, equipment in the possession and control of Contractor.

12) ☐ **Installation Floater Insurance:** Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Agreement, a Builder's Risk Installation Floater for coverage of Contractor's labor, materials and equipment to be used for completion of the work performed under this Agreement. The minimum amount of coverage to be carried shall be equal to the full amount of the Contractor's labor, equipment, materials, or fixtures to be installed, in transit, or stored off-site or on-site during the performance of this Agreement. The policy shall include as loss payee, Omnitrans, the Contractor, and its sub-contractors as their interest may appear. Omnitrans shall not be responsible for the theft of any materials, equipment in the possession and control of Contractor.

## 16. INDEMNITY

CONTRACTOR shall indemnify, defend and hold harmless OMNITRANS, and its member agencies, and their officers, directors, employees and agents from and against any and all liability, expense (including, but not limited to, defense costs and attorneys' fees), claims, causes of action, and lawsuits for damages of any nature whatsoever, including, but not limited to, bodily injury, death, personal injury or property damage (including property of CONTRACTOR) arising from or connected with any alleged act and/or omission of CONTRACTOR, its officers, directors, employees, agents, Subcontractors or suppliers. This indemnity shall survive termination or expiration of this Agreement and/or final payment thereunder.

## 17. REVISIONS IN SCOPE OF WORK

By written notice or order, OMNITRANS may, from time to time, order work suspension or make changes to this Agreement. Changes in the Work shall be

mutually agreed to and incorporated into an amendment to this Agreement. Upon execution of an amendment, CONTRACTOR shall perform the Work, as amended.

## 18. RIGHTS IN TECHNICAL DATA

A. No material or technical data prepared by CONTRACTOR under this Agreement is to be released by CONTRACTOR to any other person or entity except as necessary for the performance of the Work. All press releases or information concerning the Work that might appear in any publication or dissemination, including but not limited to, newspapers, magazines, and electronic media, shall first be authorized in writing by OMNITRANS.

B. The originals of all letters, documents, reports and other products and data produced under this Agreement shall become the property of OMNITRANS without restriction or limitation on their use and shall be made available upon request to OMNITRANS at any time. Original copies of such shall be delivered to OMNITRANS upon completion of the Work or termination of the Work. CONTRACTOR shall be permitted to retain copies of such items for the furtherance of its technical proficiency; however, publication of this material is subject to the prior written approval of OMNITRANS. The provisions of this paragraph shall survive termination or expiration of this Agreement and/or final payment thereunder.

## 19. OWNERSHIP OF REPORTS AND DOCUMENTS

The originals of all letters, documents, reports and other products and data produced under this Agreement shall be delivered to, and become the sole and exclusive property of OMNITRANS. Copies may be made for CONTRACTOR's records, but shall not be furnished to others without prior written authorization from OMNITRANS. Such deliverables shall be deemed works made for hire, and all rights in copyright therein shall be retained by OMNITRANS.

## 20. OWNERSHIP RIGHTS

A. In the event OMNITRANS rightfully obtains copies of Proprietary Data under the terms of the separate License Agreement and Escrow Agreement that govern rights in Documentation, Software and Intellectual Property created and/or developed by Contractor, its Third Party Software Contractors and its Suppliers as part of the Project, any derivative works and associated documentation created by or on behalf of OMNITRANS by Permitted Programmers (as defined in the License Agreement) shall be the sole and exclusive property of OMNITRANS (collectively, "OMNITRANS Intellectual Property"), and OMNITRANS may use, disclose and exercise dominion and full rights of ownership, in any manner in OMNITRANS Intellectual Property in connection with the use, operation and maintenance of a transportation system administered by OMNITRANS. No use of OMNITRANS Intellectual

Property shall be made for any purpose other than in conjunction with a transportation system administered by CONTRACTOR, and OMNITRANS shall not sell, lease, rent, give away or otherwise disclose any OMNITRANS Intellectual Property to any outside third party other than Permitted Programmers. To the extent there may be any question of rights of ownership or use in any OMNITRANS Intellectual Property, Contractor shall require all of its subcontractors and suppliers (including without limitation its Third Party Software Contractors) to assign to OMNITRANS, all worldwide right, title and interest in and to all OMNITRANS Intellectual Property in a manner consistent with the foregoing terms of this paragraph. Contractor shall execute any documents as OMNITRANS may from time to time reasonably request to effectuate the terms of this paragraph.

B. All documentation and Software which predates this Contract and which otherwise owned by Contractor or its Third Party Software Contractors, and all Documentation and Software which is created by Contractor or its Third Party Software Contractors shall be Licensed Software or Licensed Documentation, as appropriate. All Licensed Software and Licensed Documentation shall be governed by the License Agreement by and between the parties of event date herewith.

## 21. WORK FOR HIRE

Any work created or produced as a part of this Agreement that may be defined under Section 101, Title 17, USC will be considered "work for hire" as it pertains to ownership rights. CONTRACTOR, by his/her endorsement hereon agrees that all rights to any work(s) created or produced are waived, and that ownership rests with OMNITRANS. CONTRACTOR further agrees to ensure transfer of all rights to such work(s), as defined under federal copyright law, that may be created or produced under this Agreement by its suppliers, contractors or subcontractors.

## 22. SUBMITTAL OF CLAIMS BY CONTRACTOR

CONTRACTOR shall file any and all claims with OMNITRANS' Project Manager in writing within thirty (30) days of the event or occurrence giving rise to the claim. The claim shall be in sufficient detail to enable OMNITRANS to ascertain the claim's basis and amount, and shall describe the date, place and other pertinent circumstances of the event or occurrence giving rise to the claim and the indebtedness, obligation, injury, loss or damages allegedly incurred by CONTRACTOR.

Even though a claim may be filed and/or in review by OMNITRANS, CONTRACTOR shall continue to perform in accordance with this Agreement.

## 23. EQUAL OPPORTUNITY

CONTRACTOR shall not discriminate against, or grant preferential treatment to, any individual or group, or any employee or applicant for employment because of

race, age, religion, color, ethnicity, sex, national origin, ancestry, physical disability, mental disability, political affiliation, sexual orientation, marital status or other status protected by law. CONTRACTOR shall take action to ensure that applicants and employees are treated without regard to the above.

## 24. STANDARD OF PERFORMANCE

A. CONTRACTOR shall perform and exercise, and require its subcontractors to perform and exercise due professional care and competence in the performance of the Work in accordance with the requirements of this Agreement. CONTRACTOR shall be responsible for the professional quality, technical accuracy, completeness and coordination of the Work, it being understood that OMNITRANS will be relying upon such professional quality, accuracy, completeness and coordination in utilizing the Work. The foregoing obligations and standards shall constitute the "Standard of Performance" for purposes of this Agreement. The provisions of this paragraph shall survive termination or expiration of this Agreement and/or final payment thereunder.

B. All workers shall have sufficient skill and experience to perform the Work assigned to them. OMNITRANS shall have the right, at its sole discretion, to require the immediate removal of CONTRACTOR's personnel at any level assigned to the performance of the Work at no additional fee or cost to OMNITRANS, if OMNITRANS considers such removal in its best interests and requests such removal in writing and such request is not done for illegal reasons. Further, an employee who is removed from performing Work under this Agreement under this Article shall not be re-assigned to perform Work in any other capacity under this Agreement without OMNITRANS' prior written approval.

## 25. NOTIFICATION OF EMPLOYMENT OF OMNITRANS BOARD MEMBERS/ALTERNATES AND EMPLOYEES

To ensure compliance with OMNITRANS' Ethics Policy, CONTRACTOR shall provide written notice to OMNITRANS disclosing the identity of any individual who CONTRACTOR desires to employ or retain under a contract, and who (1) presently serves as a Board Member/Alternate or an employee of OMNITRANS, or (2) served as a Board Member/Alternate or an employee of OMNITRANS within the previous 12 months of the date of the proposed employment or retention by CONTRACTOR. CONTRACTOR's written notice shall indicate whether the individual will be an officer, principal or shareholder of the entity and/or will participate in the performance of this Agreement.

## 26. DISQUALIFYING POLITICAL CONTRIBUTIONS

In the event of a proposed amendment to this Agreement, CONTRACTOR shall provide prior to the execution of such amendment, a written statement disclosing

any contribution(s) of $250 or more made by CONTRACTOR or its subcontractor(s) to Omnitrans Board Members/Alternates or employees within the preceding twelve (12) months of the date of the proposed amendment. Applicable contributions include those made by any agent/person/entity on behalf of CONTRACTOR or subcontractor(s).

## 27. COMPLIANCE WITH LAW

A. CONTRACTOR shall familiarize itself with and perform the Work required under this Agreement in conformity with requirements and standards of OMNITRANS, municipal and public agencies, public and private utilities, special districts, and railroad agencies whose facilities and work may be affected by Work under this Agreement. CONTRACTOR shall also comply with all Federal, state and local laws and ordinances.

B. Government regulations that directly affect the CONTRACTOR'S performance of this contract and unforeseen impacts, which neither party could have contemplated at the onset of the contract and have an unconscionable impact on the CONTRACTOR may be given special pricing consideration. The parties, in good faith, shall review established rates and may adopt any mutually agreed new rates, which shall only be effective as agreed upon by the parties. Thorough documentation including all cost elements is required to support the Contractor's claim to any relief under this clause.

## 28. DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

This project is subject to Title 49, Code of Federal Regulations (CFR), Part 26, entitled "Participation by Disadvantaged Business Enterprises (DBE) in Department of Transportation Financial Assistance Programs ("Regulations"). The Regulations in their entirety are incorporated herein by this reference. Omnitrans has established a Race Neutral Federal Transportation Administration (FTA) DBE program, which is also incorporated by reference. It is the policy of Omnitrans to ensure non-discrimination in the award and administration of all contracts and to create a level playing field on which DBEs can compete fairly for contracts and subcontracts. Omnitrans highly encourages the participation of DBE contractors and the utilization of DBE subcontractors in this project. There is no contract DBE goal on this project, however, Omnitrans has an overall agency DBE goal of 6.1% and any DBEs on this project will be used to satisfy the overall agency DBE goal. CONTRACTOR must comply with DBE regulations (49 CFR, Part 26) in the execution of this contract. Key DBE provisions have been included in Omnitrans' DBE Program Requirements, and include assurance of nondiscrimination, prompt payment, and reporting requirements.

## 29. COMPLIANCE WITH LOBBYING POLICIES

A. CONTRACTOR agrees that if it is a Lobbyist Employer or if it has retained a Lobbying Firm or Lobbyist, as such terms are defined by OMNITRANS in

its Ethics Policy, it shall comply or ensure that its Lobbying Firm and Lobbyist complies with OMNITRANS' Ethics Policy.

B. If CONTRACTOR (Lobbyist Employer) or its Lobbying Firm or Lobbyist fails to comply, in whole or in part, with OMNITRANS' Ethics Policy, such failure shall be considered a material breach of this Agreement and OMNITRANS shall have the right to immediately terminate or suspend this Agreement.

## 30. PUBLIC RECORDS ACT

A. All records, documents, drawings, plans, specifications and other material relating to conduct of OMNITRANS' business, including materials submitted by CONTRACTOR in its proposal and during the course of performing the Work under this Agreement, shall become the exclusive property of OMNITRANS and may be deemed public records. Said materials may be subject to the provisions of the California Public Records Act. OMNITRANS' use and disclosure of its records are governed by this Act.

B. OMNITRANS will not advise as to the nature or content of documents entitled to protection from disclosure under the California Public Records Act, including interpretations of the Act or the definitions of trade secret, confidential or proprietary. OMNITRANS will accept materials clearly and prominently labeled "TRADE SECRET" or "CONFIDENTIAL" or "PROPRIETARY" as determined by CONTRACTOR. OMNITRANS will endeavor to notify CONTRACTOR of any request of the disclosure of such materials. Under no circumstances, however, will OMNITRANS be liable or responsible for the disclosure of any labeled materials whether the disclosure is required by law or a court order or occurs through inadvertence, mistake or negligence on the part of OMNITRANS or its officers, employees and/or contractors.

C. In the event of litigation concerning the disclosure of any material submitted by CONTRACTOR, OMNITRANS' sole involvement will be as a stake holder, retaining the material until otherwise ordered by a court. CONTRACTOR, at its sole expense and risk, shall be responsible for prosecuting or defending any action concerning the materials, and shall defend, indemnify and hold OMNITRANS harmless from all costs and expenses, including attorneys' fees, in connection with such action.

## 31. WAIVER/INVALIDITY

No waiver of a breach of any provision of this Agreement by either party shall constitute a waiver of any other breach of the provision, or of any other breach of the provision of the Agreement. Failure of either party to enforce any provision of this Agreement at any time shall not be construed as a waiver of that provision.

The invalidity in whole or in part of any provision of this Agreement shall not void or affect the validity of any other provision.

## 32. FORCE MAJEURE

Performance of each and all CONTRACTOR's and OMNITRANS' covenants herein shall be subject to such delays as may occur without CONTRACTOR's or OMNITRANS' fault from acts of God, strikes, riots, or from other similar causes beyond CONTRACTOR's or OMNITRANS' control.

## 33. CONFIDENTIALITY

CONTRACTOR agrees that for and during the entire term of this Agreement, any information, data, figures, records, findings and the like received or generated by CONTRACTOR in the performance of this Agreement, shall be considered and kept as the private and privileged records of OMNITRANS and will not be divulged to any person, firm, corporation, or other entity except on the direct prior written authorization of OMNITRANS. Further, upon expiration or termination of this Agreement for any reason, CONTRACTOR agrees that it will continue to treat as private and privileged any information, data, figures, records, findings and the like, and will not release any such information to any person, firm, corporation or other entity, either by statement, deposition, or as a witness, except upon direct prior written authority of OMNITRANS.

## 34. CONTRACTOR'S INTERACTION WITH THE MEDIA AND THE PUBLIC

A. OMNITRANS shall review and approve in writing all OMNITRANS related copy proposed to be used by CONTRACTOR for advertising or public relations purposes prior to publication. CONTRACTOR shall not allow OMNITRANS related copy to be published in its advertisements and public relations programs prior to receiving such approval. CONTRACTOR shall ensure that all published information is factual and that it does not in any way imply that OMNITRANS endorses CONTRACTOR's firm, service, and/or product.

B. CONTRACTOR shall refer all inquiries from the news media to OMNITRANS, and shall comply with the procedures of OMNITRANS' Public Affairs staff regarding statements to the media relating to this Agreement or the Work.

C. If CONTRACTOR receives a complaint from a citizen or the community, CONTRACTOR shall inform OMNITRANS as soon as possible and inform OMNITRANS of any action taken to alleviate the situation.

D. The provisions of this Article shall survive the termination or expiration of this Agreement.

## 35. GOVERNING LAW

The validity of this Agreement and of any of its terms or provisions, as well as the rights and duties of the parties hereunder, shall be governed by the laws of the

State of California, and the proper venue of any action brought hereunder is and shall be the County of San Bernardino, California.

## 36. MODIFICATIONS TO AGREEMENT

Unless specified otherwise in the Agreement, this Agreement may only be modified by written mutual consent evidenced by signatures of representatives authorized to enter into and modify the Agreement. In order to be effective, amendments may require prior approval by OMNITRANS' Board of Directors, and in all instances require prior signature of an authorized representative of OMNITRANS.

## 36. LICENSING, PERMITS AND INSPECTION COSTS

A. The CONTRACTOR warrants that it has all necessary licenses and permits required by the laws of the United States, State of California, and the County of San Bernardino, the Local Jurisdictions, and all other appropriate governmental agencies, and agrees to maintain these licenses and permits in effect for the duration of the Agreement. Further, FIRM warrants that its employees, agents, and contractors and subcontractors shall conduct themselves in compliance with such laws and licensure requirements including, without limitation, compliance with laws applicable to nondiscrimination, sexual harassment and ethical behavior throughout the duration of this Agreement. CONTRACTOR further warrants that it shall not retain or employ an unlicensed subcontractor to perform work on this Project. CONTRACTOR shall notify OMNITRANS immediately and in writing of its employees', agents', contractors' or subcontractors' inability to obtain or maintain, irrespective of the pendency of any appeal, any such licenses, permits, approvals, certificates, waivers, exemptions. Such inability shall be cause for termination of this Agreement.

B. CONTRACTOR shall procure all permits and licenses; pay all charges, assessments and fees, as may be required by the ordinances and regulations of the public agencies having jurisdiction over the areas in which the work is located, and shall comply with all the terms and conditions thereof and with all lawful orders and regulations of each such public agency relating to construction operations under the jurisdiction of such agency.

## 37. PRECEDENCE

Conflicting provisions hereof, if any, shall prevail in the following descending order of precedence: (1) the provisions of this Agreement, and any and all of its Amendments, Appendices, Exhibits and Attachments; (2) provisions of IFB-MNT20-32 and any and all of its Addenda, Appendices, Exhibits and Attachments; and (3) CONTRACTOR's bid dated May 4, 2020 and its Appendices, Exhibits, Attachments.

## 37. ENTIRE AGREEMENT

This Agreement, and any attachments or documents incorporated herein by inclusion or by reference, constitutes the complete and entire agreement between OMNITRANS and CONTRACTOR and supersedes any prior representations, understandings, communications, commitments, agreements or proposals, oral or written.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed on the date shown below, and effective on the date first hereinabove written.

| OMNITRANS | GOLDEN GATE STEEL, INC.<br>DBA GOLDEN GATE CONSTRUCTION |
|---|---|
| Erin Rogers | Yohann Chang |
| Interim CEO/General Manager | President |
| Date | Date |

Federal Tax I.D. No. 95-4801618

DP

# Attachment B
# REGULATORY REQUIREMENT
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ATTACHMENT A - DISADVANTAGED BUSINESS ENTERPRISE (DBE) REQUIREMENTS

*** Marks Required Subcontract Provisions that must flow down to all subcontracts as defined in the Article entitled SUBCONTRACTORS AND SUPPLIERS herein.**

# Required Clauses for All FTA-Assisted Third-Party Contracts and Subcontracts

**RR-01**
**NO FEDERAL OBLIGATION TO THIRD PARTIES ***

In connection with the Project, the Recipient agrees that, absent the Federal Government's express written consent, the Federal Government shall not be subject to any obligations or liabilities to any subrecipient, lessee, third party contractor, or other participant at any tier of the Project, or other person or entity that is not a party to the Grant Agreement or Cooperative Agreement for the Project. Notwithstanding that the Federal Government may have concurred in or approved any solicitation, sub-agreement, lease, third party contract, or arrangement at any tier, the Federal Government has no obligations or liabilities to any entity other than the Recipient, including any subrecipient, lessee, third party contractor, or other participant at any tier of the Project.

**RR-02**
**FALSE OR FRAUDULENT STATEMENTS OR CLAIMS – CIVIL AND CRIMINAL FRAUD ***

A. Civil Fraud.
The Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§ 3801 et seq., and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to the Recipient's activities in connection with the Project. By executing the Grant Agreement or Cooperative Agreement for the Project, the Recipient certifies or affirms the truthfulness and accuracy of each statement it has made, it makes, or it may make in connection with the Project. In addition to other penalties that may apply, the Recipient also acknowledges that if it makes a false, fictitious, or fraudulent claim, statement, submission, certification, assurance, or representation to the Federal Government, the Federal Government reserves the right to impose on the Recipient the penalties of the Program Fraud Civil Remedies Act of 1986, as amended, to the extent the Federal Government deems appropriate.

B. Criminal Fraud.
If the Recipient makes a false, fictitious, or fraudulent claim, statement, submission, certification, assurance, or representation to the Federal Government or includes a false, fictitious, or fraudulent statement or representation in any agreement with the Federal Government in connection with a Project authorized under 49 U.S.C. chapter 53 or any other Federal law, the Federal Government reserves the right to impose on the Recipient

the penalties of 49 U.S.C. § 5323(l), 18 U.S.C. § 1001, or other applicable Federal law to the extent the Federal Government deems appropriate.

C. Contractor shall include this Article in each subcontract financed in whole or in part with Federal assistance provided by FTA. Contractor shall not modify the Article, except to identify the Subcontractor who will be subject to the provisions.

**RR-03**
**ACCESS TO THIRD PARTY CONTRACT RECORDS ***

A. Access to Third Party Contract Records.
The Recipient agrees to require, and assures that its subrecipients require, their third party contractors and third party subcontractors at each tier to provide to the U.S. Secretary of Transportation and the Comptroller General of the United States or their duly authorized representatives, access to all third party contract records as required by 49 U.S.C. § 5325(g). The Recipient further agrees to require, and assures that its subrecipients require, their third party contractors and third party subcontractors, at each tier, to provide sufficient access to third party procurement records as needed for compliance with Federal laws and regulations or to assure proper Project management as determined by FTA.

Contractor agrees to provide Omnitrans, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions. Contractor also agrees, pursuant to 49 C. F. R. 633.17 to provide the FTA Administrator or the FTA's authorized representatives, including any FTA Project Management Oversight Contractor, access to Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a) 1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311.

B. If this Contract is for a capital project or improvement (defined at 49 U.S.C. 5302(a) 1) and was entered in to through other than competitive bidding, the Contractor shall make records related to this Contract available to Omnitrans, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

C. Contractor shall maintain all books, records, accounts and reports required under this Contract for a period of not less than three years after the date of termination or expiration of this Contract, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case Contractor agrees to maintain same until Omnitrans, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

**RR-04**

**FEDERAL FUNDING, INCORPORATION OF FEDERAL TRANSIT ADMINSITRATION (FTA) TERMS, AND FEDERAL CHANGES**

A. This Contract includes, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the Contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1F, dated November 1, 2008 and revised March 18, 2013 (including any changes), and are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Omnitrans requests which would cause Omnitrans to be in violation of the FTA terms and conditions.

B. Federal Transit Administration of the US Department of Transportation and all laws, regulations, guidelines, and provisions of the financial assistance agreement apply to this Contract and are incorporated by reference as if fully set forth herein.

C. Contractor shall at all times comply with all applicable federal laws and regulations, including without limitation FTA regulations, policies, procedures and directives, including those listed directly or by reference in Applicable Grant Agreements between Omnitrans and FTA, as they may be amended or promulgated from time to time during the term of this Contract collectively "Federal Requirements". These Federal Requirements may change and the changed Federal Requirements will apply to this Contract as required unless the Federal Government determines otherwise. Contractor's failure to so comply with the Federal Requirements shall constitute a material breach of this Contract.

**RR-05**

**CIVIL RIGHTS REQUIREMENTS (TITLE VI, ADA, EEO (EXCEPT SPECIAL DOL CONSTRUCTION CLAUSE ***

A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, and Federal transit law at 49 U.S.C. § 5332, Contractor shall not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, Contractor shall comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity

(a) Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, Contractor shall comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of

Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq. , (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect activities undertaken in the course of the Contract. Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, Contractor shall comply with any implementing requirements FTA may issue.

(b) Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623 and Federal transit law at 49 U.S.C. § 5332, Contractor shall refrain from discrimination against present and prospective employees for reason of age. In addition, Contractor shall comply with any implementing requirements FTA may issue.

(c) Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, Contractor shall comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, Contractor shall comply with any implementing requirements FTA may issue.

(d) Contractor shall include these requirements in each subcontract, modified only if necessary to identify parties, as required by Federal regulations.

**RR-06**
**DISADVANTAGED BUSINESS ENTERPRISE (DBE) 49 CFR Part 26**

**Disadvantaged Business Enterprises**

A. This contract is subject to Title 49, Code of Federal Regulations (CFR), Part 26, entitled “Participation by Disadvantaged Business Enterprises (DBE) in Department of Transportation Financial Assistance Programs (“Regulations”). The Regulations in their entirety are incorporated herein by this reference. Omnitrans has established a Race Neutral Federal Transportation Administration (FTA) DBE program It is the policy of Omnitrans to ensure non-discrimination in the award and administration of all contracts and to create a level playing field on which DBEs can compete fairly for contracts and subcontracts. Omnitrans highly encourages the participation of DBE contractors and the utilization of DBE subcontractors in this project. There is no contract DBE goal on this

project, however, Omnitrans has an overall agency DBE goal of 6.1% and any DBEs on this project will be used to satisfy the overall agency DBE goal. CONTRACTOR must comply with DBE regulations (49 CFR Part 26) in the execution of this contract. Key DBE provisions have been included in Omnitrans' DBE Program Requirements, and include assurance of nondiscrimination, prompt payment, and reporting requirements.

B. Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted Contract. Failure by Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as Omnitrans deems appropriate. Each subcontract Contractor signs with a subcontractor must include the assurance in this paragraph (*see* 49 CFR 26.13(b)).

C. Contractor shall report subcontractor awards and payments via a Web-based system on a monthly basis unless Omnitrans approves in writing the use of a Subcontractors Paid Report and Payment Verification form.

D. Contractor is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 7 days after the contractor's receipt of payment for that work from the Omnitrans. In addition, Contractor is required to return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to his contract is satisfactorily completed.

E. Contractor must promptly notify Omnitrans whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same value of work remaining to meet the original DBE subcontractor's award amount.. Contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of Omnitrans.

# Required Clauses for Awards Exceeding $2,000

**RR-07**

**DAVIS-BACON AND COPELAND ANTI-KICKBACK ACTS**

**Background and Application**

The Davis-Bacon and Copeland Acts are codified at 40 USC 3141, *et seq.* and 18 USC 874. The Acts apply to grantee construction contracts and subcontracts that "at least partly are financed by a loan or grant from the Federal Government." 40 USC 3145(a), 29 CFR 5.2(h), 49 CFR 18.36(i)(5). The Acts apply to any construction contract over $2,000. 40 USC 3142(a), 29 CFR 5.5(a). 'Construction,' for purposes of the Acts, includes "actual construction, alteration and/or repair, including painting and decorating." 29 CFR 5.5(a). The requirements of both Acts are incorporated into a single clause (*see* 29 CFR 3.11) enumerated at 29 CFR 5.5(a) and reproduced below.

The clause language is drawn directly from 29 CFR 5.5(a) and any deviation from the model clause below should be coordinated with counsel to ensure the Acts' requirements are satisfied.

**Clause Language**

**Davis-Bacon and Copeland Anti-Kickback Acts**

(1) **Minimum wages** - (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional

classifications and wage rates conformed under paragraph (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(v)(A) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination with 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a) (1) (v) (B) or (C) of this section, shall be paid to all workers performing work in the Classification under this contract from the first day on which work is performed in the classification.

(2) **Withholding** - Omnitrans shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, Omnitrans may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) **Payrolls and basic records** - (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b) (2) (B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Omnitrans for transmission to the Federal Transit Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under section 5.5(a) (3) (i) of Regulations, 29 CFR part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5 and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Federal Transit Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) **Apprentices and trainees** - (i) Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to

journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractors registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR part 30.

(5) **Compliance with Copeland Act requirements** - The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) **Subcontracts** - The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) **Contract termination: debarment** - A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) **Compliance with Davis-Bacon and Related Act requirements** - All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) **Disputes concerning labor standards** - Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) **Certification of eligibility** - (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**RR-08**
**SEISMIC SAFETY REQUIREMENTS 42 U.S.C. 7701 et seq. 49 CFR Part 41**

**Applicability to Contracts**

The Seismic Safety requirements apply only to contracts for the construction of new buildings or additions to existing buildings.

**Flow Down**
The Seismic Safety requirements flow down from FTA recipients and subrecipients to first tier contractors to assure compliance, with the applicable building standards for Seismic Safety, including the work performed by all subcontractors.

**Model Clauses/Language**
The regulations do not provide suggested language for third-party contract clauses. The following language has been developed by FTA.

**Seismic Safety** - The contractor agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

# Required Clauses for Awards Exceeding $10,000

**RR-09**
**TERMINATION 49 U.S.C. Part 18 FTA Circular 4220.1F**

**Applicability to Contracts**
All contracts (with the exception of contracts with nonprofit organizations and institutions of higher education,) in excess of $10,000 shall contain suitable provisions for termination by the grantee including the manner by which it will be effected and the basis for settlement. (For contracts with nonprofit organizations and institutions of higher education the threshold is $100,000.) In addition, such contracts shall describe conditions under which the contract may be terminated for default as well as conditions where the contract may be terminated because of circumstances beyond the control of the contractor.

**Flow Down**
The termination requirements flow down to all contracts in excess of $10,000, with the exception of contracts with nonprofit organizations and institutions of higher learning.

a. **Termination for Convenience (General Provision)** Omnitrans may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the Government's best interest. The Contractor shall be paid its costs, including contract close-out costs, and profit on work performed up to the time of termination. The Contractor shall promptly submit its termination claim to Omnitrans to be paid the Contractor. If the Contractor has any property in its possession belonging to the Omnitrans, the Contractor will account for the same, and dispose of it in the manner the Omnitrans directs.

b. **Opportunity to Cure (General Provision)** Omnitrans in its sole discretion may, in the case of a termination for breach or default, allow the Contractor an appropriately short period of time in which to cure the defect. In such case, the notice of termination will state the time period in which cure is permitted and other appropriate conditions

If Contractor fails to remedy to Omnitrans' satisfaction the breach or default of any of the terms, covenants, or conditions of this Contract within ten (10) days after receipt by Contractor of written notice from Omnitrans setting forth the nature of said breach or default, Omnitrans shall have the right to terminate the Contract without any further obligation to Contractor. Any such termination for default shall not in any way operate to preclude Omnitrans from also pursuing all available remedies against Contractor and its sureties for said breach or default.

c. **Waiver of Remedies for any Breach** In the event that Omnitrans elects to waive its remedies for any breach by Contractor of any covenant, term or condition of this Contract, such waiver by Omnitrans shall not limit Omnitrans remedies for any succeeding breach of that or of any other term, covenant, or condition of this Contract.

d. **Termination for Default (Construction)** If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract or any extension or fails to complete the work within this time, or if the Contractor fails to comply with any other provisions of this contract, Omnitrans may terminate this contract for default. Omnitrans shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. In this event, Omnitrans may take over the work and compete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to Omnitrans resulting from the Contractor's refusal or failure to complete the work within specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Omnitrans in completing the work.

The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause if-

1. The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include: acts of God, acts of the Recipient, acts of another Contractor in the performance of a contract with the Recipient, epidemics, quarantine restrictions, strikes, freight embargoes; and

2. The contractor, within [10] days from the beginning of any delay, notifies Omnitrans in writing of the causes of delay. If in the judgment of Omnitrans, the delay is excusable, the time for completing the work shall be extended. The judgment of Omnitrans shall be final and conclusive on the parties, but subject to appeal under the Disputes clauses.

   If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of Omnitrans.

# Required Clauses for Awards Exceeding $25,000

**RR-010**
**SUSPENSION AND DEBARMENT***

A. This Contract is a covered transaction for purposes of 49 CFR Part 29. As such, Contractor shall verify that none of the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

   Contractor shall comply with 49 CFR 29, Subpart C and shall include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

B. By entering into this Contract, Contractor certifies that it shall comply with the requirements of 49 CFR 29, Subpart C throughout the period of this Contract. This certification is a material representation of fact relied upon by Omnitrans. If it is later determined that Contractor knowingly rendered an erroneous certification, in addition to remedies available to Omnitrans, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

# Awards Exceeding $100,000 by Statute

**RR-011**
**COMPLIANCE WITH FEDERAL LOBBYING POLICY ***

The Byrd Anti-Lobbying Amendment, 31 U.S.C. 1352, requires that Contractors who apply or bid for an award of $100,000 or more shall file the certification required by 49 CFR Part 20, "New Restrictions on Lobbying," attached hereto as the certification entitled, "Certification of Compliance with Federal Lobbying Requirements." As set forth in the certifications, each tier of subcontractors shall certify to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures shall be forwarded from tier to tier up to Omnitrans.

**RR-012**
**CLEAN WATER AND CLEAN AIR REQUIREMENTS***

**A. CLEAN WATER REQUIREMENTS**

Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq., and all applicable clean water standards of the State of California and any state or local agency having jurisdiction. Contractor shall report each violation to Omnitrans. Omnitrans will, in turn, report each violation as required to FTA and the appropriate EPA Regional Office, and all other agencies having jurisdiction.

B**. CLEAN AIR**

Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. and all applicable Clean Air Standards of the State of California or any state or local agency having jurisdiction. Contractor shall report each violation to Omnitrans. Omnitrans will, in turn, report each violation as required to FTA, the appropriate EPA Regional Office and all other agencies having jurisdiction.

C. Contractor shall include this Article in each subcontract exceeding $100,000 financed in whole or in part with Federal assistance provided by FTA.

**RR-013**
**NON-CONSTRUCTION ACTIVITIES**

Activities Not Involving Construction. The Recipient agrees to comply, and assures the compliance of each subrecipient, lessee, third party contractor, and other participant at any tier of the Project, with the employee protection requirements for nonconstruction employees of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. §§ 3701 *et seq.*, in particular with the wage and hour requirements of section 102 of that Act at 40 U.S.C. § 3702, and with implementing U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

# Required Clauses for Awards Exceeding the Simplified Acquisition Threshold ($150,000)

**RR-014**
**BUY AMERICA ***

A. Contractor shall comply with 49 U.S.C. 5323(j) and 49 CFR Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. 661.7, and include final assembly in the United States for 15 passenger vans and 15 passenger wagons produced by Chrysler Corporation, and microcomputer equipment and software. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

   Omnitrans may investigate Contractor's, any Subcontractor's, and any Supplier's compliance with this Article. If an investigation is initiated, Contractor, Subcontractor, or Supplier shall document its compliance, in accordance with 49 CFR 661.15, and cooperate with the investigation. Contractor shall incorporate the Buy America conditions set forth in this Article in every subcontract or purchase order and shall enforce such conditions.

B. FTA requires a Buy America certification to be submitted with the proposal, or the proposal shall be considered non-responsive.

**RR-015**
**BREACHES AND DISPUTE RESOLUTION 49 CFR Part 18 FTA Circular 4220.1F**

**Applicability to Contracts**
All contracts in excess of $100,000 shall contain provisions or conditions which will allow for administrative, contractual, or legal remedies in instances where contractors violate or breach

contract terms, and provide for such sanctions and penalties as may be appropriate. This may include provisions for bonding, penalties for late or inadequate performance, retained earnings, liquidated damages or other appropriate measures.

**Flow Down**
The Breaches and Dispute Resolutions requirements flow down to all tiers.

**Disputes** - Disputes arising in the performance of this Contract which are not resolved by agreement of the parties shall be decided in writing by the Omnitrans. This decision shall be final and conclusive unless within ten (10) days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to Omnitrans Construction Manager. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of Omnitrans Project Manager shall be binding upon the Contractor and the Contractor shall abide be the decision.

**Performance During Dispute** - Unless otherwise directed by Omnitrans, Contractor shall continue performance under this Contract while matters in dispute are being resolved.

**Claims for Damages** - Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefore shall be made in writing to such other party within a reasonable time after the first observance of such injury of damage.

**Remedies** - Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between Omnitrans and the Contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State in which Omnitrans is located.

**Rights and Remedies** - The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by Omnitrans, or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

# Transport of Property or Persons

**RR-016**
**CARGO PREFERENCE***

A. **Applicability**

The following Article applies to federally funded contracts involving equipment, materials, or commodities which may be transported by ocean vessels

B. **USE OF UNITED STATES FLAG VESSELS**

Contractor shall use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this Contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels.

Contractor shall furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of leading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of -lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to Omnitrans (through Contractor in the case of a subcontractor's bill-of-lading.)

Contractor shall include these requirements in all subcontracts issued pursuant to this Contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

**RR-017**
**FLY AMERICA**

A. **Applicability**

This Article applies to federally funded contracts if the contract or subcontracts may involve the international transportation of goods, equipment, or personnel by air.

B. Contractor agrees to comply with 49 U.S.C. 40118 (the “Fly America” Act) in accordance with the General Services Administration’s regulations at 41 CFR Part 301-10, which provide that recipients and sub recipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

# CONSTRUCTION ACTIVITIES

**RR-018**
**DAVIS-BACON AND COPELAND ANTI-KICKBACK ACTS**

**Background and Application**

The Davis-Bacon and Copeland Acts are codified at 40 USC 3141, *et seq.* and 18 USC 874. The Acts apply to grantee construction contracts and subcontracts that "at least partly are financed by a loan or grant from the Federal Government." 40 USC 3145(a), 29 CFR 5.2(h), 49 CFR 18.36(i)(5). The Acts apply to any construction contract over $2,000. 40 USC 3142(a), 29 CFR 5.5(a). 'Construction,' for purposes of the Acts, includes "actual construction, alteration and/or repair, including painting and decorating." 29 CFR 5.5(a). The requirements of both Acts are incorporated into a single clause (*see* 29 CFR 3.11) enumerated at 29 CFR 5.5(a) and reproduced below.

The clause language is drawn directly from 29 CFR 5.5(a) and any deviation from the model clause below should be coordinated with counsel to ensure the Acts' requirements are satisfied.

**Clause Language**
**Davis-Bacon and Copeland Anti-Kickback Acts**

(1) **Minimum wages** - (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (1)(ii) of this section) and the Davis-

Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and
(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(v)(A) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination with 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a) (1) (v) (B) or (C) of this section, shall be paid to all workers performing work in the Classification under this contract from the first day on which work is performed in the classification.

(2) **Withholding** - Omnitrans shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor

under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, Omnitrans may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) **Payrolls and basic records** - (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b) (2) (B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Omnitrans for transmission to the Federal Transit Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under section 5.5(a) (3) (i) of Regulations, 29 CFR part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5 and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Federal Transit Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) **Apprentices and trainees** - (i) Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess

of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractors registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR part 30.

(5) **Compliance with Copeland Act requirements** - The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) **Subcontracts** - The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) **Contract termination: debarment** - A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) **Compliance with Davis-Bacon and Related Act requirements** - All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) **Disputes concerning labor standards** - Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) **Certification of eligibility** - (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**RR-019**
**CONTRACT WORK HOURS AND SAFETY STANDARDS ACT ***

A. **Applicability**

This Article applies to federally funded construction contracts over $2,000 (including ferry vessels), rolling stock purchases over $2,500 and to operations/management contracts over $2,500 (except transportation services)

B. Pursuant to the Labor Standards Provisions Applicable to Non-construction Contracts subject to the Federal Contract Work Hours and Safety Standards Act, 40 U.S.C.A. § 327 through 332 as implemented by U.S. Department of Labor regulations, 29 CFR 5.5 (b) and (c) Contractor and Subcontractor's contracting for any part of the Contract work shall comply with the following:

1. **Overtime requirements** – Neither Contractor nor any Subcontractor contracting for any part of the Contract work that requires or involves the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. **Violation; liability for unpaid wages; liquidated damages** – In the event of any violation of the Article set forth in paragraph (1) of this Article Contractor and any Subcontractor responsible therefore shall be liable for the unpaid wages. In addition, Contractor and Subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this Article, in the sum of ten dollars ($10) for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this Article.

3. **Withholding for unpaid wages and liquidated damages** – Omnitrans shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by Contractor or Subcontractor under the Contract or any other Federal contract with Contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by Contractor, such sums as may be determined to be necessary to satisfy any liabilities of Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this Article.

4. **Subcontracts** – Contractor or Subcontractor shall insert this Article in any Subcontracts and also an Article requiring the Subcontractors to include this Article in any lower tier Subcontracts. Contractor shall be responsible for compliance by any Subcontractor or lower tier Subcontractor with this Article.

5. **Payrolls and basic records** – The records to be maintained hereinabove shall be made available by Contractor or Subcontractor for inspection, copying, or transcription by Omnitrans and U.S. Dept. of Labor. Contractor and Subcontractor shall maintain payrolls and basic records during the course of the work and shall preserve them for a period of three (3) years from the completion of the Contract

for all laborers and mechanics, including guards and watchmen, working on the Contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made and actual wages paid.

**RR-020**
**BONDING REQUIREMENTS**

Applicability to Contracts
For those construction or facility improvement contracts or subcontracts exceeding $100,000, FTA may accept the bonding policy and requirements of the recipient, provided that they meet the minimum requirements for construction contracts as follows:

A. A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantees" shall consist of a firm commitment and may be in any of the following forms: (a) cash; (b) cashier's check payable to Omnitrans; (c) a certified check payable to the city; or (d) a bidder's bond executed by an admitted surety insurer. Such as a bid bond, certifies check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.

B. A performance bond on the part of the Contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

C. A payment bond on the part of the Contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract.

**RR-021**
**SEISMIC SAFETY REQUIREMENTS 42 U.S.C. 7701 et seq. 49 CFR Part 41**

**Applicability to Contracts**

The Seismic Safety requirements apply only to contracts for the construction of new buildings or additions to existing buildings.

**Flow Down**
The Seismic Safety requirements flow down from FTA recipients and subrecipients to first tier contractors to assure compliance, with the applicable building standards for Seismic Safety, including the work performed by all subcontractors.

**Model Clauses/Language**
The regulations do not provide suggested language for third-party contract clauses. The following language has been developed by FTA.

**Seismic Safety** - The contractor agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

# NON-CONSTRUCTION ACTIVITIES

Activities Not Involving Construction. The Recipient agrees to comply, and assures the compliance of each subrecipient, lessee, third party contractor, and other participant at any tier of the Project, with the employee protection requirements for nonconstruction employees of the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. §§ 3701 *et seq.*, in particular with the wage and hour requirements of section 102 of that Act at 40 U.S.C. § 3702, and with implementing U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Nonconstruction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. Part 5.

# TRANSIT OPERATIONS

**RR-022**
**TRANSIT EMPLOYEE PROTECTIVE ARRANGEMENTS ***

A. **Applicability**

Subject to the limitations in Sections B, C, and D, this Article applies if this Contract involves transit operations to be performed by employees of a Contractor recognized by FTA to be a transit operator, and if FTA has determined that it is financed in whole or in part with Federal assistance.

B. **General Transit Employee Protective Requirements**

If FTA has determined that this Contract involves transit operations financed in whole or in part with Federal assistance (other than Federal assistance authorized by 49 U.S.C. § 5310(a)(2) or 49 U.S.C. § 5311), and if the U.S. Secretary of Transportation has determined that the employee protective requirements of 49 U.S.C. § 5333(b) are necessary or appropriate for Omnitrans under this Contract, then Contractor shall perform the transit

operations work under the Contract in compliance with terms and conditions, (a) determined by the U.S. Secretary of Labor to meet the employee protective requirements of 49 U.S.C. A 5333(b), and U.S. Department of Labor ("U. S. DOL") guidelines at 29 C.F.R. Part 215, and any amendments thereto, and (b) stated in a U. S. DOL letter of certification to FTA, the date of which is set forth in the applicable Grant Agreement or Cooperative Agreement with Omnitrans, and which is incorporated in the Form of Contract as a Contract Document entitled "U. S. DOL Certification".

C. **Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5310(a) (2) for Elderly Individuals and Individuals with Disabilities**

If FTA has determined that this Contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5310(a)(2), and if the U.S. Secretary of Transportation has determined or determines in the future that the employee protective requirements of 49 U.S.C. § 5333(b) are necessary or appropriate for Omnitrans under the Contract, Contractor shall perform the Work in compliance with the terms and conditions determined, (a) by the U.S. Secretary of Labor to meet the requirements of 49 U.S.C. § 5333(b), U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto, and (b) stated in the U.S. DOL's letter of certification to FTA, the date of which is set forth in the applicable Grant Agreement or Cooperative Agreement with Omnitrans, and which is incorporated in the Form of Contract as a Contract Document entitled "U. S. DOL Certification".

D. **Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5311 in Nonurbanized Areas**

If FTA has determined that this Contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5311, Contractor shall comply with the terms and conditions of the Special Warranty for the Nonurbanized Area Program agreed to by the U.S. Secretaries of Transportation and Labor, dated May 31, 1979, and the procedures implemented by U.S. DOL or any revision thereto.

E. **Indemnity**

Contractor shall defend, indemnify and hold harmless Omnitrans, and its Board Members, employees and agents from and against all liability, claims, demands actions, costs, judgments, penalties, damages, losses and expenses arising out of or in connection with Contractor's failure to comply with or failure to carry out its responsibilities under all applicable provisions of Sections B, C and D of this Article.

**CHARTER BUS OPERATION**

**Charter Service Operations.**
The Recipient agrees that neither it nor any public transportation operator performing work in connection with a Project financed under 49 U.S.C. chapter 53 or under 23 U.S.C. §§ 133 or 142, will engage in charter service operations, except as authorized by 49 U.S.C. § 5323(d) and FTA regulations, "Charter Service," 49 C.F.R. Part 604, and any Charter Service regulations or FTA

directives that may be issued, except to the extent that FTA determines otherwise in writing. The Charter Service Agreement the Recipient has selected in its latest annual Certifications and Assurances is incorporated by reference and made part of the Grant Agreement or Cooperative Agreement for the Project. If the Recipient has failed to select the Charter Service Agreement in its latest annual Certifications and Assurances to FTA and does conduct charter service operations prohibited by FTA's Charter Service regulations, the Recipient understands and agrees that: (1) the requirements of FTA's Charter Service regulations and any amendments thereto will apply to any charter service it or its subrecipients, lessees, third party contractors, or other participants in the Project provide; (2) the definitions of FTA's Charter Service regulations will apply to the Recipient's charter operations, and (3) a pattern of violations of FTA's Charter Service regulations may require corrective measures and imposition of remedies, including barring the Recipient, subrecipient, lessee, third party contractor, or other participant in the Project operating public transportation under the Project from receiving Federal financial assistance from FTA, or withholding an amount of Federal assistance as set forth in Appendix D to FTA's Charter Service regulations.

**SCHOOL BUS OPERATIONS**

The Recipient agrees that neither it nor any public transportation operator performing work in connection with a Project financed under 49 U.S.C. chapter 53 or under 23 U.S.C. §§ 133 or 142, will engage in school transportation operations for the transportation of students or school personnel exclusively in competition with private school transportation operators, except as authorized by 49 U.S.C. §§ 5323(f) or (g), as applicable, and FTA regulations, "School Bus Operations," 49 C.F.R. Part 605 to the extent consistent with 49 U.S.C. §§ 5323(f) or (g), in accordance with any School Transportation Operations regulations or FTA directives that may be issued at a later date, except to the extent that FTA determines otherwise in writing. The School Transportation Operations Agreement the Recipient has selected in its latest annual Certifications and Assurances is incorporated by reference and made part of the Grant Agreement or Cooperative Agreement for the Project. If the Recipient has failed to select the School Transportation Agreement in its latest annual Certifications and Assurances to FTA and does conduct school transportation operations prohibited by FTA's School Bus Operations regulations, 49 C.F.R. Part 605, to the extent those regulations are consistent with 49 U.S.C. §§ 5323(f) or (g), the Recipient understands and agrees that: (1) the requirements of FTA's School Bus Operations regulations, 49 C.F.R. Part 605, to the extent consistent with 49 U.S.C. §§ 5323(f) or (g), will apply to any school transportation service it or its subrecipients, lessees, third party contractor, or other participants in the project provide, (2) the definitions of FTA's School Bus Operations regulations will apply to the Recipient's school transportation operations, and (3) if there is a violation of FTA's School Bus Operations regulations, to the extent consistent with 49 U.S.C. §§ 5323(f) or (g), FTA will bar the Recipient, subrecipient, lessee, third party contractor, or other Project participant operating public transportation that has violated FTA's School Bus Operations regulations, 49 C.F.R. Part 605, to the extent consistent with 49 U.S.C. §§ 5323(f) or (g), from receiving Federal transit assistance in an amount FTA considers appropriate.

**RR-023**
**ALCOHOL AND DRUG-FREE WORKPLACE PROGRAM ***

A. **Applicability**

This Article applies to federally funded contracts for transit operations.

B. **FTA Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations Regulations**

Contractor and its Subcontractors shall comply with the FTA anti-drug and alcohol misuse regulations (49 CFR Part 655) and the U.S. Department of Transportation (DOT) Procedures for Transportation Workplace Drug and Alcohol Testing Programs (49 CFR Part 40) to the full extent that they are, by their terms, applicable to Contractor and its Subcontractors. The regulations apply to all "contractors" that have "covered employees" that perform "safety sensitive functions" as those terms are defined in the regulations.

C. **Certificate of Compliance**

**The CERTIFICATE OF COMPLIANCE WITH 49 CFR PARTS 655, PREVENTION OF ALCOHOL MISUSE AND PROHIBITED DRUG USE IN TRANSIT,** submitted by Contractor prior to award, is incorporated as part of the Contract Documents.

D. **Drug and Alcohol Testing Program**

In the event that any part of the Work under this Contract falls within the scope of 49 CFR Part 655, Contractor, and its Subcontractors (as applicable), shall establish and implement a drug and alcohol testing program that complies with 49 CFR Parts 653 and 654, produce any documentation necessary to establish its compliance with Parts 653 and 654, and permit any authorized representative of the United States Department of Transportation or its operating administrations, the State Oversight Agency of California, or Omnitrans, to inspect the facilities and records associated with the implementation of the drug and alcohol testing program as required under 49 CFR Parts 653 and 654 and review the testing process. Contractor shall annually certify its compliance with Parts 653 and 65. To certify compliance the contractor shall use the "Substance Abuse Certifications" in the "Annual List of Certifications and Assurances for Federal Transit Administration Grants and Cooperative Agreements," which is published annually in the Federal Register.

E. **Alcohol and Drug Free Workplace Program**

In addition to the above, for Work performed on Omnitrans property, Contractor shall provide an Alcohol and Drug-free Workplace Program in accordance with FTA requirements found at http://transit-safety.fta.dot.gov/DrugAndAlcohol/default.asp

# PLANNING, RESEARCH, DEVELOPMENT AND DEMONSTRATION PROJECTS

## PATENT RIGHTS

a. General. If any invention, improvement, or discovery of the Recipient or of any subrecipient, lessee, third party contractor, or other participant at any tier of the Project is conceived or first actually reduced to practice in the course of or under the Project, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the Recipient agrees to notify FTA immediately and provide a detailed report in a format satisfactory to FTA.

b. Federal Rights. The Recipient agrees that its rights and responsibilities, and those of each subrecipient, lessee, third party contractor, or other participant at any tier of the Project, pertaining to that invention, improvement, or discovery will be determined in accordance with applicable Federal laws and regulations, including any waiver thereof. Absent a determination in writing to the contrary by the Federal Government, the Recipient agrees to transmit to FTA those rights due the Federal Government in any invention, improvement, or discovery resulting from that subagreement, third party contract, third party subcontract, or arrangement, as specified in 35 U.S.C. §§ 200 *et seq*., and U.S. Department of Commerce regulations, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," 37 C.F.R. Part 401, irrespective of the status of the Recipient, subrecipient, lessee, third party contractor or other participant in the Project (*i.e.*, a large business, small business, State government, State instrumentality, local government, Indian tribe, nonprofit organization, institution of higher education, or individual).

c. License Fees and Royalties. FTA considers income earned from license fees and royalties for patents, patent applications, and inventions produced under the Project to be program income. Except to the extent FTA determines otherwise in writing, as provided in 49 C.F.R. Parts 18 and 19, the Recipient has no obligation to the Federal Government with respect to that program income, apart from compliance with 35 U.S.C. §§ 200 *et seq*., which applies to patent rights developed under a research project.

## RIGHTS IN DATA AND COPYRIGHTS

a. Definition. The term "subject data," as used in this Section 18 of this Master Agreement means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the Grant Agreement or Cooperative Agreement for the Project. Examples include, but are not limited to: computer software, standards, specifications, engineering drawings and associated lists, process sheets, manuals, technical reports, catalog item identifications, and related information. "Subject data" do not include financial reports, cost analyses, or other similar information used for Project administration.

b. General. The following restrictions apply to all subject data first produced in the performance of the Grant Agreement or Cooperative Agreement for the Project:

(1) Except for its own internal use, the Recipient may not publish or reproduce subject data in whole or in part, or in any manner or form, nor may the Recipient authorize others to do so,

without the prior written consent of the Federal Government, unless the Federal Government has previously released or approved the release of such data to the public.

(2) The restrictions on publication of Paragraph 18.b(1) of this Master Agreement, however, do not apply to a Grant Agreement or Cooperative Agreement with an institution of higher learning.

c. Federal Rights in Data and Copyrights. The Recipient agrees to provide to the Federal Government a royalty-free, non-exclusive, and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use, for Federal Government purposes the subject data described in this Subsection 18.c of this Master Agreement. As used herein, "for Federal Government purposes," means use only for the direct purposes of the Federal Government. Without the copyright owner's consent, the Federal Government may not provide or otherwise extend to other parties the Federal Government's license to:

(1) Any subject data developed under the Grant Agreement or Cooperative Agreement for the Project, or under a subagreement, lease, third party contract or other arrangement at any tier of the Project, supported with Federal assistance derived from the Grant Agreement or Cooperative Agreement for the Project, whether or not a copyright has been obtained; and

(2) Any rights of copyright to which a Recipient, subrecipient, lessee, third party contractor, or other participant at any tier of the Project purchases ownership using Federal assistance.

d. Special Federal Rights in Data for Research, Development, Demonstration, and Special Studies Projects. In general, FTA's purpose in providing Federal assistance for a research, development, demonstration, or special studies Project is to increase transportation knowledge, rather than limit the benefits of the Project to Project participants. Therefore, when the Project is completed, the Recipient agrees to provide a Project report that FTA may publish or make available for publication on the Internet. In addition, the Recipient agrees to provide other reports pertaining to the Project that FTA may request. The Recipient agrees to identify clearly any specific confidential, privileged, or proprietary information it submits to FTA. In addition, except to the extent that FTA determines otherwise in writing, the Recipient of Federal assistance to support a research, development, demonstration, or a special studies Project agrees that, in addition to the rights in data and copyrights that it must provide to the Federal Government as set forth in Subsection 18.c of this Master Agreement, FTA may make available to any FTA recipient, subrecipient, third party contractor, third party subcontractor or other participant at any tier of the Project, either FTA's license in the copyright to the subject data or a copy of the subject data. If the Project is not completed for any reason whatsoever, all data developed under the Project shall become subject data as defined in Subsection 18.a of this Master Agreement and shall be delivered as the Federal Government may direct. This Subsection 18.d, however, does not apply to adaptations of automatic data processing equipment or programs for the Recipient's use when the costs thereof are financed with Federal assistance through an FTA capital program.

e. License Fees and Royalties. FTA considers income earned from license fees and royalties for copyrighted material, or trademarks produced under the Project to be program income. Except to the extent FTA determines otherwise in writing, as provided in 49 C.F.R. Parts 18 and 19, the Recipient has no obligation to the Federal Government with respect to that program income, apart from compliance with 35 U.S.C. §§ 200 *et seq.*, which applies to patent rights developed under a research project.

f. Hold Harmless. Except as prohibited or otherwise limited by State law or except to the extent that FTA determines otherwise in writing, upon request by the Federal Government, the Recipient agrees to indemnify, save, and hold harmless the Federal Government and its officers, agents, and employees acting within the scope of their official duties against any liability, including costs and expenses, resulting from any willful or intentional violation by the Recipient of proprietary rights, copyrights, or right of privacy, arising out of the publication, translation, reproduction, delivery, use, or disposition of any data furnished under the Project. The Recipient shall not be required to indemnify the Federal Government for any such liability caused by the wrongful acts of Federal employees or agents.

g. Restrictions on Access to Patent Rights. Nothing in Section 18 of this Master Agreement pertaining to rights in data shall either imply a license to the Federal Government under any patent or be construed to affect the scope of any license or other right otherwise granted to the Federal Government under any patent.

h. Data Developed Without Federal Funding or Support. In connection with the Project, the Recipient may find it necessary to provide data to FTA developed without any Federal funding or support by the Federal Government. The requirements of Subsections 18.b, 18.c, and 18.d of this Master Agreement do not apply to data developed without Federal funding or support by the Federal Government, even though that data may have been used in connection with the Project. Nevertheless, the Recipient understands and agrees that the Federal Government will not be able to protect data from unauthorized disclosure unless that data is clearly marked "Proprietary" or "Confidential."

i. Requirements to Release Data. To the extent required by U.S. DOT regulations, "Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations," at 49 C.F.R. § 19.36(d), or other applicable Federal laws or Federal regulations, the Recipient understands and agrees that the data and information it submits to the Federal Government may be required to be released in accordance with the Freedom of Information Act (or another Federal law or Federal regulation providing access to such records).

# SPECIAL NOTIFICATION REQUIREMENTS FOR STATES

**SPECIAL NOTIFICATION REQUIREMENTS FOR STATES**

To the extent required by Federal law, the State agrees that, in administering any Federal assistance Program or Project supported by the Grant Agreement or Cooperative Agreement, any request for proposals, solicitation, grant application, form, notification, press release, or other publication involving the distribution of FTA assistance for the Program or the Project shall indicate that FTA is the Federal agency that is providing the Federal assistance, the Catalog of Federal Domestic Assistance Number of the program from which the Federal assistance is authorized, as may be applicable, and the amount of Federal assistance FTA provided.

# MISCELLANEOUS SPECIAL REQUIREMENTS

**RR-024**
**ENERGY CONSERVATION REQUIREMENTS**

**B. Applicability**

This Article applies to all federally funded contracts.

C. Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act 42 USC §6321 et seq.

**RR-025**
**RECYCLED PRODUCTS**

**D. Applicability**

This Article applies to federally funded operations/management, construction, or materials & supplies contracts for items designated by the Environmental Protection Agency, when procuring $10,000 or more per year.

E. To the extent practicable and economically feasible, a competitive preference shall be given for products and services that conserve natural resources and protect the environment and are energy efficient.

F. The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

**NATIONAL INTELLIGENT TRANSPORTATION SYSTEMS ARCHITECTURE AND STANDARDS**

To the extent applicable, the Recipient agrees to conform to the National Intelligent Transportation Systems (ITS) Architecture and Standards as required by SAFETEA-LU § 5307©, 23 U.S.C. § 512 note, and follow the provisions of FTA Notice, "FTA National ITS Architecture Policy on Transit Projects," 66 Fed. Reg. 1455 et seq., January 8, 2001, and any other implementing directives FTA may issue at a later date, except to the extent FTA determines otherwise in writing.

**RR-026**
**ADA ACCESS**

A. **Applicability**

This Article applies to federally funded Architect & Engineer, Operations/Management, Rolling Stock Purchase, and Construction contracts

B. **Access Requirements for Persons with Disabilities**

Contractor shall comply with:

1. The requirements of 49 U.S.C. § 5301(d), which states the Federal policy that elderly persons and persons with disabilities have the same right as other persons to use mass transportation service and facilities, and that special efforts shall be made in planning and designing those services and facilities to implement that policy;

2. All applicable requirements of section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, which prohibits discrimination on the basis of handicaps;

3. The Americans with Disabilities Act of 1990 (ADA), as amended, 42 U.S.C. § 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments to that Act;

4. The Architectural Barriers Act of 1968, as amended, 42 U.S.C. §§ 4151 et seq., which requires that buildings and public accommodations be accessible to persons with disabilities, including any subsequent amendments to that Act; and

5. All applicable requirements of the following regulations and any subsequent amendments thereto:
   (1) U.S. DOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 C.F.R. Part 37;

   (2) U.S. DOT regulations, "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27;

   (3) Joint U.S. Architectural and Transportation Barriers Compliance Board (U.S. ATBCB)/U.S. DOT regulations, "Americans With Disabilities (ADA) Accessibility Specifications for Transportation Vehicles," 36 C.F.R. Part 1192 and 49 C.F.R. Part 38;

(4) U.S. DOJ regulations, "Nondiscrimination on the Basis of Disability in State and Local Government Services," 28 C.F.R. Part 35;

(5) U.S. DOJ regulations, "Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities," 28 C.F.R. Part 36;

(6) U.S. General Services Administration (U.S. GSA) regulations, "Accommodations for the Physically Handicapped," 41 C.F.R. Subpart 101-19;

(7) U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630;

(8) U.S. Federal Communications Commission regulations, "Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled," 47 C.F.R. Part 64, Subpart F; and

(9) U.S. ATBCB regulations, "Electronic and Information Technology Accessibility Standards," 36 C.F.R. Part 1194; and

(10) FTA regulations, "Transportation for Elderly and Handicapped Persons," 49 C.F.R. Part 609;

(11) Any implementing requirements FTA may issue.

# NOT INCLUDED IN UPDATED POLICY

**RR-01**
**ADMINISTRATIVE CODE ***

A. **Applicability**

This Article applies to all contracts.

B. **Compliance with §§1090 et. seq. and §§87100 et. seq. of the California Government Code**

Contractor shall comply with all applicable provisions of §§1090 et. seq. and §§87100 et. seq. of the California Government Code. Without reducing or affecting its obligation to comply with any and all of said provisions, Contractor specifically covenants:

1. Contractor shall not cause or permit any member, officer, or employee of Omnitrans to have any financial interest in the Contract;

2. Contractor shall not enter into any Subcontract involving services or property with a person or business prohibited from transacting such business with Omnitrans;

3. Contractor warrants and represents that to its knowledge no Board member, officer, or employee of Omnitrans has any interest, whether contractual, non-contractual, financial or otherwise, in this Contract, or in the business or any other contract or transaction of the Contractor or any Subcontractor and that if any such interest comes to Contractor's knowledge at any time, Contractor shall make a full and complete disclosure of all such information in writing to Omnitrans.

C. **Campaign Contributions**

Neither Contractor nor its Agents shall give or offer to give any campaign contribution to any member of Omnitrans Board of Directors in violation of the California Government Code §§84300 et seq., or of the Administrative Code. Contractor shall submit a Certification of Campaign Contributions with all COs of two hundred thousand dollars ($200,000) or more.

**RR-02**
**DISCRIMINATION ***

A. **Applicability**

This Article applies to all contracts.

B. In connection with the performance of Work provided for under this Contract, Contractor agrees that it will not, on the grounds of race, religious creed, color, national origin, ancestry, physical disability, medical condition, marital status, sex, sexual orientation, or age, discriminate or permit discrimination against any person or group of persons in any manner prohibited by Federal, State or local laws.

**RR-03**
**WHISTLEBLOWER REQUIREMENTS ***

A. **Applicability**

This Article applies to all contracts.

B. Contractor shall not adopt any rule, regulation, or policy preventing an employee from disclosing information to a government or law enforcement agency, where the employee believes the information discloses violation or noncompliance with a state or Federal regulation; nor shall Contractor retaliate against an employee for taking such actions as set forth in the t. seq.

**RR-04**
**PUBLIC RECORDS ACT ***

A. **Applicability**

This Article applies to all contracts.

B. Except as otherwise provided herein, all records, documents, drawings, plans, specifications, and all other information relating to the conduct of Omnitrans business, including all information and documents submitted by Contractor ("Records"), shall become the exclusive property of Omnitrans and shall be deemed public records. Said Records are subject to the provisions of the California Public Records Act (Government Code §6250 et. seq.). Omnitrans use and disclosure of its records are governed by this Act. Omnitrans will use its best efforts to inform the Contractor of any request for any financial records or documents marked "Trade Secret", "Confidential" or "Proprietary" provided by Contractor to Omnitrans. Omnitrans will not advise as to the nature or content of documents entitled to protection from disclosure under the California Public Records Act.

C. In the event of litigation concerning the disclosure of any Records, Omnitrans sole involvement will be as a stakeholder, retaining the Records until otherwise ordered by a court. The submitting party, at its sole expense and risk, shall be fully responsible for any and all fees for prosecuting or defending any action concerning the Records and shall indemnify and hold Omnitrans harmless from all costs and expenses including attorney's fees in connection with any such action.

**RR-05**
**PRIVACY ACT - 5 U.S.C. 552**

**Applicability to Contracts**

When a grantee maintains files on drug and alcohol enforcement activities for FTA, and those files are organized so that information could be retrieved by personal identifier, the Privacy Act requirements apply to all contracts.

**Flow Down**
The Federal Privacy Act requirements flow down to each third party contractor and their contracts at every tier.

**Model Clause/Language**
The text of the following clause has not been mandated by statute or specific regulation, but has been developed by FTA.

**Contracts Involving Federal Privacy Act Requirements** - The following requirements apply to the Contractor and its employees that administer any system of records on behalf of the Federal Government under any contract:

(1) The Contractor agrees to comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974,

5 U.S.C. § 552a. Among other things, the Contractor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Federal Government. The Contractor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract.

(2) The Contractor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

**RR-06**
**VETERANS PREFERENCE**

Veterans Employment. Contractors working on a capital project funded using FTA assistance shall give a hiring preference, to the extent practicable, to veterans (as defined in section 2108 of title 5) who have the requisite skills and abilities to perform the construction work required under the contract. This subsection shall not be understood, construed or enforced in any manner that would require an employer to give preference to any veteran over any equally qualified applicant who is a member of any racial or ethnic minority, female, an individual with a disability, or former employee.

**END OF REGULATORY REQUIREMENTS**

**Attachment C - Bid Item List Pricing**

**Concrete Repairs at the West Valley Facility (IFB-MNT20-32)**

| Item Num | Description | Unit of Measure | Quantity | Unit Price | Total Amount |
|---|---|---|---|---|---|
| 1 | (Div 2) Remove (E) Joint Sealant | LF | 20000 | $0.35 | $7,000.00 |
| 2 | (Div 2) Sawcut (E) Concrete Pavement; 6" Thk | LF | 1144 | $1.70 | $1,944.80 |
| 3 | (Div 2) Sawcut (E) Concrete Pavement; 8" Thk | LF | 144 | $1.70 | $244.80 |
| 4 | (Div 2) Sawcut (E) Asphalt Pavement; 6" Thk | LF | 145 | $1.70 | $246.50 |
| 5 | (Div 2) Sawcut (E) Asphalt Pavement; 8" Thk | LF | 66 | $1.70 | $112.20 |
| 6 | (Div 2) Demo (E) Concrete Pavement; 6" Thk | SF | 6260 | $4.00 | $25,040.00 |
| 7 | (Div 2) Demo (E) Concrete Pavement; 8" Thk | SF | 456 | $4.70 | $2,143.20 |
| 8 | (Div 2) Demo (E) Asphalt Pavement; 6" Thk | SF | 174 | $4.70 | $817.80 |
| 9 | (Div 2) Demo (E) Asphalt Pavement; 8" Thk | SF | 121 | $4.70 | $568.70 |
| 10 | (Div 2) Remove (E) Pavement Striping | SF | 774 | $6.60 | $5,108.40 |
| 11 | (Div 2) Demo (E) Concrete Foundation at (E) Vehicle I | SF | 91 | $80.00 | $7,280.00 |
| 12 | (Div 2) Remove (E) Signage and Store for Reinstallatic | EA | 1 | $200.00 | $200.00 |
| 13 | (Div 2) Demo (E) Fence; Steel; Decorative; Approx 3'- | LF | 70 | $40.00 | $2,800.00 |
| 14 | (Div 2) Sawcut (E) Concrete Walkway; 4" Thk | LF | 366 | $1.70 | $622.20 |
| 15 | (Div 2) Demo (E) Concrete Curb; 6"W; Flush | LF | 123 | $4.00 | $492.00 |
| 16 | (Div 2) Demo (E) Concrete Walkway; 4" Thk | SF | 1374 | $4.00 | $5,496.00 |
| 17 | (Div 2) Remove (E) Sod & Roots; 4" Deep | SF | 4900 | $4.70 | $23,030.00 |
| 18 | (Div 2) Remove (E) Ground Cover & Roots; 4" Deep | SF | 790 | $4.70 | $3,713.00 |
| 19 | (Div 2) Remove (E) Shrubs & Roots | EA | 20 | $4.70 | $94.00 |
| 20 | (Div 2) Remove (E) Trees & Stumps; Large | EA | 1 | $4,612.00 | $4,612.00 |
| 21 | (Div 2) Remove (E) Trees & Stumps; Medium | EA | 2 | $3,295.00 | $6,590.00 |
| 22 | (Div 2) Remove (E) Trees & Stumps; Small | EA | 2 | $1,975.00 | $3,950.00 |
| 23 | (Div 2) Remove (E) Mow Curb; Concrete | LF | 45 | $4.70 | $211.50 |
| 24 | (Div 2) Demo (E) Trench Drains; 12"W | LF | 91 | $40.00 | $3,640.00 |
| 25 | (Div 2) Excavate and Demo (E) Precast Concrete Clari | EA | 3 | $4,611.00 | $13,833.00 |
| 26 | (Div 2) Demo (E) Piping; 3" Dia | LF | 28 | $26.50 | $742.00 |
| 27 | (Div 2) Remove (E) Equipment From Raised Service A | LS | 1 | $6,588.00 | $6,588.00 |
| 28 | (Div 2) Remove (E) Bollards at Service Island, and Sto | LS | 1 | $3,294.00 | $3,294.00 |
| 29 | (Div 2) Demo (E) Vacuum System and Associated Equ | LS | 1 | $6,588.00 | $6,588.00 |
| 30 | (Div 2) Demo (E) Skid-Resistant Coating at Raised Ser | SF | 1288 | $4.00 | $5,152.00 |
| 31 | (Div 2) Hauling Demo Materials | CY | 1437 | $13.00 | $18,681.00 |
| 32 | (Div 3) Dowel (N) Conc Pavement to (E) Conc Paveme | LF | 1132 | $8.00 | $9,056.00 |
| 33 | (Div 3) (N) Rolling Vehicle Gate Foundation; 18"D x 2' | LF | 44 | $264.00 | $11,616.00 |
| 34 | (Div 3) (N) Steel Fence Foundation; 15"x15"; 2'D | EA | 9 | $400.00 | $3,600.00 |
| 35 | (Div 3) (N) Mow Curb; Concrete; 8"W, 6"H | LF | 75 | $33.00 | $2,475.00 |
| 36 | (Div 3) (N) Rebar Reinforcement at (E) Light Pole Base | EA | 8 | $66.00 | $528.00 |
| 37 | (Div 3) Concrete Thickened Edge at (N) Clarifiers | LF | 123 | $13.00 | $1,599.00 |
| 38 | (Div 3) (N) Rebar Reinforcement at (N) Clarifiers; #5 E | EA | 24 | $66.00 | $1,584.00 |
| 39 | (Div 3) (N) Concrete Topping; 1/2" Thk | SF | 1263 | $9.00 | $11,367.00 |
| 40 | (Div 3) (N) Concrete Patching at Service Island Raised | SF | 10 | $9.00 | $90.00 |
| 41 | (Div 5) (N) Rail at Reinstalled (E) Rolling Vehicle Gate; | LF | 44 | $73.00 | $3,212.00 |
| 42 | (Div 5) (N) Fence; Steel; Decorative; Approx. 3'-6"H | LF | 85 | $93.00 | $7,905.00 |
| 43 | (Div 5) (N) Pedestrian Gate; Steel; 3'W; Approx 3'-6"H | EA | 1 | $2,640.00 | $2,640.00 |
| 44 | (Div 5) (N) Raised Curb Edge Protection (Includes: Ste | LF | 346 | $105.50 | $36,503.00 |
| 45 | (Div 5) (N) Guardrail; Steel; 42"H | LF | 36 | $92.50 | $3,330.00 |

**Attachment C - Bid Item List Pricing**
**Concrete Repairs at the West Valley Facility (IFB-MNT20-32)**

| Item Num | Description | Unit of Measure | Quantity | Unit Price | Total Amount |
|---|---|---|---|---|---|
| 46 | (Div 5) (N) Pedestrian Gate; Steel; 3'W; 42"H; Include | EA | 1 | $2,635.00 | $2,635.00 |
| 47 | (Div 5) (N) Handrail at Steps; Steel; 36"H | LF | 35 | $92.50 | $3,237.50 |
| 48 | (Div 6) (N) Trench Drain Grating; Fiberglass; Heavy Du | LF | 81 | $1,430.00 | $115,830.00 |
| 49 | (Div 7) (N) Joint Sealant | LF | 20000 | $1.70 | $34,000.00 |
| 50 | (Div 9) (N) Paint at Steel Edge Protection. Color: Safet | LF | 335 | $4.00 | $1,340.00 |
| 51 | (DIV 9) (N) Non-Slip Coating at Service Islands | SF | 1100 | $13.00 | $14,300.00 |
| 52 | (Div 22) (N) Precast Concrete Clarifier; 750 gal (Includ | EA | 3 | $14,800.00 | $44,400.00 |
| 53 | (Div 22) (N) Piping; PVC; 4" Dia | LF | 87 | $56.00 | $4,872.00 |
| 54 | (Div 22) (N) Piping; PVC; 2" Dia | LF | 197 | $46.00 | $9,062.00 |
| 55 | (Div 22) (N) Cleanout; 4" Dia | EA | 2 | $717.00 | $1,434.00 |
| 56 | (Div 31) Re-Grade Front Yard at (N) Walkway / Stairs | LS | 1 | $15,810.00 | $15,810.00 |
| 57 | (Div 32) (N) Concrete Pavement; 6" Thk; Reinforced; | SF | 4999 | $10.50 | $52,489.50 |
| 58 | (Div 32) (N) Concrete Pavement; 9" Thk; Reinforced; | SF | 456 | $10.50 | $4,788.00 |
| 59 | (Div 32) (N) Concrete Pavement; 10" Thk; Reinforced | SF | 1150 | $10.50 | $12,075.00 |
| 60 | (Div 32) (N) Asphalt Pavement; 6" Thk; +Agg Base | SF | 140 | $31.00 | $4,340.00 |
| 61 | (Div 32) (N) Asphalt Pavement; 8" Thk; +Agg Base | SF | 121 | $36.00 | $4,356.00 |
| 62 | (Div 32) (N) Concrete Walkway; Reinforced; 4" Thk | SF | 1346 | $11.00 | $14,806.00 |
| 63 | (Div 32) (N) Concrete Walkway; Reinforced; 11" Thk | SF | 101 | $16.00 | $1,616.00 |
| 64 | (Div 32) (N) Concrete Curb; 6"W; Raised | LF | 212 | $47.50 | $10,070.00 |
| 65 | (Div 32) (N) Concrete Curb; 6"W; Flush | LF | 94 | $47.50 | $4,465.00 |
| 66 | (Div 32) (N) Signage; Accessible Parking; Aluminum R | EA | 3 | $659.00 | $1,977.00 |
| 67 | (Div 32) (N) Pavement Markings; Vehicle Stalls; Paint | Stalls | 3 | $659.00 | $1,977.00 |
| 68 | (Div 32) (N) Pavement Markings; Gore Lines; Paint | SF | 234 | $7.00 | $1,638.00 |
| 69 | (Div 32) (N) Pavement Markings; Accessible Symbol; | EA | 3 | $659.00 | $1,977.00 |
| 70 | (Div 32) (N) Tactile Warning Surfacing | SF | 16 | $67.00 | $1,072.00 |
| 71 | (Div 32) (N) Hardscape; Stone; Sizes: 1"-2"; 2"D | Tons | 6 | $460.00 | $2,760.00 |
| 72 | (Div 32) (N) Hardscape; Stone; Sizes: 6"-9"; 1 Layer | Tons | 5 | $460.00 | $2,300.00 |
| 73 | (Div 32) (N) Hardscape; Decomposed Granite; Stabiliz | Tons | 50 | $264.00 | $13,200.00 |
| 74 | (Div 32) (N) Boulders; 3'x5' | EA | 11 | $790.00 | $8,690.00 |
| 75 | (Div 32) Hardscape Elements Delivery | LS | 1 | $4,610.00 | $4,610.00 |
| 76 | (Div 32) (N) Landscaping Edging Strip; Aluminum; 3/1 | LF | 682 | $26.50 | $18,073.00 |
| 77 | (Div 32) (N) Tree; Deciduous; 10'H; 36" Root Box | EA | 3 | $878.00 | $2,634.00 |
| 78 | (Div 32) (N) Shrub; Various Species; #5 Container | EA | 74 | $80.00 | $5,920.00 |
| 79 | (Div 32) (N) Plants; Herbaceous; Various Species; #3 ( | EA | 76 | $40.00 | $3,040.00 |
| 80 | (Div 32) Landscape Elements Delivery | LS | 1 | $660.00 | $660.00 |
| 81 | (Div 32) Irrigation System; Verify Existing; Prepare De | LS | 1 | $42,300.00 | $42,300.00 |
| 82 | Allowance - $2,500 for stress crack repair in the bus y | EA | 1 | $2,500.00 | $2,500.00 |
| 83 | Allowance - $20,000/clarifier @ 3 locations - for cont | EA | 3 | $20,000.00 | $60,000.00 |
| 84 | Permit Fee | EA | 1 | $881.48 | $881.48 |
| | | | **Total** | | **$788,475.58** |

# ATTACHMENT D
# Disadvantaged Business Enterprise (DBE) Program Requirements

Disadvantaged Business Enterprise (DBE) Participation

I. Race-Neutral DBE Participation

The Contractor is required to submit a DBE Race-Neutral Participation Listing to identify DBE subcontractor(s) proposed in the performance of this U.S. DOT-assisted contract, and further agrees to ensure that DBE subcontractors listed in the "DBE Race-Neutral Participation Listing" perform work and/or supply materials in accordance with original commitments, unless otherwise directed and/or approved by the Omnitrans prior to the Prime Contractor effectuating any changes to its race-neutral DBE participation commitments. The Contractor is required to submit this form whether or not DBE subcontractors have been proposed.

Prime Contractor shall ensure the DBE information submitted shall include the North American Industry Classification System (NAICS) code applicable to the kind of work the DBE subcontractor(s) will perform on the contract.

In the event the Contractor commits to utilizing a DBE in the performance of this contract after contract award, the Contractor will comply with the same reporting requirements delineated above and submit a "DBE Race-Neutral Participation Listing" for new DBE commitments made after award and during contract performance.

II. DBE Policy and Applicability

In accordance with federal financial assistance agreements with the U.S. Department of Transportation (U.S. DOT), Omnitrans has adopted a Disadvantaged Business Enterprise (DBE) Policy and Program, in conformance with Title 49 CFR, Part 26, "Participation by Disadvantaged Business Enterprises in Department of Transportation Programs".

The project is subject to these stipulated regulations and Omnitrans' DBE Program. In order to ensure that Omnitrans achieves its overall DBE Program goal, Omnitrans encourages the participation of DBEs as defined in 49 CFR, Part 26 in the performance of contracts financed in whole or in part with U.S. DOT funds. Pursuant to the intent of these regulations, it is also the policy of Omnitrans to:

Fulfill the spirit and intent of the Federal DBE Program regulations published under U.S. DOT Title 49 CFR, Part 26, by ensuring that DBE's have equitable access to participate in all of Omnitrans' and identified Prime Contractor DOT-assisted contracting opportunities.

a. Ensure that DBEs can fairly compete for and perform on all DOT-assisted contracts and subcontracts.
b. Ensure non-discrimination in the award and administration of Omnitrans' DOT-assisted contracts.
c. Create a level playing field on which DBEs can compete fairly for DOT-assisted contracts.
d. Ensure that only firms that fully meet 49 CFR, Part 26 eligibility standards are permitted to participate as DBEs in DOT-assisted contracts.
e. Help remove barriers to the participation of DBEs in DOT-assisted contracts.
f. Assist in the development of firms that can compete successfully in the marketplace outside the DBE Program.

Contractor will not discriminate on the basis of race, color, national origin, or sex in the award and performance of subcontracts.

Any terms used in this section that is defined in 49 CFR, Part 26, or elsewhere in the Regulations, will have the meaning set forth in the Regulations. In the event of any conflicts or inconsistencies between the Regulations and Omnitrans' DBE Program with respect to DOT-assisted contracts, the Regulations will prevail.

III. Omnitrans' Race-Neutral DBE Policy Implementation Directives

Pursuant to Race-Neutral DBE policy directives issued by the U.S. DOT in response to the Ninth Circuit U.S. Court of Appeals decision in Western States Paving Co. v. Washington State Department of Transportation, Omnitrans has implemented a wholly Race-Neutral DBE Program.

A Race-Neutral DBE Program is one that, while benefitting DBEs, is not solely focused on DBE firms. Therefore, under a Race-Neutral DBE Program, Omnitrans does not establish numeric race-conscious DBE participation goals on its DOT-assisted contracts. However, the Prime Contractor will adhere to race-neutral DBE participation commitments made at the time of contract award.

IV. Definitions

The following definitions apply to the terms as used in these provisions:

a. "Disadvantaged Business Enterprise (DBE)" means a small business concern: (a) which is at least 51 percent owned by one or more socially and economically disadvantaged individuals or, in the case of any publicly-owned business, at least 51 percent of the stock of which is owned by one or more socially and economically disadvantaged individuals; and (b) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

b. "Socially and Economically Disadvantaged Individuals" means those individuals who are citizens of the United States (or lawfully admitted permanent residents) and who are Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, or Asian-Indian Americans, women and any other minorities or individuals found to be disadvantaged by the Small Business Administration pursuant to Section 8(a) of the Small Business Act, or by Omnitrans pursuant to 49 CFR part 26.65. Members of the following groups are presumed to be socially and economically disadvantaged:

   1. "Black Americans" which includes persons having origins in any of the Black racial groups of Africa;
   2. "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
   3. "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;
   4. "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Vietnam, Laos, Cambodia, the Philippines, Samoa, Guam, the U.S. Trust Territories of the Pacific, and the Northern Marianas;

5. "Asian-Indian Americans," which includes persons whose origins are from India, Pakistan, and Bangladesh; and

6. Women, regardless of ethnicity or race.

c. "Owned and Controlled" means a business: (a) which is at least 51 percent owned by one or more "Socially and Economically Disadvantaged Individuals" or, in the case of a publicly-owned business, at least 51 percent of the stock of which is owned by one or more "Socially and Economically Disadvantaged Individuals"; and (b) whose management and daily business operations are controlled by one or more such individuals.

d. "Manufacturer" means a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the contractor.

e. "Regular Dealer" means a firm that owns, operates or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. The firm must engage in, as its principal business, and in its own name, the purchase and sale of the product in question. A regular dealer in such bulk items as steel, cement, gravel, stone and petroleum products need not keep such products in stock if it owns or operates distribution equipment.

f. "Other Socially and Economically Disadvantaged Individuals" means those individuals who are citizens of the United States (or lawfully admitted permanent residents) and who, on a case-by-case basis, are determined by Small Business Administration or certifying agency under the California Unified Certification Program (CUCP) to meet the social and economic disadvantage criteria described in 49 CFR Part 26.67.

V. Race-Neutral DBE Submission and Ongoing Reporting Requirements (Post- Award)

Contractor shall report both DBE and non-DBE subcontractor payment details to Omnitrans using the web-based system by the 15th of each month. The web-based system allows Contractor to manage their own records, maintain accurate contract award information, and report subcontractor payment details online.

Use of the web-based system is mandatory for the Contractor and subcontractor to use unless Omnitrans instructs otherwise in writing to Contractor. A Contractor account will be created after award, which will allow Contractor to enter data into the web-based system via an internet browser. After award, Contractor will receive instructions to set up their account and enter required subcontractor data. Contractor must require each of its subcontractors to enter required payment verification information into the web-based system. Subcontractors with lower tier subcontractors must require lower tier subcontractors to enter required payment data into the web-based system. Failure of Contractor or its subcontractors to enter required information on a timely basis may result in delay of payment by Omnitrans and may subject Contractor to withholding of payments or penalties for noncompliance.

If Omnitrans approves in writing the use of a form instead of the web-based system to report monthly payments to subcontractors, Contractor will complete and submit the following exhibit at the times specified:

**Summary Subcontractors Paid Monthly Report and Payment Verification: (Requires Omnitrans Approval in Writing).**

The Contractor will be required to complete and submit a Form 103 to Omnitrans designee by the 15th of each month until completion of the contract to facilitate reporting of all subcontractor payments, including DBE firms, following the first month of contract activity. The Contractor will report the total dollar value paid to all subcontractors, including DBEs, for the applicable reporting period. The Contractor will also report the subcontractor's scope of work and the total subcontract value of commitment for each subcontractor reported.

Upon completion of the contract, the Contractor will be required to prepare and submit to Omnitrans a "Summary Subcontractor Paid Monthly Report and Payment Verification" (Form 103) clearly marked "Final" to facilitate reporting and capturing actual subcontractor payments. Contractor will complete and submit a Final Form 103 whether or not DBEs were utilized in the performance of the contract.

Contractor is advised not to report the participation of DBEs toward the Contractor's race-neutral DBE attainment until the amount being counted has been paid to the DBE.

Contractor is responsible for providing subcontractor's proof of DBE Certification.

Contractor and subcontractors are subject to periodic audits by Omnitrans and or their designated representative. Program audits serve as a part of Omnitrans assessing program compliance. The audit may include comprehensive review of program related forms, documents and procedures, including but not limited to site visits. The information presented for review shall be provided in an auditable manner.

VI. DBE Eligibility and Commercially Useful Function Standards

a. A DBE must be a small business concern as defined pursuant to Section 3 of the U.S. Small Business Act and relevant regulations promulgated pursuant thereto.

b. A DBE may participate as a prime contractor, subcontractor, joint venture partner with a prime or subcontractor, vendor of material or supplies, or as a trucking company.

c. A DBE joint venture partner must be responsible for specific contract items of work, or clearly defined portions thereof. Responsibility means actually performing, managing and supervising the work with its own forces. The DBE joint venture partner must share in the capital contribution, control, management, risks and profits of the joint venture commensurate with its ownership interest.

d. A DBE must perform a commercially useful function in accordance with 49 CFR 26.55 (i.e., must be responsible for the execution of a distinct element of the work and must carry out its responsibility by actually performing, managing and supervising the work.) A DBE should perform at least thirty percent (30%) of the total cost of its contract with its own workforce to presume it is performing a commercially useful function.

e. DBEs must be certified by the California Unified Certification Program (CUCP). Listings of DBEs certified by the CUCP are available from the following sources:

   1. The CUCP website, accessed at https://dot.ca.gov/programs/business-and-economic-opportunity/dbe-search.

2. The CUCP DBE Directory, which may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815; Telephone (916) 445-3520.

VII. DBE Crediting Provisions

When a DBE is proposed to participate in the contract, either as a Prime Contractor or Subcontractor, only the value of the work proposed to be performed by the DBE with its own forces may be counted toward race-neutral DBE participation. If the Contractor is a DBE joint venture participant, only the DBE proportionate interest in the joint venture will be counted.

a. If a DBE intends to subcontract part of the work of its subcontract to a lower tier Subcontractor, the value of the subcontracted work may be counted toward race-neutral DBE participation only if the DBE Subcontractor is a certified DBE and actually performs the work with their own forces. Services subcontracted to a non-DBE firm may not be credited toward the prime Contractor's race-neutral DBE attainment.

b. Contractor is to calculate and credit participation by eligible DBE vendors of equipment, materials, and suppliers toward race-neutral DBE attainment, as follows:

   1. Sixty percent (60%) of expenditure(s) for equipment, materials and supplies required under the Contract, obtained from a regular dealer; or

   2. One hundred percent (100%) of expenditure(s) for equipment, materials and supplies required under the Contract, obtained from a DBE manufacturer.

c. The following types of fee or commissions paid to DBE Subcontractors, Brokers, and Packagers may be credited toward the prime Contractor's race-neutral DBE attainment, provided that the fee or commission is reasonable, and not excessive, as compared with fees or commissions customarily allowed for similar work, including:

   1. Fees and commissions charged for providing bona fide professional or technical services, or procurement of essential personnel, facilities, equipment, materials, or supplies required in the performance of the Contract;

   2. Fees charged for delivery of material and supplies (excluding the cost of materials or supplies themselves) when the licensed hauler, trucker, or delivery service is not also the manufacturer of, or a regular dealer in, the material and supplies;

   3. Fees and commissions charged for providing any insurance specifically required in the performance of the Contract.

d. Contractor may count the participation of DBE trucking companies toward race-neutral DBE attainment, as follows:

   1. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract.

   2. The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

   3. The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

4. The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
5. The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.
6. For purposes of this paragraph, a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.
7. If the Contractor listed a non-certified DBE 1st tier Subcontractor to perform work on this contract, and the non-certified DBE subcontractor subcontracts a part of its work or purchases materials and/or supplies from a lower tier DBE certified Subcontractor or Vendor, the value of work performed by the lower tier DBE firm's own forces can be counted toward race-neutral DBE participation on the contract.

VIII. Performance of DBE Subcontractors

DBE subcontractors listed by the Prime Contractor in its "DBE Race-Neutral Participation Listing" submitted at the time of proposal submission or added during performance of the contract will perform the work and supply the materials for which they are listed, unless the Contractor has received prior written authorization from Omnitrans to perform the work with other forces or to obtain the materials from other sources.

The Contractor will provide written notification to Omnitrans in a timely manner of any changes to its anticipated DBE participation. This notice should be provided prior to commencement of that portion of the work and the Prime Contractor shall demonstrate good faith efforts in continuing doing business with DBE's.

Contractor cannot fully or partially terminate or substitute a DBE subcontractor without good cause and prior written consent from Omnitrans. This includes, but is not limited to, instances in which a prime seeks to perform work originally designated for a DBE with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. If the Contractor fails to obtain written consent, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE(s). Contractor shall exercise good faith efforts to replace the original DBE subcontractor with another DBE firm for at least the same amount remaining on the original DBE's subcontract.

IX. Additional DBE Subcontractors

In the event Contractor identifies additional DBE subcontractors or suppliers not previously identified by Contractor for race-neutral DBE participation under the contract, Contractor will notify Omnitrans by submitting the form "DBE Race-Neutral Participation Listing" to enable Contractor and Omnitrans to capture all race-neutral DBE participation.

X. DBE Certification Status

If a listed DBE subcontractor is decertified during the life of the project, the decertified subcontractor will notify the Contractor in writing with the date of decertification. The Contractor will furnish the written documentation to Omnitrans in a timely manner.

XI. Contractor's Assurance Clause Regarding Non-Discrimination

In compliance with State and Federal anti-discrimination laws, the Contractor will affirm that they will not exclude or discriminate on the basis of race, color, national origin, or sex in consideration of contract award opportunities. Further, the Contractor will affirm that they will consider, and utilize subcontractors and vendors, in a manner consistent with non-discrimination objectives.

Contractor (and each subcontract the Contractor signs with a subcontractor) must include the following assurance: Contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

a. Withholding monthly progress payments;

b. Assessing sanctions;

c. Liquidated damages; and/or

d. Disqualifying the contractor from future bidding as non-responsible.

XII. Prompt Payment

Omnitrans has, by a contract clause pursuant to 49 CFR 26.29; "Prompt Payment Mechanisms for Recipients", adopted a prompt payment provision on all DOT-assisted contracts, to facilitate timely payment to all subcontractors. This provision, governing the payment to subcontractors (DBEs and non-DBEs), requires the Prime Contractor to issue payment to all subcontractors for satisfactory work performed, no later than seven (7) days from Contractor's receipt of payment from Omnitrans. A provision will also apply to the disbursement of retention proceeds withheld by Prime Contractor, requiring the prompt return of retention payments from Contractor to the subcontractor no later than seven (7) days Omnitrans after the subcontractor's work is satisfactorily completed. Prime Contractor will incorporate these prompt payment provisions in all subcontract agreements issued by Prime Contractor with respect to this Contract.

In accordance with §26.29 "Prompt Payment Provisions", Omnitrans at its discretion, utilizes the following method to comply with the prompt payment of retainage requirement:

Hold retainage from the Prime Contractor and require a contract clause obligating Prime Contractor to make prompt and full payment of any retainage kept by Prime Contractor to the subcontractor within 7 days after the subcontractor's work is satisfactorily completed.

Failure to comply with these prompt payment provisions or delay in issuing payment without prior written approval from Omnitrans will constitute noncompliance, which will result in the

application of appropriate administrative sanctions, including, but not limited to, a penalty of 1% of the amount due per month to the affected subcontractor for every month that payment is not made.

Contractor will not be reimbursed for work performed by subcontractors unless and until the contractor ensures that the subcontractors are promptly paid for the work performed. Contractor shall include a prompt payment clause that complies with local, state, and federal prompt payment requirements in all subcontracts entered into under this contract. Should contractor fail to meet subcontractor prompt payment requirements for two (2) consecutive subcontractor payments without good cause, OMNITRANS may impose appropriate penalties for failure to comply with prompt payment requirements.

XIII. Records Retention

Prime Contractor shall maintain all DBE program records, including a thorough and updated bidder's list.

Omnitrans requires prime contractors to maintain records of payments to subcontractors, including DBEs, for a minimum of three (3) years unless otherwise provided by applicable record retention requirements for Omnitrans' financial assistance agreement, whichever is longer. These records will be made available for inspection upon request by any authorized representative of Omnitrans or DOT. This reporting requirement extends to all subcontractors, both DBE and non-DBE.

XIV. Bidders List

The U.S. Department of Transportation (DOT) requires Omnitrans to maintain a "Bidders List" containing information about all firms (DBE and non-DBE) that bid, propose or quote on Omnitrans' DOT-assisted contracts, in accordance with 49 CFR Part 26.11, for use in the Omnitrans' overall triennial DBE goal-setting process. Therefore, the Contractor shall provide at a minimum, the following requested information for every firm who submitted a quote, bid, or proposal, including the primary Contractor, whether successful or unsuccessful in their attempt to obtain a contract:

a. Firm name
b. Firm address
c. Status of DBE or non-DBE
d. Age of the business
e. Range of annual gross receipts for the last year

A Bidders List form is attached for completion by Contractor. It is the responsibility of the Contractor to verify accuracy of information submitted by each subcontractor. The Bidders List content will not be considered in evaluating the bid/proposal or determining award of the contract.

## I. Purpose

It is the policy of Omnitrans to maintain a work environment that is safe for all persons, including the community, and conducive to attaining high work standards. To achieve these objectives, the Agency prohibits the possession of firearms and weapons in the work place, regardless of any license or permit that an individual may have which otherwise authorizes the individual to carry firearms or weapons.

It is illegal and a criminal violation to possess weapons in public buildings (California Penal Code 171b and 171.7).

## II. Scope

This policy applies to all Omnitrans employees, including but not limited to staffing agency workers and contractors working for or with the Agency at any time, regardless of whether the Agency is the actual employer.

Possession of firearms and weapons is prohibited at all Omnitrans' offices, parking lots, agency vehicles and job sites, and in all Agency vehicles.

The following person/s are exempt from this policy as stated: a guard of a contract carrier operating an armored vehicle, and any law enforcement officer who is carrying out official duties engaged in protecting and preserving property or life within the scope of his or her employment.

Omnitrans will strictly enforce this policy. Violation of this policy will result in immediate disciplinary action, up to and including termination.

## III. Procedure

A. COMMUNICATION OF POLICY

(a) Each employee of the Agency shall receive a copy of this policy at the time of his/her hire and shall sign a copy of the acknowledgment. Employees who were employed before the effective date of this policy shall also receive a copy of this policy and shall sign a copy of the acknowledgment. A copy of the signed acknowledgment and of all new and revised policies throughout the employee's employment shall be maintained in each employee's personnel file.

(b) A copy of this policy shall be attached to each contractor's contract, and shall become a part of its contract. The contractor shall be responsible for communicating this policy to its employees and any subcontractors to which the contractor sublets any portion of its contract.

B. PROHIBITED CONDUCT

(a) The transportation of firearms or weapons in Agency vehicles is prohibited. This includes but is not limited to:

(1) to and from work,
(2) when conducting Agency business,
(3) at all times in Agency-owned or leased vehicles.

(b) The possession or carrying of permitted and non-permitted firearms or weapons while at Agency buildings, parking lots, sponsored events, and job sites.

(c) Exception: Power actuated tools which are manufactured for the use of fastening building materials and sanctioned tools for the purpose of performing Agency job duties are not subject to this policy.

C. SEARCH

(a) Omnitrans reserves the right to conduct reasonable, unannounced searches of Agency premises and personal searches of employees and others while entering, on, or leaving Agency premises, including, but not limited to, personal effects, vehicles, lockers, desks, tool boxes, clothing, meal containers, and baggage. Searches will be conducted when the Agency has a reasonable suspicion to believe that a particular employee may be in possession of a weapon or firearm.

(b) “Reasonable suspicion” is defined as a suspicion that is based on specific personal observations such as an employee’s manner, disposition, behavior, speech, information provided to management by an employee, by law enforcement officials, by a security service, or by other persons believed to be reliable, or a suspicion that is based on other surrounding circumstances.

(c) Individuals refusing to allow an inspection will not be detained or forced to submit to the inspection. Refusal violates Agency policy and constitutes an act of insubordination constituting disciplinary action, up to and including separation of the employment relationship. Non-employees who refuse to allow an inspection will not be permitted on Agency premises and will be required to immediately leave the premises. Employees will be relieved of all duties while pending investigation.

D. DISCIPLINE

(a) Violations of any portion of this policy will subject the employee to discipline,

up to and including separation of employment.

(b) Violations by a contractor's employee or subcontractor of any portion of this policy may constitute a breach of contract and regardless will mandate the immediate removal of the contractor's employee from Agency premises, prohibition against the individual accessing Agency premises in the future, and may also constitute a breach of contract.

E. REPORT OF VIOLATIONS

1. Employee Violations

Employees are required to report violations of this policy without regard to the relationship between the individual who initiates the prohibited behavior and the individual reporting it. An employee who believes that another employee may be in violation of this policy must report the alleged violation to the employee's manager or supervisor, the department director, security, or the appropriate departmental Human Resources representative.

Departments are responsible for implementing this policy. The Agency will promptly investigate allegations of violations of this policy.

Omnitrans reserves the right to authorize searches for prohibited weapons on its property when a violation is reported or when probable cause or reasonable suspicion is present consistent with law.

Employees should be aware that there is no reasonable expectation of privacy with respect to weapons in the workplace. The Agency's right to conduct searches includes, but is not limited to, such areas and items as lockers, desks, workstations, offices, purses, briefcases, bags, toolboxes, and lunch bags.

Searches of the employee's work area and belongings, as described above, may be conducted by the Security & Emergency Preparedness Coordinator, or designee. Searches of all types, including surrounding agency property, personal property and the employee may be conducted by law enforcement in accordance with law should reasonable suspicion be present. Any weapon found in violation of this policy may be confiscated. Refusal to permit a search may result in discipline, up to and including separation.

2. Visitor Violations

Visitors are not allowed to carry a weapon on the premises. Any visitor carrying a weapon into a posted no-carry agency facility is creating an elevated risk to security and safety that warrants a response leading to compliance with the law. If the visitor

poses an immediate risk to security or safety, law enforcement shall be notified immediately by calling 9-911. The visitor shall be considered an immediate risk to safety and security if he/she is acting in an aggressive, belligerent, confrontational, suspicious or in an otherwise questionable manner while carrying a weapon.

F. FALSE REPORTS

Employees making intentionally false and malicious complaints of weapons in the workplace will be subject to disciplinary action, up to and including separation and/or will be reported to the proper authorities as appropriate.

G. ROLES AND RESPONSIBILITIES

Employees are responsible for understanding and complying with the Policy Prohibiting Weapons in the Workplace.

Whenever there is a question as to whether an instrument, article or substance is considered a weapon in violation of this policy, it is the employee's responsibility to seek clarification. Employees seeking clarification should direct their questions to the agency's Security & Emergency Preparedness Coordinator at 909-379-7117 prior to bringing the item(s) to Omnitrans work sites and events, as well as agency-owned or leased facilities or vehicles.

H. SAFETY FIRST

In applying this policy, no employee shall take any action that will risk his or her own safety or the safety of other individuals. No attempt should ever be made by an employee to restrain or forcibly evict an armed person from agency premises.

An individual's continued non-compliance after being properly informed of the law (California Penal Code 171 (b)) will result in notification to law enforcement and discipline, up to and including separation of employment. Employees should notify security immediately.

An employee who feels an imminent danger to his or her own safety or the safety or security of others, should avoid any interaction with the individual. Immediately contact law enforcement by calling 9-911 and security at 909-379-7117.

I. ANTI-RETALIATION PROVISION

Omnitrans strictly prohibits any retaliation against an employee who has reported a possible breach of policy. If an employee feels that he or she has been subjected to retaliation in violation of this policy, the employee must immediately report it to his or her supervisor or other designated Human Resources representative.

J. DEFINITIONS

1. **Firearm or weapon includes, but is not limited to:** A weapon, a pistol or rifle, whether loaded or unloaded, capable of firing a projectile and using an explosive as a propellant.
    - A firearm, whether loaded or unloaded, from which a shot may be discharged including but not limited to handguns, pistols, revolvers, shotguns, rifles, and bb guns;
    - A gun that can discharge a shot or a projectile by means of an explosive or gas, or compressed air;
    - A device designed to be used as a weapon, from which can be expelled a projectile by the force of any explosion or force of combustion;
    - Any weapon (including a starter gun) which will or is designed to or may readily be converted to expel a projectile by the action of an explosive;
    - Any destructive device;
    - Any device designed as a weapon and capable of producing great bodily harm, including but not limited to, stun guns, stun batons;
    - An electric weapon such as a taser gun;
    - Any combustible or flammable liquid, or other substance, device, or instrumentality that, in a manner it is used or intended to be used, is calculated or likely to produce death or great bodily harm, or any fire that is used to produce death or great bodily harm;
    - Any knife that is carried with intention or calculation to produce death or great bodily harm having a blade length in excess of four (4) inches, the blade of which is fixed or is capable of being fixed in an unguarded position by the use of one or two hands. Switchblades are specifically prohibited. (Knives intended to be used as eating utensils, and stored or maintained in office kitchens or lunchrooms do not represent a violation of this policy.)

2. **Office**: All permanent facilities, all mobile facilities, all leased facilities, and any facility designated as an office by the agency.

3. **Parking lot**: All lots at permanent facility, park and rides, lots at project sites, any lot that the agency designates as a parking lot that is not at a permanent facility or project site.

4. **Agency vehicle**: All agency-owned buses/vehicles, all agency-leased buses/vehicles, all agency-rental buses/vehicles, and all personal vehicles for which the owner receives a vehicle allowance, all personal vehicles where the owner receives reimbursement for mileage.

5. **Search**: To examine in order to find something concealed.

6. **Job sites**: Any and all locations where the agency conducts business.

SIGNS

1. At each entrance to buildings, parking lots, and project sites, a sign shall be posted in a location that is conspicuous to all who could enter a building, parking lot, or project site.

2. Signs shall have wording or pictogram that prohibits firearms, weapons and give notice of video surveillance. Signs shall be vandalism resistant and of the quality that they will not fade due to the elements.

**ATTACHMENT F - SPECIAL PROVISIONS**
**MNT20-32**
**CONCRETE REPAIRS AT THE WEST VALLEY FACILITY**

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## SP-01 GLOSSARY OF TERMS

### 1.1 Abbreviations and Symbols

The following abbreviations are used in these documents:

*** Indicates Required Subcontract Provisions that must flow down to all subcontracts as defined in the Article entitled SUBCONTRACTORS AND SUPPLIERS herein.**

| | |
|---|---|
| ANSI | American National Standards Institute |
| CFR | Code of Federal Regulations |
| CCO | Contract Change Order |
| CPM | Critical Path Method |
| ISEA | International Safety Equipment Association |
| LDs | Liquidated Damages |
| NOAA | National Oceanic and Atmospheric Administration |
| OSHA | United States Department of Labor, Occupational Safety and Health Administration, and Occupational Safety and Health Act |
| PROJECT STAKEHOLDER | Omnitrans and the City of Montclair |
| PROPERTY | Lands and improvements comprising Omnitrans West Valley Facility and the City of Montclair Right of Way. |

## SP-02 LIQUIDATED DAMAGES

A. In the event the Contractor 1) fails to make the necessary repairs at the bus wash within the 14-day allotted time period, or 2) disrupts Omnitrans' ability to fuel its buses, and Omnitrans has to make other arrangements, under this Agreement liquidated damages shall be assessed against the Contractor.

1) Omnitrans and Contractor presume that in these events, the amount of liquidated damages shall be based on the amount of actual additional expenditures incurred by Omnitrans.

B. Assessment of damages shall be calculated as follows:

1) Fueling of Buses

a) In the event buses cannot be fueled, the cost will be set at $300 per bus per day for un-fueled bus(es). This is the average daily revenue for a fixed-route bus.

b) In the event the buses must be fueled at an alternative location, the cost of transporting un-fueled bus(es) to alternate fueling facility shall billed at a rate of $37.95 per hour (mechanics pay of $25.30 times 1.5 to include benefits). Time shall commence when bus(es) are moved from their

operating base and shall terminate when bus(es) are returned to its operating base.

2) Bus Wash

a) In the event of a delay to repairs at the bus wash, Omnitrans, at its sole discretion, may utilize its own staff or the services of another vendor to wash the buses The amount of liquidated damages is $500 per day.

C. These damages shall be deducted from any monies due, or which may thereafter become due, to Contractor under this Contract.

D. Omnitrans documentation will serve as the record of fact when assessing liquidated damages.

E. Force Majeure applies:

1) When it is beyond the control of Contractor to provide the service requirements contained in this contract, the Liquidated Damages will be prorated accordingly.

2) Omnitrans shall be the sole judge of the applicability of the Force Majeure clause as relates to Liquidated Damages.

## SP-03 SECURITY SERVICES

Section Not Used

## SP-04 UTILITIES

A. GENERAL -- The Contractor shall protect from damage utility and other subsurface structures that are to remain in place, be installed, relocated or otherwise rearranged (as used herein, rearranged includes installation, relocation, alteration or removal). The Contractor shall notify Omnitrans' Project Manager immediately of any conflict. The Contractor shall match existing products. The Contractor is responsible for coordinating work with the utility owners.

B. Certain companies, governmental agencies, or their contractors may be working within the construction area. Certain utility facilities at various locations within the Project limits may be removed, relocated, abandoned, or installed by companies' or agencies' contractors. The Contractor shall coordinate his work with utility owners and their contractors.

C. The Contractor shall exercise due caution to prevent any damage to/or movement of these utility facilities. Listed below are the utilities that may be affected, with the designated contact person. These names and phone numbers are listed for information purposes only.

D. CONTRACTOR'S RESPONSIBILITY -- The Contractor shall verify the location of all underground utilities and services before proceeding with the work, requesting in advance the services of inspectors from the utility companies in order to ascertain said locations. Damage to underground utilities resulting from neglect on the part of the Contractor shall be corrected and paid for by the Contractor.

1) Attachment L, Reference Documents, includes drawings OMN - 012 - E1 and P - 6, that show existing conditions of CNG and gasoline line systems, located in the fuel/service island work zone. Contractor shall identify location and depth of lines, protect in place all existing conditions, and take precautions as necessary to prevent disruption or damage to fueling systems.

E. COOPERATION AND COLLATERAL WORK -- The Contractor is responsible to coordinate with Agency, the City of Montclair, and any other affected parties.

F. UTILITIES NOTIFICATION -- The Contractor shall notify all owners of public utilities seventy-two (72) hours in advance of excavating around any of their facilities and shall also provide the same notice to Dig Alert at digalert.org / Contact by phone at 811.

G. UTILITIES INTERFERENCE -- Utilities which are found, by exploratory location or by excavation, to interfere with the construction of this Contract will be relocated, altered, or reconstructed, or Omnitrans' Project Manager may order changes in location, line or grade of the project structure, to be built in order to avoid said utility. The Contractor may coordinate the work with the utility owners, if so, directed by Omnitrans' Project Manager.

Abandoned utilities, which interfere with the construction of any portion of this Contract, may be cut by the Contractor, the interfering portion of the utility removed, and open ends of the pipe sealed with a suitable plug or cap.

Upon the occurrence of emergency events, such as gas leaks or electric power interruptions, wherein normal previous workday notification procedures may not be performed, "emergency notification" by the Contractor shall be submitted by emailing utilities@sbcity.org at the time utility crews are being dispatched. Additionally, if the event occurs during normal business hours (Mon-Fri, 8:00 am to 4:00 pm), a phone call to Agency' Facilities Manager (Omnitrans' Project Manager (Office: 909-379-7175; Cell: 951-634-2435) shall be made by the Contractor, in addition to the email, informing him of utility crews being mobilized for such work. Failure to do so may result in work stoppage, citation, or both.

H. PAYMENT -- Full compensation for conforming to the requirements of this Section, not otherwise provided for, shall be considered as included in the prices paid for the various Contract bid items of work involved and no additional compensation will be allowed therefore.

## SP-05 PROSECUTION AND COMPLETION OF WORK

A. Contractor shall commence performance of the Work on the date contract executed**.** Contractor shall furnish sufficient labor (including extra crews) and facilities and shall work such hours (including extra shifts and overtime operations) so as to prosecute the Work to completion in accordance with the following project milestones:

- Substantial Completion 210 calendar days.
- 30 additional calendar days to Final Completion.

B. The Contractor is not authorized to perform any work unless it receives a Notice-to Proceed written authorization to begin.

## SP-06 NOTICE AND SERVICE THEREOF

A. General

Any notice (e.g., Stop Notice, Preliminary Notice, etc.) legally or otherwise required to be given by one Party to another under the Contract shall be in writing and dated, and in accordance with the Contract requirements applicable for the Notice in question. The Notice shall be signed by the Party giving such notice, or by a duly authorized representative of such Party.

B. Notice Transmittals from Contractor

All notices shall not be effective for any purpose whatsoever unless enclosed in a

sealed envelope and transmitted by registered mail addressed to Omnitrans offices as follows:

Omnitrans, 1700 W. 5th Street, San Bernardino, CA 92411, Attention Christine Van Matre, Contract Administrator

**C.** Notice Transmittals to Contractor

**THE REQUIRED INFORMATION WILL BE INCORPORATED AT THE TIME OF AWARD.**

All notices to Contractor will be enclosed in a sealed envelope and transmitted to Contractor's Representative by personal delivery at the Worksite, or by registered mail (or any certifiable delivery service) addressed to Contractor as follows:

Contractor Name
Contractors Address
Contractor City, State, Zip#

Or such alternate address as Contractor may designate by Written Notice.

Attention: Contractor Authorized Representative
Contract Title
Contract No.: Insert

D. Notice Transmittals to Surety and Others

All notices to the Surety, and/or any other entity and/or person, shall be enclosed in a sealed envelope and transmitted by personal delivery or by registered mail addressed as follows:

**THE REQUIRED INFORMATION WILL BE INCORPORATED AT THE TIME OF AWARD.**

Surety Name
Surety Address
Surety City, State, Zip #

Attention: Surety Contact Person
Surety Contact Title
Contract No.: Insert

E. Change of Address Notices

Any notice of changes of address shall be given according to the provisions of this Article.

## SP-07 DOCUMENTS FURNISHED BY AGENCY

The following documents will be assessable with the contract documents to the Contractor.

| DOCUMENT | QUANTITY |
|---|---|
| Technical Specifications | 31 |
| Drawings | 30 |

**SP- 08 CONSTRUCTION SAFETY AND SECURITY**

A. Contractor shall be responsible for compliance with all safety rules and regulations of the Federal Occupational Safety and Health Act of 1970, and all applicable State and local laws, ordinances, and regulations during the performance of construction at the Work Site.

B. In accordance with the Contract, the Contractor shall indemnify Agency for fines, penalties, and corrective measures that result from the acts of the Contractor, its subcontractors, agents, employees, and assigns and their failure to comply with safety rules, laws, ordinances and regulations.

C. The Contractor shall be solely responsible for accident prevention and job site safety on the Project. This responsibility cannot be delegated to subcontractors, suppliers, Agency, or other persons. Incompliance with these provisions, the Contractor shall perform the following:

(1) Stop any construction site activity when, in their opinion, such stoppage is warranted for the protection of life and/or property;

(2) Plan and execute all work to comply with all applicable federal, state and local laws, regulations; industry standards and this Contract's requirements with regard to safety, as well as the stated objectives and safety requirements contained in the Omnitrans' Safety Plan;

(3) Develop, administer, and properly conduct all applicable statutory safety education/training programs mandated by the US. Dept. of Labor (OSHA) and CAL OSHA;

(4) Conduct initial and annual orientation and training programs for employees which shall include, as a minimum, a review of hazards present in the area in which they will be working and the personal protective equipment and apparel the workers will be required to use or wear as specified under OSHA (State and Federal);

(5) Ensure that formal safety meetings are conducted on a weekly basis. Computerize Documentation of topics discussed and attendees shall be maintained;

(6) Ensure that any and all such training is presented in English, as well as the predominant language of the majority of the applicable work force, if that is different from English;

(7) Furnish and enforce the wearing and use of the following required personal protective equipment for all Contractor and subcontractor personnel working on the Project:

(a) Hard hats, meeting the requirements of ANSI-Z89.1, at all times;

(b) Work boots, meeting the requirements of ANSI-Z41, Class 75, at all times;

(c) Eye protection with side shields, meeting the requirements of ANSI Z87.1, at all times;

(d) Warning vests made of high visibility material with reflectorized tape, meeting the requirements of ANSI/ISEA-107 Class II, at all times;

(e) Ear protection, respirators, protective clothing and gloves, safety belts, safety harnesses, lifelines and lanyards, and any and all other personal protective equipment, in accordance with OSHA's specific guidelines for work activities and conditions that necessitate such items for work safety.

(8) Ensure that all of the Contractor's subcontractors, suppliers, vendors and other visitors to the Work Site are properly informed of and comply with all applicable Omnitrans and Contractor safety plans and programs, to include all personal protective equipment requirements;

(9) Notify Agency Safety and Security Officer immediately if a safety inspector from OSHA and/or EPA arrives at the Work Site;

D. Members of the Contractor's staff must be qualified and shall have will have responsibilities with respect to safety:

(1) Contractor's Project Manager, hereinafter referred to as PM, will ensure compliance with all safety provisions of the Contract, including the Safety Plan, OSHA, CAL OSHA, and other Agency and industry safety requirements and standards. Additional safety duties of the PM shall include the following:

(a) Review and direct immediate action to correct all non-standard safety conditions brought to his/her attention;

(b) Take an active part in all supervisory safety meetings, including the discussion of observed unsafe work practices and corrective actions, and encouragement of safety suggestions from employees;

(c) Ensure that a job-site "Safety Bulletin Board" is established and maintained to include all required postings and relevant safety posters/information; and

(d) Cooperate with Omnitrans' Project Manager.

## SP-09 PROJECT SITE MAINTENANCE

1. Cleanup and Dust Control.

Throughout all phases of construction, including suspension of work, and until the final acceptance, the Contractor shall keep the site clean and free from rubbish and debris. The Contractor shall also abate dust nuisance by cleaning, sweeping and sprinkling with water, or other means as necessary. The use of water resulting in mud on public streets will not be permitted as a substitute for sweeping or other methods. The Contractor shall provide and operate a self-loading motor sweeper with spray nozzles every day as needed for the purpose of keeping the entire project site clean as acceptable to Omnitrans' Project Manager. Payment for the cleanup and dust control shall be included in the price paid for other items of work. No additional payment will be made for project

site maintenance.

Materials and equipment shall be removed from the site as soon as they are no longer necessary. Before the final inspection, the site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance. All cleanup costs shall be included in the Contractor's Bid. Care shall be taken to prevent spillage on haul routes. Any such spillage shall be removed immediately, and the area cleaned.

Excess excavated material from catch basins or similar structures shall be removed from the site immediately. Enough material may remain on site for use as backfill if permitted by the Specifications. Forms and form lumber shall be removed from the site as soon as practicable after stripping. Failure of the Contractor to comply with Omnitrans' Project Manager's cleanup orders may result in an order to suspend work until the condition is corrected. No additional compensation will be allowed as a result of such suspension.

2. Final Cleanup.

Upon completion of the project and before making application to Omnitrans' Project Manager for acceptance of the work, the Contractor shall clean all the streets and grounds occupied or used by Contractor in connection with the project, of all rubbish, debris, excess material, temporary structures and equipment, leaving the entire site of the work in a neat and presentable condition.

3. Air Pollution Control.

Contractor shall comply with all air pollution control rules, regulations, ordinances and statutes. All containers of paint, thinner, curing compound, solvent or liquid asphalt shall be labeled to indicate the contents fully comply with the applicable material requirements.

4. Control of Fugitive Dust.

The Contractor shall comply with all rules of the South Coast Air Quality Management District, including Amended Rule 403.

5. Vermin Control.

At the time of acceptance, structures entirely or primarily constructed under the Contract shall be free of rodents, insects, vermin, and pests. Necessary extermination work shall be arranged and paid for by the Contractor as part of the Work within the Contract time and shall be performed by a licensed exterminator in accordance with requirements of governing authorities. The Contractor shall be liable for injury to persons or property and responsible for the elimination of offensive odors resulting from extermination operations.

6. Sanitation.

The Contractor shall provide and maintain a sufficient number of enclosed toilets for the use of employees engaged in the Work. These accommodations shall be maintained in a neat and sanitary condition. They shall also comply with all applicable laws, ordinances, and regulations pertaining to public health and sanitation of dwellings and camps.

Wastewater shall not be interrupted. Should the Contractor disrupt existing sewer facilities, sewage shall be conveyed in closed conduits and disposed of in a sanitary sewer system.

Sewage shall not be permitted to flow in trenches or be covered by backfill.

7. Temporary Light, Power, and Water.

The Contractor shall furnish, install, maintain, and remove all temporary light, power, and water at

its own expense. These include piping, wiring, lamps, and other equipment necessary for the Work. The Contractor shall not draw water from any fire hydrant (except to extinguish a fire), without obtaining permission from the water agency concerned.

8. Water Pollution Control.

The Contractor shall exercise every reasonable precaution to protect channels, storm drains, and bodies of water from pollution. It shall conduct and schedule operations so as to minimize or avoid muddying and silting of said channels, drains, and waters. Water pollution control work shall consist of constructing those facilities, which may be required to provide prevention, control, and abatement of water pollution.

9. Drainage Control.

The Contractor shall maintain drainage within and through the work areas. Earth dams will not be permitted in paved areas. Temporary dams of sandbags, asphaltic concrete, or other acceptable material will be permitted when necessary. Such dams shall be removed from the site as soon as their use is no longer necessary.

10. Sound and Vibration Control.

The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances. No internal combustion engine shall be operated on the project without a muffler of the type recommended by the manufacturer. Should any muffler or other control device sustain damage, the Contractor shall promptly remove the equipment and shall not return said equipment to the job until the device is repaired or replaced. Said noise and vibration level requirements shall apply to all equipment on the job or related to the job, including but not limited to, trucks, transit mixers or transit equipment that may or may not be owned by the Contractor.

11. Technical Specifications.

See Technical Specifications for any modifications to the items addressed in this Section 09 “Project Site Maintenance” (if applicable).

## SP-10 STANDARD WORK WEEK

A. Work shall be accomplished on a regularly scheduled eight (8) hour per day work shift basis, Monday through Friday, between the hours of 7:00 a.m. and 5:00 p.m., unless specifically approved in writing by Agency Representative.

B. It shall be unlawful for any person to operate, permit, use, or cause to operate any of the following at the Project Site, other than between the hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, with no Work allowed on Agency-observed holidays, unless otherwise specifically approved in writing by Agency Representative:

   1) Powered Vehicles
   2) Construction Equipment
   3) Loading and Unloading Vehicles
   4) Domestic Power Tool.

## SP-11 HOLIDAYS

Agency’ Administrative Offices are closed for the following holidays:

| | |
|---|---|
| Labor Day | September 7, 2020 |
| Veterans Day | November 11*, 2020 |

| | |
|---|---|
| Thanksgiving | November 26 and 27*, 2020 |
| Christmas | December 24* and 25, 2020 |
| New Year's Day | January 1, 2021 |
| Memorial Day | May 31, 2021 |

**Days Agency is open for service*

## SP-12 PAYMENT OF PREVAILING WAGES

A. This project is funded under a financial assistance contract by the U.S. Department of Transportation and is subject to all conditions of the Davis-Bacon Act (40 U.S.C. 276a) and the Labor Code of the State of California commencing in Section 1770 et. seq. It is required that all mechanics and laborers employed or working at the site be paid not less than the current basic hourly rates of pay and fringe benefits. Wage schedules are attached or available on the internet at:

www.dir.ca.gov/DLSR/statistics_research.html

and

https://www.wdol.gov/dba.aspx

B. Bidders shall utilize the relevant prevailing wage determinations in effect on the first advertisement date of the Invitation for Bids. In the event there are any differences between the minimum wage rates as determined by the United States Secretary of Labor and those determined by the State of California, the highest rate must be paid.

## SP-13 WEATHER DELAYS CAUSED BY RAIN

The Contractor will not be entitled to damages, additional compensation, or time extension resulting from severe weather as referred to in the Article entitled Extension of Time, in Contract Document General Provisions. The Contractor shall build into the construction critical path method (CPM) schedule to include typical rain days in the San Bernardino region to meet the Project milestones. Historic local climate data as published by National Oceanic & Atmospheric Administration (NOAA) National Weather Service for the 48 years on record shall be the basis of calculating rain days that will affect the Contractor's ability to work.

## SP-14 RIGHTS-OF-WAY, EASEMENTS AND PREMISES

The Contractor shall be responsible for all permits, agency coordination, and traffic control for all work in the public right of way.

## SP-15 FINES ASSESSED FOR NON-COMPLIANCE

Any fines assessed by a governing agency to Agency for any violation relative to the work performed by the Contractor due to Contractor's negligent conduct or non-compliance with any governing agency requirements will be borne by the Contractor.

## SP-16 CLASSIFICATION OF CONTRACTOR'S LICENSE

A. All bidders must possess the proper license at the time of Contract award. A California State Contractor's License, Classification B "General Building Contractor, is required of the prime bidder. All subcontractors must possess the appropriate licenses for each specialty subcontracted.

B. Contractor's Capabilities, Licenses and Registrations

1. General - For the duration of the Work, Contractor, and its Subcontractors shall possess and maintain the following:

   a) Experience and professional capability to perform the Work; and

   b) All required State of California Contractors license(s), Professional license(s) and registrations needed for the Work.

2. Evidence of Valid Licenses/Registrations – Proof of validity of all licenses and registrations required in this Article shall be provided to Agency Contract Administrator within 3 days of contract award.

3. Business Licenses – The Contractor and its Subcontractors are required to be registered to do business in the City of Montclair.

## SP-17 ALLOWANCES

$20,000 / clarifier @ 3 locations – for contaminated soil remediation and disposal relating to clarifier replacement.

## SP-18 PRE-CONSTRUCTION SUBMITTALS

Upon award of a contract, the following shall be submitted prior to or on the day of the pre-construction meeting for Agency' review and comment. The Contractor's complete submittal, due after NTP, shall not substantially differ from the information provided in these documents submitted by the Contractor.

1. Project Schedule
2. Schedule of Values
3. Submittal Schedule
4. Location of field office, storage areas, and layouts
5. Site Specific Health and Safety Plan
6. Project Specific Quality Control Plan
7. Contractor's Key Personnel (Including Emergency Contact information)

## SP-19 RETENTION AND ESCROW ACCOUNT

Section Not Used

## SP-20 PERMITS

Contractor shall procure all permits and licenses and pay all charges, assessments and fees as may be required by the ordinances and regulations of the public agencies having jurisdiction over the areas in which the work is located.

## SP-21 ENVIRONMENTAL POLLUTION CONTROL PLAN

A. The Contractor shall utilize Best Management Practices (BMP's) based on state and federal regulations during construction to ensure that airborne materials, dust, debris, trash and sediment from storm runoff and construction activities does not enter storm drains.

B. The Contractor shall submit a Best Management Practice (BMP) plan for handling and containing construction related debris, and any wastewater or storm water runoff from the project site.

## SP-22 COOPERATION WITH AGENCY DURING BUSINESS OPERATIONS

**Contractor Interface with Agency Bus Operation**

A. It is expected that Agency will cooperate with Contractor to the extent that the Work may be handled in an efficient manner, but Contractor shall have no claim for damage or extra compensation in the event its Work is delayed by Agency bus operations.

B. Contractor shall perform its Work in such manner and at such times as to not endanger or interfere with the safe and timely operation of Agency' buses at or in the vicinity of the Work.

C. Contractor shall give a 7 Day written notice to Omnitrans' Project Manager before commencing any Work in connection with construction or other activities that affect Agency route safety and performance and its customer's safety and accessibility.

## SP-23 PROTECTION OF PROPERTY AND RESTORATION OF EXISTING IMPROVEMENTS

A. The Contractor shall be responsible for the protection of public and private property adjacent to the Work and shall exercise due caution to avoid damage to such property.

B. The Contractor shall repair or replace existing improvements within the Property which are not designated for removal which are damaged or removed as a result of its operations. When a portion of a system within the Property must be removed, the remaining distribution elements shall be capped and remaining system shall be kept functional and not cause new damages. Repairs and replacements shall be at least equal to existing improvements and shall match them in finish and dimension and shall comply with current code and regulation for the new works.

C. The Contractor, during the progress of the Work, shall maintain existing or temporary utility systems. If any damage to existing or temporary utility systems occurs, the Contractor shall immediately notify Omnitrans' Project Manager and arrange for immediate repair and restoration of service. The Contractor shall commence repairs or replacements as soon as possible and in no case later than 4 hours after damaging the system or receiving approval of the equipment and materials by Omnitrans' Project Manager, whichever takes longer. A licensed contractor shall make all temporary and permanent repairs.

D. Equipment and finishes that are not to be removed shall be protected from damage or injury. If any are damaged or removed due to Contractor's operations, they shall be restored or replaced in as nearly the original condition and location as is reasonably possible.

E. All costs to the Contractor for protecting, removing, and restoring existing improvements shall be included in the Bid.

## SP-24 TRAFFIC AND ACCESS

A. Unless otherwise authorized in writing by Omnitrans' Project Manager prior to start of Work, traffic shall be permitted to pass through the Work, or an approved detour shall be provided by the Contractor at its own cost. The Contractor will not be entitled to damages, additional compensation, or time extension resulting from the need to phase construction.

B. Safe and adequate pedestrian and vehicular access shall be provided and maintained to fire hydrants, on site facilities outside the immediate area of work, and parking lots. Access to

these facilities shall be continuous and unobstructed unless otherwise authorized in writing by Omnitrans' Project Manager prior to start of Work.

C. Demolition operations, and construction shall be conducted by the Contractor in a manner to provide safe use of the Property outside the immediate area of work.

## SP-25 SAND-OIL INTERSEPTOR

Wash/clean building sand-oil separator shall not be out of service more than 14 calendar days. Contractor shall submit an activity schedule for review and acceptance by the agency no more than 5 working days prior to scheduled start of work activity.

**END OF SPECIAL PROVISIONS**

**ATTACHMENT G - GENERAL PROVISIONS**
**MNT20-32**
**CONCRETE REPAIRS AT THE WEST VALLEY FACILITY**
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## 1. SCHEDULE OF VALUES

Within 15 calendar days after execution of the contrace, the Contractor shall, upon request by Omnitrans, submit a Schedule of Values of the lump sum Bid entered on the Bid Form for all construction work. This Schedule of Values will form the basis for progress payments in accordance with these Specifications and shall show all of the major categories and subcategories of work and equipment requested by Omnitrans. Bonds and insurance costs will be identified as a separate line item. Such Schedule of Values shall not be required if Omnitrans, at its sole discretion, elects to pay the Contractor in lump sum within thirty (30) calendar days of receipt of proper invoice following the Contractor's satisfactory completion and Omnitrans' acceptance of all work.

## 2. PROGRESS PAYMENTS

a. Invoicing Instructions and Requirements:

1) Contractor shall invoice Omnitrans monthly based upon the Schedule of Values.

2) Invoices shall be separately numbered and sent to Omnitrans at the address listed below:

Omnitrans
1700 West Fifth Street
San Bernardino, California 92411
Attn: AccountsPayables@omnitrans.org and contracts@omnitrans.org

3) The Contractor is required to submit a Conditional Waiver and Release Upon Partial Payment with each invoice. The Contractor must submit the Contractor Final Release with the final invoice. In addition, the Contractor shall submit a completed Disadvantaged Business Enterprise (DBE) form with each payment application.

b. For capital projects, Omnitrans pays invoices on the first Thursday of each month.

1) Subject to verification of receipt, accuracy, and quality of orders, invoices received will be paid on the first Thursday of the month after the received date of an invoice.

2) If received within the 10 days prior to the first Thursday of the month, payment may be delayed to the following month.

c. In no event shall Omnitrans be obligated to make any payment on account of the Services which would cause the total amount paid to Contractor to exceed that not-to-exceed amount set forth above unless the Contract is amended through a Change Order.

d. For purposes of calculating the progress payments, Omnitrans will use the Schedule of Values submitted by the Contractor at the start of this Agreement. In no event will Omnitrans make a progress payment that, when added to the prior progress payments, amounts to a sum more than the Contractor's actual aggregate incurred expenses, adjusted to include Contractor's overhead and profit as allocated to such incurred expenses.

e. Omnitrans will pay only 95% of each progress payment amount as determined above, retaining 5% as part security for the fulfillment of this Agreement by the Contractor.

Unless otherwise required by law, the final payment of five percent (5%) of the value of the total price of this Agreement, if unencumbered, shall be paid no later than sixty (60) days after the date of recordation of the Notice of Completion.

f. No progress payments will be made for materials not installed.

g. Progress payments made by Omnitrans in no way shall be deemed or construed as acceptance by Omnitrans of work or waiver by Omnitrans of any rights hereunder.

h. Acceptance by Contractor of the final payment shall constitute a waiver of all claims against Omnitrans arising from this Agreement.

i. The Contractor shall pay subcontractors, promptly upon receipt of each Omnitrans progress payment, the respective amounts allowed the Contractor on account of the work performed by subcontractors, to the extent of each such subcontractor's interest therein. Such payments to subcontractors shall be based on estimates made pursuant to this Agreement. Any diversion by the Contractor of payments received for prosecution of a contract, or failure to reasonably account for the application or use of such payments, constitutes ground for termination of the Contractor's control over the work and for taking over the work, in addition to disciplinary action by the Contractor's State License Board. The subcontractor shall notify, in writing, the Contractor's State License Board and Omnitrans of any payment less than the amount or percentage approved for the class or item of work as set forth in this Agreement.

j. In addition to other amounts properly withheld under this Agreement, Omnitrans shall withhold all legally required sums for, but not necessarily limited to, stop payment notices, labor and tax liens, etc.

## 3. FINAL INSPECTION AND ACCEPTANCE

Promptly after Substantial Completion has occurred, Contractor shall perform all Punch List Work, if any, which was deferred for purposes of Project Completion, and shall satisfy all of its other contractual obligations under the contract documents.

When the Contractor determines that the work is fully completed, including satisfactory completion of all inspections, tests, and required documentation, Punch List and clean-up items, Contractor shall give Omnitrans a written request for Final Acceptance within ten (10) days thereafter, specifying that the work is completed and the date on which it was completed.

Within thirty (30) days after receipt of the request for Final Acceptance from Contractor, Omnitrans will make a final inspection of the work and will either:

a. Reject the request for Final Acceptance, specifying the defective or uncompleted work; or

b. Issue a written Final Acceptance and record Notice of Completion with County Recorder.

Substantial Completion is defined herein as; In the opinion of Omnitrans, that Work or portion thereof that is sufficiently complete and in accordance with the Contract, that it can be utilized by Omnitrans for the purpose for which it was intended. A determination of Substantial Completion does not waive, but may not require the prior completion of minor items, which do not impair Omnitrans ability to safely occupy and utilize the Work for its intended purpose.

## 4. FINAL PAYMENT

a. After the filing of the Notice of Completion, Omnitrans will make a proposed final estimate, in writing, of the total amount payable to the Contractor, including therein an itemization of said amount, segregated as to contract item quantities, extra work and any other basis for payment, and shall also show therein all deductions made or to be made for prior payments and amounts to be kept or retained under the provisions of the contract. All prior estimates and payments shall be subject to correction in the proposed final estimate. Within 15 days after proposed final estimate has been submitted, Contractor shall submit to Omnitrans written approval of proposed final estimate and/or a written statement of all claims of the contract. No claim will be considered that was not included in written statement of claims, nor will any claim be allowed unless the Contractor has previously complied with the notice and protest requirements.

b. On the Contractor's approval, or if he files no claim within stated period, Omnitrans will issue a final written estimate, in accordance with the proposed final estimate submitted to the Contractor; and 35 days after the date of filing the Notice of Completion Omnitrans will pay the entire sum found to be due. Such final estimate and payment thereon shall be conclusive and binding against the Contractor on all questions relating to the amount of work done and the compensation payable therefore, except as otherwise provided.

c. If the Contractor within said period of 15 days files claims, Omnitrans will issue a semi-final estimate in lieu of the final estimate submitted to the Contractor; and 35 days after the date of filing of the Notice of Completion, Omnitrans will pay the sum found to be due. Such semi-final estimate and payment thereon shall be conclusive and binding against the Contractor on all questions relating to the amount of work done and the compensation payable therefore, except insofar as affected by the claims filed within the time and in the manner required hereunder and except as otherwise provided.

d. Upon final determination of any outstanding claims, Omnitrans shall then make and issue a final estimate in writing and within 30 days thereafter, Omnitrans will pay the entire sum, if any, found due. Such final estimate shall be conclusive and binding against the Contractor on all questions relating to the amount of work done and the compensation payable therefore, except as otherwise provided.

## 5. MODIFICATION TO SPECIFICATION (CHANGE ORDERS) AND SCOPE OF WORK

a. Modifications to the Specifications and or Scope of Work

1) Omnitrans may, from time to time, make changes to the Specifications and or Scope of Work under the Contract, through a Change Order.

2) A Change Order shall not modify the overall purpose of the Contract.

3) At any time during the term of the Contract, Omnitrans may order Additional Services to be performed by the Contractor by a Change Order.

4) *Additional Services* are defined as services that were not contained in the Contract and are determined by Omnitrans to be necessary, and where a reasonable relationship to the services originally described in the Contract exists.

5) Contractor shall not be entitled to make any changes in the services or perform any Additional Services unless authorized, in advance, by written Change Order.

6) Contractor shall continue performance of the Scope of Work as modified by the Change Order upon receipt of a Change Order approved by Omnitrans.

7) Contractor and Owner hereby agree and acknowledge that execution of the Change Order constitutes a mutual accord and satisfaction as to the work covered hereby. Contractor specifically waives and releases: any and all claims; rights or interest; including, but not limited to, those for: impact; disruption; loss of efficiency; "ripple"; other extraordinary; or consequential costs, arising directly or indirectly out of the work described in this Change Order, except as specifically included herein.

b. Authorization of Additional Work

1) Authorization to make changes to the Specifications and or Scope of Work under the Contract shall be completed through a written Change Order.

2) Persons authorized to make those changes will exclusively be:

**Contractor:** the person whose duly authorized signature appears on the PROPOSAL documents and has authority to legally bind the firm.

**Omnitrans:** CEO/General Manager.

3) Either Omnitrans or Contractor may designate other persons as agreed upon in writing or as designated herein.

4) For the purposes of this contract, temporary work ordered for special occasions that is not meant to affect the overall purpose and intent of this contract will be issued by Omnitrans under a separate contract and or purchase order. Any such additional work will be under the terms and conditions of that contract or purchase order, but may reference any portions of this contract.

c. Price Adjustments

1) Any change in the contract that causes an increase or decrease in cost to Omnitrans, or the time required for the performance of the contract, must be approved as prescribed herein.

2) An equitable adjustment in the compensation and schedule will be made upon an approved Change Order, which shall be incorporated, into the Contract by reference.

3) Contractor shall be liable for all costs resulting from, and or for satisfactorily correcting, any specification changes not properly ordered by written modification to the contract and signed by the Contracting Officer.

4) Except as otherwise expressly provided in the Contract, when costs are a factor in any determination of a contract price adjustment, such costs shall be in accordance with the applicable cost principles of Subpart 31.2 of the Federal Acquisition Regulations (*FAR*s) in effect at the onset of the Contract.

## 6. CLAIMS

a. In accordance with Public Contract Code Sections 20104 *et seq.* and other applicable law, public works claims of $375,000 or less which arise between the Contractor and Omnitrans shall be resolved under the following statutory procedure unless Omnitrans has elected to resolve the dispute pursuant to Public Contract Code Section 10240 *et seq.*

b. **All Claims.** All claims shall be submitted in writing and accompanied by substantiating documentation. Claims must be filed on or before the date of final payment unless other notice requirements are provided in the Contract Documents. "Claim" means a separate demand by the claimant for (1) a time extension, (2) payment of money or damages arising from work done by or on behalf of the claimant and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled, or (3) an amount the payment of which is disputed by Omnitrans. The Contractor shall promptly comply with the Contract Documents in the performance of Work and/or the requests of Omnitrans even though a written claim has been filed. The Contractor and Omnitrans shall make good faith efforts to resolve any and all claims that may arise during performance of the Work covered by this Contract.

c. **Claims Under $50,000.** Omnitrans shall respond in writing to the claim within 45 days of receipt of the claim, or, Omnitrans may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses or claims Omnitrans may have. If additional information is needed thereafter, it shall be provided upon mutual agreement of Omnitrans and the claimant. Omnitrans' written response shall be submitted 15 days after receiving the additional documentation, or within the same period of time taken by the claimant to produce the additional information, whichever is greater.

d. **Claims over $50,000 but less than or equal to $375,000.** Omnitrans shall respond in writing within 60 days of receipt, or, may request in writing within 30 days of receipt of the claim, any additional documents supporting the claim or relating to defenses or claims Omnitrans may have against the claimant. If additional information is needed thereafter, it shall be provided pursuant to mutual agreement between Omnitrans and the claimant. Omnitrans' response shall be submitted within 30 days after receipt of the further documents, or within the same period of time taken by the claimant to produce the additional information or documents, whichever is greater. The Contractor shall make these records and documents available at all reasonable times, without any direct charge.

e. The Contractor will submit the claim justification in the following format:

1) Summary of claim merit and price, and Contract clause pursuant to which the claim is made.

2) List of documents relating to claim

i. Specifications
ii. Drawings
iii. Clarifications (Requests for Information)

iv. Schedules
v. Other

3) Chronology of events and correspondence

4) Analysis of claim merit

5) Analysis of claim cost

6) Analysis of time impact analysis in CPM format

7) Cover letter and certification of validity of the claim

f. If the claimant disputes Omnitrans' response, or if Omnitrans fails to respond within the statutory time period(s), the claimant may so notify Omnitrans within 15 days of the receipt of the response or the failure to respond, and demand an informal conference to meet and confer for settlement. Upon such demand, Omnitrans shall schedule a meet and confer conference within 30 Days.

g. If following the meet and confer conference, the claim or any portion thereof remains in dispute, the claimant may file a claim pursuant to Government Code 900 et seq. and Government Code 910 et seq. For purposes of those provisions, the time within which a claim must be filed shall be tolled from the time the claimant submits the written claim until the time the claim is denied, including any time utilized for the meet and confer conference.

Submission of a claim, properly certified, with all required supporting documentation, and written rejection or denial of all or part of the claim by Omnitrans, is a condition precedent to any action, proceeding, litigation, suit, general conditions claim, or demand for arbitration by Contractor.

Claims submitted by the Contractor shall be accompanied by a notarized certificate containing the language listed below. Failure to submit the notarized certificate will be cause for denying the claim.

Certificate

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

_____
(Name)

_____
(Title)

_____
(Company)

herby certifies that the claim for the additional compensation and time, if any, made herein for the work on this Contract is a true statement of the actual cost incurred and time sough, and is fully documented and supported under the Contract between the parties

Dated: _____

Signature: _____

**NOTARY CERTIFICATION**

STATE OF_____
}SS:
COUNTY OF_____

Subscribed and sworn to before me this _____day of _____, 20___, by _____, proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Signature of Notary Public_____

Printed/typed name of Notary Public_____

County of residence_____ Date commission expires _____

(SEAL)

## 7. ACCELERATION

a. Omnitrans reserves the right to accelerate the work of the Contract at any time during its performance. In the event that Omnitrans directs acceleration, such directive will be given to the Contractor in writing. The Contractor shall keep cost and other Project records related to the acceleration directive separately from normal Project cost records and shall provide a written record of acceleration costs to Omnitrans on a daily basis.

b. In the event that the Contractor believes that some action or inaction on the part of Omnitrans constitutes an acceleration directive, the Contractor shall immediately notify Omnitrans in writing that the Contractor considers the actions or inactions an acceleration directive. This written notification shall detail the circumstances of the acceleration directive. The Contractor shall not accelerate their work efforts until Omnitrans responds to the written notification. If acceleration is then directed or required by Omnitrans, all cost records referred to in section (1) shall be maintained by the Contractor and provided to Omnitrans on a daily basis.

c. In order to recover additional costs due to acceleration, the Contractor must document that additional expenses were incurred and paid by the Contractor. Labor costs recoverable will only be overtime or shift premium costs or the cost of additional laborers brought to the site to accomplish the accelerated work effort. Equipment costs recoverable will only be the cost of added equipment mobilized to the site to accomplish the accelerated work effort.

## 8. STOP PAYMENT NOTICES

Omnitrans, at its sole discretion, may, at any time, retain out of any amounts due the Contractor, sums sufficient to cover claims filed pursuant to Section 9530 et. seq. of the California Civil Code.

## 9. ORDER OF WORK

Contractor shall perform work hereunder at such places, and in such order or precedence, as may be determined necessary by the Engineer to expedite completion of the required work.

## 10. LABOR PROVISIONS

a. Prevailing Wages

1) Contractor shall comply with all applicable requirements of Division 2, Part 7, Chapter 1 of the Labor Code and all applicable federal requirements respecting prevailing wages. If there is a difference between the minimum wage rates predetermined by the Secretary of Labor and the wage rates determined by the Director of the Department of Industrial Relations (DIR) for similar classifications of labor, the Contractor and subcontractors shall not pay less that the higher wage rate. The DIR will not accept lower state wage rates not specifically included in the Federal minimum wage determination.

2) The Contractor and each subcontractor shall forfeit as a penalty to Omnitrans not more than Two Hundred Dollars ($200.00) for each calendar day, or portion thereof, for each worker paid less than the stipulated prevailing wage rate for any work done by him, or

by any subcontract under him, in violation of the provisions of the Labor Code. The difference between such stipulated prevailing wage rate and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor.

3) The Contractor shall obtain a copy of the prevailing rates of per diem wages at the commencement of this Agreement from the website of the Division of Labor Statistics and Research of the Department of Industrial Relations located at www.dir.ca.gov/dlsr/. In the alternative, the Contractor may view a copy of the prevailing rates of per diem wages upon request to OMNITRANS. Contractor shall make copies of the prevailing rates of per diem wages for each craft, classification, or type of worker needed to perform work on the Project available to interested parties upon request, and shall post copies at the Contractor's principal place of business and at the Project Site. Contractor shall post, at appropriate conspicuous points on the Project Site, a schedule showing all determined general prevailing wage rates and all authorized deductions, if any, from unpaid wages actually earned.

b. Minimum Wages

1) All mechanics and laborers employed or working upon the site of the work will be paid unconditionally, and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts due at time of payment computed at wage rates not less than those specified in the General Wage Determinations referenced in this section regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics; and the wage determination decision shall be posted by the Contractor at the site of the work in a prominent place where it can be easily seen by the workers. For the purpose of this clause, contributions made or cost reasonably anticipated under the Labor Code of the State of California on behalf of laborers or mechanics are considered wages paid by such Laborers or mechanics. Also for the purpose of this clause, regular contributions made or costs incurred for more than a weekly period under plans, funds or programs, but covering the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

2) Omnitrans shall require that any class of laborers or mechanics, including apprentices and trainees, which is not listed in the General Wage Determinations and which is to be employed under this Contract, shall be classified conformably to such wage determinations. In the event Omnitrans does not concur in the Contractor's proposed classification or reclassification of a particular class of laborers and mechanics (including apprentices and trainees) to be used, the question, accompanied by the recommendation of Omnitrans, shall be referred to the State Director of Industrial Relations for determination.

3) Omnitrans shall require, whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly wage and the Contractor is obligated to pay a cash equivalent of such a fringe benefit, an hourly cash equivalent thereof to be established. In the event the interested parties cannot agree upon cash equivalent of the fringe benefit, the questions, accompanied by the recommendation of Omnitrans, shall be referred to the State

Director of Industrial Relations for determination.

4) All disputes concerning the payment of wages or the classification of workers under this Agreement shall be promptly reported to Omnitrans.

c. Deductions

In addition to amounts which Omnitrans may retain under other provisions of the Contract Documents Omnitrans may withhold payments due to Contractor as may be necessary to cover:

1) Stop Payment Notice Claims.

2) Defective work not remedied.

3) Failure of Contractor to make proper payments to its subcontractors or suppliers.

4) Completion of the Contract if there exists a reasonable doubt that the work can be completed for balance then unpaid.

5) Damage to another Contractor or third party.

6) Amounts which may be due Omnitrans for claims against Contractor.

7) Failure of Contractor to keep the record ("as-built") drawings up to date.

8) Failure to provide updates on the construction schedule and/or a recovery schedule if required.

9) Site clean-up.

10) Failure of the Contractor to comply with requirements of the Contract Documents, including but not limited to Contractor's failure to provide approved complete as-builts prior to filing of Notice of Completion.

11) Liquidated damages.

12) Legally permitted penalties.

i. Omnitrans may apply such withheld amount or amounts to payment of such claims or obligations at its discretion with the exception of subsections (a), (c) and (e) of this Article, which must be retained or applied in accordance with applicable law. In so doing, Omnitrans shall be deemed the agent of Contractor and any payment so made by the Contractor shall be considered as a payment made under contract by Omnitrans to Contractor and Omnitrans shall not be liable to Contractor for such payments made in good faith. Such payments may be made without prior judicial determination of the claim or obligations. Omnitrans will render Contractor a proper accounting of such funds disbursed on behalf of the Contractor.

ii. Upon completion of the Contract, Omnitrans will reduce the final Contract amount to reflect costs charged to the Contractor, back charges or payments withheld pursuant to the Contract Documents.

iii. All amounts owing by Contractor to Omnitrans under the Contract shall earn interest from the date on which such amount is owing at the lesser of (i) 10% per annum or (ii) the maximum rate allowable under applicable Governmental Rules.

d. Payrolls and Basic Records

1) Payrolls and basic records relating thereto will be maintained during the course of the work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the site of the work. Such records will contain the name, address and social security number of each such worker, the correct classification, rates of pay, daily and weekly number of hours worked, deductions made and actual wages paid.

2) Pursuant to Labor Code Section 1776, the Contractor and each subcontractor shall maintain weekly certified payroll records showing the name, address, social security number, work classification, straight time and overtime hours paid each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker or other employee employed in connection with the work. Contractor shall certify under penalty of perjury that records maintained and submitted by Contractor are true and accurate. Contractor shall also require subcontractor(s) to certify weekly payroll records under penalty of perjury

3) The Contractor will submit weekly a copy of all payrolls to Omnitrans as required in these "Labor Provisions" as well as to the Department of Industrial Relations (DIR). See subsection 17, Certified Payroll Compliance Monitoring, in this section. The copy shall be accompanied by a statement signed by the employer or its agent indicating that the payrolls are correct and complete, that the wage rates contained therein are not less than those determined by the State Director of Industrial Relations and that the classifications as set forth for each laborer or mechanic conform to the work performed. A submission of the "Weekly Statement of Compliance," which is required under this Contract, shall satisfy this requirement. The prime Contractor shall be responsible for the submission of copies of payrolls of all subcontractors. The Contractor will make the records required under the labor standard clauses of the contract available for the inspection by authorized representatives of Omnitrans, and will permit such representatives to interview employees during working hours on the job. In the event of noncompliance with the requirements of this Section, the Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying any item or actions necessary to ensure compliance with this section. Should noncompliance still be evident after such ten (10) day period, the Contractor shall, as a penalty to Omnitrans, forfeit One Hundred Dollars ($100.00) for each day, or portion thereof, for each worker until strict compliance is effectuated. Upon the request of the DIR, such penalties shall be withheld from contract payments

e. Apprentices and Trainees

1) Apprentices: Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed and individually registered in a bona fide apprenticeship program as defined in section 1777.5 of the Labor Code of the State of

California. The allowable ratio of apprentices to journeymen in any craft classification shall not be greater than the ratio permitted to the Contractor as to his entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate who is not registered or otherwise employed as stated above, shall be paid the wage rate determined by the State Director of Industrial Relations for the classification of work he actually performed. The Contractor or subcontractor will be required to furnish to Omnitrans or the State Director of Industrial Relations written evidence of the registration of his program and apprentices as well as the appropriate ratios and wage rates (expressed in percentages of the journeyman's rate contained in the applicable wage determination).

2) Trainees: Except as provided in 29 CFR 5.15, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to or individually registered in a program which has received prior approval, evidenced by formal certification, by the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training. The ratio of trainees to journeymen shall not be greater than that permitted under the plan approved by the Bureau of Apprenticeship and Training. Every trainee must be paid at not less than the rate specified in the approved program for his level of progress. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Bureau of Apprenticeship and Training shall be paid not less than the wage rate determined by the Secretary of Labor for the classification of work he actually performed. The Contractor or subcontractor will be required to furnish the contracting officer or a representative of the Wage-Hour Division of the U.S. Department of Labor written evidence of the certification of his program, the registration of the trainees, and the ratios and wage rates prescribed in that program. In the event the Bureau of Apprenticeship and Training withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

3) Equal Employment Opportunity: The utilization of apprentices and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended and 29 CFR, Part 30.

f. Compliance with Copeland Regulations (29 CFR, Part 3)

The Contractor shall comply with the Copeland Regulations (29 CFR, Part 3) of the Secretary of Labor which is herein incorporated by reference.

g. Overtime Requirements

No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any laborer or mechanic in any work week in which he is employed on such work to work in excess of 8 hours a day or 40 hours in such work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 8 hours a day or 40 hours in such work week.

h. Violation; Liability for Unpaid Wages

Pursuant to section 1775 of the Labor Code of the State of California, in the event that any workman employed on this public works project is paid less than the amount specified in the General Prevailing Wage Determinations or less than is required, relative to overtime, the Contractor and any subcontractor responsible therefore shall be liable to the affected workman for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the State of California or Omnitrans for liquidated damages. Such liquidated damages shall be computed with respect to each individual workman found to be underpaid and shall be in the amount of $50 per calendar day that a workman was underpaid.

i. Withholding for Liquidated Damages

Omnitrans may withhold or cause to be withheld, from any monies payable on account of work performed by the Contractor or subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for liquidated damages as provided in this section.

j. Final Labor Summary

The Contractor and each subcontractor shall furnish to Omnitrans, upon the completion of the contract, a summary of all employment, indicating for the completed project, the total hours worked and the total amount earned.

k. Final Certificate

Upon completion of the contract, the Contractor shall submit to Omnitrans, with the voucher for a final payment for any work performed under the contract, a concerning wages and classifications for laborers and mechanics, including apprentices and trainees employed on the project, in the following form:

The undersigned, Contractor on

_____

(Contract No.)

hereby certifies that all laborers, mechanics, apprentices and trainees employed by the Contractor or by a subcontractor performing work under the contract on the project have been paid wages at rates not less than those required by the contract provisions, and that the work performed by each such laborer, mechanic, apprentice or trainee conformed to the classifications set forth in the contract or training program provisions applicable to the wage rate paid.

_____

Signature and Title

l. Notice to Omnitrans of Labor Dispute

Whenever the Contractor has knowledge that any actual or potential labor dispute is

delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice thereof, including all relevant information with respect thereto, to Omnitrans.

m. Disputes Clause

1) All disputes concerning the payment of prevailing wage rates or classifications shall be promptly reported to Omnitrans for its referral to DOT for decision or, at the option of Omnitrans, DOT referral to the Secretary of Labor. The decision of DOT or the Secretary of Labor, as the case may be, shall be final.
2) All questions relating to the application or interpretation of the Copeland Act, the Contract Work Hours Standards Act, the Davis-Bacon Act, or Section 13 of the Act shall be sent to the Federal Transit Administration (FTA) for referral to the Secretary of Labor for ruling or interpretation, and such ruling or interpretation shall be final.

n. Convict Labor

In connection with the performance of work under this Contract, the Contractor agrees not to employ any person-undergoing sentence of imprisonment at hard labor. This does not include convicts who are on parole or probation.

o. Insertion in Subcontracts

The Contractor shall set forth in item 1 through 15 of this Section so that all of the provisions of this section will be inserted in all construction subcontracts of any tier, and such other clauses as the Government may by appropriate instructions require.

p. Certified Payrolls Compliance Monitoring

1) This project is subject to monitoring and enforcement by the Department of Industrial Relations (DIR).

2) This project is subject to prevailing wages.

3) Contractors and subcontractors are obligated to submit certified payroll records utilizing the DIR's eCPR system. You can access additional information regarding the DIR's reporting system by using the following link: http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html.

## 11. TIME EXTENSION/DELAYS

a. Contractor may be granted an extension of time for any portion of a delay in completion of the work due to acts of God, the public enemy, wars, civil unrest, fires, quarantine restrictions, or weather more severe than normal, providing that (1) the aforesaid causes were not foreseeable and did not result from an act or omission by the Contractor, (2) Contractor has taken reasonable precautions to prevent further delays owing to such causes, and (3) Contractor notifies Omnitrans in writing of the cause(s) for the delay within ten (10) days from the beginning of any such delay. No claims for additional compensation or damages for the foregoing delays shall be allowed to the Contractor, and the extension of time provided for herein shall be the sole remedy of the Contractor on account of any such

delays.

b. An extension of time will not be granted for a delay described in the above paragraph(s) caused by a shortage of materials, except if materials are furnished by Omnitrans, unless the Contractor supplies Omnitrans with documented proof that every effort to obtain the materials from all known sources that (a) such materials could have been obtained only at exorbitant prices or (b) the prices were entirely inconsistent with current rates, taking into account the quantities; and (c) such facts could not have been known or anticipated at the time the contract was executed. Contractor shall also submit proof, that the inability to obtain such materials when originally planned, did in fact, cause a delay in completion of the work that could not be compensated for by revising the sequence of its operations. Only the physical shortage of material will be considered as a basis for an extension of time.

c. An extension of time for weather more severe than normal shall be granted only to the extent the work is actually delayed as determined by Omnitrans. Normal is defined as the monthly average of the temperature and rainfall wherein the work was performed for the prior 20 years before the execution of the contract.

d. In the event Contractor is actually and necessarily delayed by an act or omission on the part of Omnitrans, as determined by Omnitrans, the Contractor shall notify Omnitrans in writing within five (5) days from the beginning of any such delay. The time for completion of the work may be extended at the sole discretion of Omnitrans.

e. Within 30 days after the last day of delay, Contractor shall provide Omnitrans with detailed information concerning the circumstances of the delay, the number of days actually delayed, and the measures taken to minimize or prevent the delay. Failure to submit information shall be sufficient reason to deny the claim. Omnitrans shall ascertain the facts and the extent of the delay; and provide the Contractor its written findings, which will be final and conclusive. Except for the additional compensation for herein and except as provided in Public Contract Code Section 7102, Contractor shall have no claim for damages or compensation for any delay or hindrance.

f. No extension of time will be granted for any Omnitrans caused delay or delay as defined in which (a) the performance of work would have been concurrently delayed by Contractor induced causes, including but not limited to an act or omission of the Contractor, or (b) remedies are included or excluded by any other contract provision. Only the actual delay necessarily resulting from the causes specified in this Article shall be grounds for extension of time. Should the Contractor be delayed at any time for any period by two or more of the causes specified in this article, Contractor shall only be entitled to one time extension for the entire delay.

g. Any time extension granted to Contractor shall not release the Contractor or surety from its obligations. Work shall continue and be carried on in accordance with the contract provisions, unless formally suspended or terminated by Omnitrans.

## 12. NONDISCRIMINATION

During the performance of this Contract, the Contractor agrees as follows:

a. The Contractor will not discriminate against any employee or applicant for employment

because of race, creed, color or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to employment; upgrading; demotion; transfer; recruitment or recruitment advertising; layoff; termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post, in conspicuous places available to the employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

b. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

c. The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this Section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

e. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of the said rules, regulations or orders, this Contract may be canceled, terminated or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts or Federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order, of the Secretary of Labor, or as otherwise provided by law.

f. The Contractor will include the provisions of this Paragraph ("Nondiscrimination") in every subcontract or purchase order entered into under this Agreement unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

g. No person employed on the work covered by this Agreement shall be discharged or in any way discriminated against because he has filed any complaints or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable hereunder to his employer.

## 13. TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

Contractor agrees to comply with and ensure compliance by all subcontractors with all requirements of Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. §2000d; 49 U.S.C. §5332 and Department of Transportation Regulations, "Nondiscrimination in Federally-Assisted Programs of the Department of Transportation-Effectuation of Title VI of the Civil Rights Act," 49 CFR Part 21.

## 14. GOVERNMENT INSPECTIONS

Omnitrans or Government representatives shall have access to the construction site and shall have the right to inspect all project works.

## 15. LICENSING, PERMITS AND INSPECTION COSTS

a. The Contractor warrants that it has all necessary licenses and permits required by the laws of the United States, State of California, the County of San Bernardino, the Local Jurisdictions, and all other appropriate governmental agencies, and agrees to maintain these licenses and permits in effect for the duration of the Agreement. Further, Contractor warrants that its employees, agents, and Contractors and subcontractors shall conduct themselves in compliance with such laws and licensure requirements including, without limitation, compliance with laws applicable to nondiscrimination, sexual harassment and ethical behavior throughout the duration of this Agreement. Contractor further warrants that it shall not retain or employ an unlicensed subcontractor to perform work on this Project. Contractor shall notify Omnitrans immediately and in writing of its employees', agents', Contractors' or subcontractors' inability to obtain or maintain, irrespective of the pendency of any appeal, any such licenses, permits, approvals, certificates, waivers, and exemptions. Such inability shall be cause for termination of this Agreement.

b. Contractor shall procure all permits and licenses and pay all charges, assessments and fees as may be required by the ordinances and regulations of the public agencies having jurisdiction over the areas in which the work is located, and shall comply with all the terms and conditions thereof and with all lawful orders and regulations of each such public agency relating to construction operations under the jurisdiction of such agency.

c. Contractor shall act as permittee on behalf of Omnitrans for coordination of all associated City of Montclair Department inspections.

## 16. HAZARDOUS SUBSTANCES

a. CAL-OSHA Requirements

All flammable, corrosive, toxic or reactive materials being bid must have a complete CAL-OSHA Safety Data Sheet (SDS) accompanying the submitted bid.

b. Notice of Hazardous Substances

Title 8, California Code of Regulations, Section 5194 (e)(c), states that the employer must inform any Contractor employers with employees working in the employer's workplace of the hazardous substances to which their employees may be exposed while performing their work. In compliance with this requirement, Omnitrans hereby gives notice to all Bidders that the following general categories of hazardous substances are present on Omnitrans' premises:

1) adhesives, sealant, patching and coating products
2) antifreeze, coolants
3) cleaners, detergents
4) paints, thinners, solvents
5) pesticides, petroleum products (diesel and unleaded fuel, oil products)
6) printing, photocopying materials
7) propane welding materials/compressed gases (e.g., acetylene, oxygen, nitrogen)

More specific information may be obtained from Omnitrans Safety and Security Office, and from Safety Data Sheets for individual products.

## 17. MEDIA AND THE PUBLIC

Contractor shall immediately refer all inquiries from the news media or other public sources to Omnitrans' Project Manager, or designated representative, relating to this project.

## 18. COORDINATION AND ACCESS

Omnitrans may undertake or award other contracts for additional work at the project site. Contractor is responsible for coordinating its work with the work of other Contractors as appropriate. The Contractor acknowledges that they do not have any exclusive access to the site or other work areas. Omnitrans may require that certain facilities and areas be used concurrently by the Contractors and others. Contractor shall cooperate fully with Omnitrans Contractors/consultants that may be performing work in the construction area.

## 19. UTILITIES RELATED DELAYS

If, due to interruptions caused by the undocumented utilities, Contractor sustains loss which could not have been avoided by the judicious handling of forces, equipment and plant, there shall be paid to the Contractor that amount that Omnitrans may find to be a fair and reasonable compensation for the part of the Contractor's actual loss, that, in the opinion of Omnitrans was unavoidable, determined as follow: Compensation for idle time of equipment will be determined in the same manner as determinations are made for equipment used in the performance of extra work paid for on a force account basis per Section E, Modifications in the Specifications and Scope of Work, with the following exceptions:

a. The utility related delay factor for each classification of equipment shown in the Department of Transportation publication entitled Labor Surcharge and Equipment Rental Rates will be applied to that equipment rental rate.

b. The time for which the compensation will be paid will be the actual normal working

time during which the delay condition exists, but in no case will exceed 8 hours in any one day.

c. The days for which compensation will be paid will be the calendar days, excluding Saturdays, Sundays and legal holidays, during the existence of the delay, except that when the rented equipment can be returned or used elsewhere on the project, then no payment will be made for utilities related delays.

Actual loss shall be understood to include no items of expense other than idle time of equipment and necessary payments for idle time of workers, and cost of extra moving of equipment.

## 20. UTILITIES AND SUBSURFACE STRUCTURES

Contractor shall protect from damage utility and other subsurface structures that are to remain in place, be installed, relocated or otherwise rearranged (as used herein, rearranged includes installation, relocation, alteration or removal).

The right is reserved to Omnitrans, or their authorized agents, to enter upon the site for the purpose of making those changes that are necessary for the rearrangement of their facilities or for making necessary connections or repairs to their properties. Contractor shall cooperate with forces engaged in this work and shall conduct operations in such a manner as to avoid any unnecessary delay or hindrance to the work being performed by the other forces. Wherever necessary, the work of Contractor shall be coordinated with the rearrangement of utility or other non-highway facilities, and Contractor shall make arrangements with the owner of those facilities for the coordination of the work.

Attention is directed to the possible existence of underground main or trunk line utilities not indicated on the plans or in the special provisions and to the possibility that underground main or trunk lines may be in a location different from that which is indicated on the plans or in the special provisions. Contractor shall ascertain the exact location of underground main or trunk lines whose presence is indicated on the plans or in the special provisions, the location of their service laterals or other appurtenances, and of existing service lateral or appurtenances of any other underground facilities which can be inferred from the presence of visible facilities such as buildings, meters and junction boxes prior to doing work that may damage any of the facilities or interfere with their service.

If Contractor cannot locate an underground utility whose presence is indicated on the plans or in the special provisions, the Contractor shall so notify Omnitrans in writing. If the utility for which the notice is given is in a substantially different location from that indicated on the plans or in the special provisions, the additional cost of locating the utility will be paid for as extra per Section E, Modifications in the Specifications and Scope of Work.

If Contractor discovers underground main, trunk lines or other structures and utilities not indicated on the plans or in the special provisions, Contractor shall immediately give Omnitrans and the Utility Company written notification of the existence of those utilities. Such utilities shall be located and protected from damage as directed by Omnitrans, and the cost of that work will be paid for as extra work per Section E, Modifications in the Specifications and Scope of Work. Contractor shall, if directed by Omnitrans repair any damage which may occur to the main or trunk lines. The cost of that repair work, not due to the failure of the Contractor to exercise reasonable care, will be paid for as extra work per Section E, Modifications in the

Specifications and Scope of Work. Damage due to Contractor's failure to exercise reasonable care shall be repaired at the Contractor's cost and expense.

Where it is determined by Omnitrans that the rearrangement of an underground utility essential in order to accommodate the project work and the plans and specifications do not provide that the utility is to be rearranged, Omnitrans will provide for the rearrangement of the utility by other forces or the rearrangement shall be performed by Contractor and will be paid for as extra work per Section E, Modifications in the Specifications and Scope of Work.

When ordered by Omnitrans in writing, Contractor shall rearrange any utility or other subsurface structures necessary to be rearranged as a part of the project work and that work will be paid for as extra work per Section E, Modifications in the Specifications and Scope of Work.

Should Contractor desire to have any rearrangement made in any utility facility, or other improvement, for the Contractor's convenience in order to facilitate the Contractor's construction operations, which rearrangement is in addition to, or different from, the rearrangements indicated on the plans or in the special provisions, the Contractor shall make whatever arrangements are necessary with the owners of the utility or other subsurface structure for the rearrangement and bear all expenses in connection therewith.

Contractor shall immediately notify Omnitrans of any delays to the Contractor's operations as a direct result of underground utilities or other structures which were not indicated on the plans or in the special provisions or were located in a position substantially different from that indicated on the plans or in the special provisions, (other than delays in connection with rearrangements made to facilitate the Contractor's construction operations or delays due to a strike or labor dispute). These delays will be considered utilities related delays within the meaning of Section S, Utilities Related Delays and compensation for the delay will be determined in conformance with the provisions in Section J, Labor Provisions. Contractor shall be entitled to no other compensation for that delay.

## 21. LOCATION OF UNDERGROUND UTILITIES (OFFSITE WORK ONLY)

Contractor is required to obtain permits prior to start of excavation by contacting the appropriate permitting agencies at least 15 calendar days in advance. For the Offsite work, scan the construction site with electromagnetic or sonic equipment and mark the surface of the ground where existing underground utilities are discovered. Verify the elevations of existing piping, utilities, and any type of underground obstruction not indicated or specified to be removed but indicated or discovered during scanning in locations to be traversed by piping, ducts, and other work to be installed. Verify elevations before installing new work closer than nearest manhole or other structure at which an adjustment in grade can be made. Perform potholing to confirm location of all the utilities along the construction alignment prior to start of the construction. The Contractor is responsible for all costs associated with these investigations including the cost of equipment, labor and materials required for any confined space entry.

## 22. UNFORESEEN HAZARDOUS OR REGULATED MATERIALS

All known hazardous or regulated materials are indicated in the contract documents. If material that is not indicated in the contract documents is encountered that may be dangerous to human health upon disturbance during construction operations, stop that portion of work and notify

Omnitrans immediately. Intent is to identify materials such as PCB, lead paint, mercury, petroleum products, and friable and non-friable asbestos. The handling, containment and disposal of hazardous and containment material shall be in accordance with applicable State, Federal, and local environmental laws and regulations.

Contractor shall immediately notify Omnitrans of any delays to the Contractor's operations as a direct result of Unforeseen Hazardous and Regulated Materials These delays will be considered utilities related delays within the meaning of Section S, Utilities Related Delays and compensation for the delay will be determined in conformance with the provisions in Section J, Labor Provisions. Contractor shall be entitled to no other compensation for that delay.

## 23. CONTRACTOR'S OBLIGATIONS

### a. Overview of Contractor's Responsibilities

1.1. General:

Contractor shall furnish the following on the Project, in accordance with Omnitrans-furnished Contract Documents and all other requirements set forth in the Contract:

1.1.1. Construction Services – Contractor shall furnish labor, material and equipment necessary to construct the Project as designed in a timely manner, in accordance with all construction practices generally accepted as standards of the industry in the State of California, in a good and workmanlike manner, free from construction defects.

1.2. Compliance with Requirements – Contractor shall perform all services set forth in Paragraph entitled General Guidelines above (in this section), provide all materials and undertake all efforts necessary or appropriate (excluding only those materials, services and efforts that the Contract Documents specify will be furnished by Omnitrans or other persons) to construct the Project in accordance with the requirements of the Contract Documents, the Schedule, all applicable Laws, all Governmental Approvals, the Construction Documents provided to Omnitrans, and all other applicable safety, environmental and other requirements, and other physical limits resulting from constraints affecting the Project, so as to achieve Substantial Completion and Final Acceptance and to perform all required tests by the deadlines specified herein, and otherwise to do everything required by and in accordance with the Contract Documents.

1.3. Professional Qualifications – Contractor shall perform the Work under the supervision of persons licensed and certified to practice the applicable function/profession in the State of California, by personnel who are careful, skilled, experienced and competent in their respective trades or professions, who are professionally qualified to perform the Work in accordance with the Contract, and who shall assume professional responsibility for the accuracy and completeness of the Work prepared or checked by them.

1.4. Governing Dimensions – Before commencing any construction work, Contractor shall verify all governing dimensions at the Worksite, examine all adjoining work and activities that may have an impact on Work, and ensure that the Contract Documents (and any other documents related to the Work) accurately depict all governing and adjoining dimensions.

1.5. Scheduling – Contractor shall schedule and direct its work to provide an orderly work progression, achieve on-time completion of all Milestones set forth in the Schedule, and complete its work within the Contract Time. To accomplish this goal, Contractor shall furnish such employees, materials, facilities and Equipment, and work such hours (including extra shifts, overtime operations, Sundays and holidays), as may be necessary.

1.6. Means and Methods – Contractor shall be solely responsible for the performance of its Work in accordance with its own means, methods, sequences, and procedures, and for coordination of all portions of its Work in compliance with the Contract.

1.7. Performance During Disputes – At all times during the term hereof, including during any Dispute, Contractor shall perform as directed by Omnitrans, and shall comply with all provisions of the Contract.

1.8. Ascertaining Facts – Contractor shall be solely responsible for its failure to ascertain the facts and take the actions described, represented, warranted, and acknowledged in this Article, and no provision of this Contract shall be construed to relieve Contractor from responsibility for such failure.

1.9. Subcontractors & Suppliers – Contractor shall be responsible for the acts and omissions of its Subcontractors and Suppliers. Contractor agrees to bind every subcontractor to the terms of this Agreement as far as such terms are applicable to subcontractor's portion of the Work

1.10. Assistance to Omnitrans – Contractor shall provide such assistance as is reasonably requested by Omnitrans in dealing with any Government Entity, or in prosecuting and defending Environmental lawsuits in any and all matters relating to the Work. Such assistance may include providing information and reports regarding the Work, as well as executing declarations and attending meetings and hearings. In no event shall the Contractor be required to provide legal services.

1.11. Cooperation – The Contractor will cooperate with Omnitrans and its Authorized Representative(s), in their review(s) and/or inspection(s) of any portion or phase of the Work, and other matters relating to the Work.

1.12. Mitigation – The Contractor will Mitigate Delay in all circumstances, to the extent reasonably possible, including the re-sequencing, reallocating or redeploying of its forces to other work, as appropriate.

## 24. CONTRACTOR'S REPRESENTATIONS, WARRANTIES AND COVENANTS

Contractor represents, warrants and covenants for the benefit of Omnitrans that:

a. Status – If it is a corporation, limited partnership, general partnership, and/or joint venture, it is duly organized, validly existing and in good standing under the Laws of its jurisdiction of formation, and has full power and authority to own and operate its business and properties and perform the Work within the State of California.

b. Contractor & Subcontractor Qualifications – It and all of its Subcontractors are, and will

be and will remain, fully experienced and properly qualified to perform the Work, and are, and throughout the term of this Contract shall remain, properly licensed, equipped, organized and financed to perform the Work hereunder and shall perform it in accordance with the Contract and in accordance with professional standards of skill, care, and diligence adhered to by firms recognized for their expertise, experience and knowledge in performing Work of a similar nature.

c. Control of Employees and Subcontractors – It shall maintain complete control of its employees, and its Subcontractors and Suppliers of all tiers, and shall not assign or transfer Work from itself or any listed Subcontractor or Supplier to itself or any other Subcontractor or Supplier without the written consent of Omnitrans.

d. Review of Information and Inspection of Worksites – It has, in accordance with prudent and generally accepted engineering and construction practices:

1) Reviewed all of the information provided in the Contract (including reports provided by Omnitrans);

2) Inspected and evaluated the Worksite and surrounding locations to the extent the Contractor deems necessary or advisable for performing all portions/phases of the Work under the Contract. These inspections and evaluations include without limitation:

i. The character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the Worksite, including review of the Contract Documents provided by Omnitrans.

ii. Conditions bearing upon transportation, disposal, handling, and storage of materials, Goods, and Equipment;

iii. The availability of labor, water, electric power, and roads;

iv. Uncertainties of weather, or physical conditions at the site;

v. The conformation and conditions of the ground;

vi. The character of Equipment and facilities needed preliminary to and during Work performance; and

vii. Conditions bearing upon security and protection of material, Goods, Equipment, and Work in progress.

e. Physical Requirements – As a result of its inspection and examination of the Worksite, and other related and surrounding sites and conditions, it is familiar with and accepts the physical requirements of the Work.

f. Feasibility – As a result of its review of all the information and its inspection and examination of the Worksite, it has evaluated the feasibility of performing the Contract within the Contract Time and for the Total Contract Price, and has reasonable grounds for believing and does believe that such performance, including achievement of

Substantial Completion of the Project within the Contract Time, for the Total Contract Price is feasible and practicable.

g. Legal Proceedings – There are no existing or threatened legal proceedings against Contractor that would have an adverse effect on its ability to perform its obligations under the Contract, its financial condition or its operations.

h. Governmental Approvals – Based upon its review of the Contract Documents, it shall be able to obtain and keep in effect throughout the Contract Time all Governmental Approvals the Contractor is obligated to obtain in accordance with the Contract.

i. Difficulty and Cost of Work – It has estimated the difficulty and cost of successfully performing the Work, and based upon that estimate has concluded that it can successfully perform the Work at the Total Contract Price.

j. Non-Debarment: In accordance with the provisions of the California Labor Code, Contractors or subcontractors may not perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant section 1777.1 or section 1777.7 of the California Labor Code. Any contract on a public works project entered into between a Contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid to a debarred subcontractor by the Contractor for the Project shall be returned to Omnitrans. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project.

k. Non-Discrimination: Contractor shall comply with all applicable federal, state, and local laws, rules, and regulations pertaining to non-discrimination, including but not limited to, Section 1735 of the California Labor Code and Section 12940 of the California Government Code. The Contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of Title 49 CFR (Code of Federal Regulations) part 26 in the award and administration of US DOT assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate. Each subcontract signed by the bidder must include this assurance.

l. Conflicts of Interest/ Criminal Activities: A Contractor shall not permit any official, officer or employee of Omnitrans during his tenure, or for one year thereafter, to have any interest, direct or indirect, in this Contract or the proceeds thereof. However, this subsection shall not be construed to extend to this Contract if made with a corporation for its general benefit. Contractor, its employees, its Subcontractors or their employees shall not provide or offer to provide any campaign contribution to any member of Omnitrans in violation of California Government Code Section 84308. Further, to Contractor's knowledge, neither Contractor nor any of its employees nor its Subcontractors nor their employees has either promised or provided a campaign contribution of $250 or more to any member of Omnitrans within 12 months prior to the award of this Contract or any subcontract of this Contract, unless an explicit statement

to the contrary accompanies Contractor's bid. In no event shall gratuities (in the form of entertainment, gifts, or otherwise) be offered promised or given by Contractor, or any agent or representative of Contractor, to any official, officer or employee of Omnitrans or its Authorized Representative. Contractor or his employees shall not enter into any Contract involving not be considered a conflict under Sections 1090 et seq. and 87100 et seq. of the Government Code of the State of California. In the event Contractor, or any of its officers, partners, principals or employees are convicted of any crime arising out of, or in connection with, the work to be done or payment to be made under this Contract, this Contract in whole or any part thereof may, at the discretion of Omnitrans, be terminated for default. Any violation of the terms of this Section by Contractor may be considered a default of the Contract by Omnitrans and may result in termination of same pursuant to applicable provisions of this Contract. In the event of such a termination, Omnitrans shall be entitled to pursue the same remedies against Contractor as it could pursue in the event of a breach of the Contract by Contractor. Rights and remedies provided to Omnitrans by this Section are in addition to any additional rights and remedies provided by law or under the Contract services or property with a person or business prohibited from transacting such business with Omnitrans pursuant to Sections 1090 et seq. and 87100 et seq. of the Government Code of the State of California. To Contractors knowledge, no Board member, officer, or employee of Omnitrans has any interest, whether contractual, non-contractual, financial or otherwise, in this transaction, or in the business of Contractor, unless an explicit statement to the contrary accompanies Contractor's bid. If any such transaction comes to the knowledge of Contractor at any time, a full and complete disclosure of such information shall be made to Omnitrans, even if such interest would

## 25. INDEPENDENT CONTRACTOR

a. Contractor, and its Subcontractors and Suppliers of any tier, are independent Contractors, and nothing in this Contract shall be construed to create the relationship of agent, servant, employee, partnership, joint venture, or other association as between Contractor and Omnitrans. The employees and agents of one party shall not be, or be construed to be, the employees or agents of the other party for any purpose whatsoever.

b. Contractor, as an independent Contractor, shall have responsibility for and control over the details and means for performing the Work, provided that Contractor is in compliance with the terms of this Contract. Anything in this Contract that may appear to give Omnitrans the right to direct Contractor as to the details of the performance of the Work, or to exercise a measure of control over Contractor, shall mean that Contractor shall follow the desires of Omnitrans only as to the intended results of the Work.

## 26. COMPENSATION AND BENEFITS

Contractor shall be solely liable and responsible for providing all compensation and benefits to, or on behalf of, all persons performing Work pursuant to this Contract. Omnitrans will have no liability or responsibility for the payment of any salaries, wages, unemployment benefits, disability benefits, Federal, State, or local taxes, or other compensation, benefits, or taxes for any personnel provided by or on behalf of Contractor.

## 27. WORKERS' COMPENSATION INSURANCE AND LIABILITY

If Contractor employs any person to perform work in connection with this Contract, Contractor shall procure and maintain at all times during the performance of such work Workers' Compensation Insurance in conformance with the laws of the State of California and Federal laws where applicable. Employers' Liability Insurance shall not be less than $1,000,000 per accident or disease. Prior to execution of this Contract by any such employee, Contractor shall deliver to Omnitrans a Certificate of Insurance that shall stipulate that 30 days' advance written notice of cancellation, non-renewal or reduction in limits shall be given to Omnitrans

## 28. CONTRACTOR'S REPRESENTATIVE, ORGANIZATION AND PERSONNEL

Before starting any Work, the Contractor shall submit for Engineer review and acceptance, an organization chart showing the proposed organization established by the Contractor for the performance of the Work, including:

a. Lines of authority, responsibility, and communication;

b. Office organizations, if any; and

c. Names, titles, and functions of all the Contractor's key personnel.

## 29. SUPERINTENDENT

a. The Contractor shall designate and keep a competent superintendent on the work at all times during its progress. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. Qualifications and experience shall include:

    1) Demonstrated ability to work safely and supervise individuals in safe work.

    2) Previous experience supervising and planning work activities of foremen and crews.

    3) Ability to read and understand construction plans.

b. The Superintendent must be:

    a. Able to respond immediately to emergency or problem calls, 7 days a week, 24 hours a day.

c. The Superintendent shall manage and directly oversee the safety, condition, and quality of work that has been modified by the Contractor and shall direct corrective and maintenance measures to keep the site operating safely.

## 30. CHANGE IN CONTRACTOR'S REPRESENTATIVE AND KEY PERSONNEL

The Contractor shall secure the prior written acceptance of Omnitrans' Project Manager for any change or reassignment of the Contractor's Representative(s) and other key personnel, submitting written documentation of the new individuals' qualifications. The Contractor shall not reassign key personnel to other projects until a satisfactory replacement has been approved by Engineer.

## 31. REMOVAL OF CONTRACTOR PERSONNEL

Omnitrans may require the Contractor to remove any person assigned by the Contractor or by any Subcontractor or Supplier from the Project performing on the Project, if Omnitrans considers such removal in the best interest of Omnitrans and the Work. Omnitrans' decision to require Contractor to remove any Contractor personnel, including Contractor's Representative, shall be final and binding on the Contractor. Upon such direction, Contractor shall remove the person(s) and resolve all employment or contractual issues at no cost or expense to, and shall fully indemnify, Omnitrans.

## 32. TRENCHES

a. Trenches Five Feet or More in Depth. The Contractor shall submit to Omnitrans, 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 any trench or trenches five feet or more in depth. If the plan varies from shoring system standards, the plan shall be prepared by a registered civil or structural engineer. The plan shall not be less effective than the shoring, bracing, sloping, or other provisions of the Construction Safety Orders, as defined in the California Code of Regulations.

b. Excavations Deeper than Four Feet. If work under this Contract involves digging trenches or other excavation that extends deeper than four feet below the surface, Contractor shall promptly, and before the following conditions are disturbed, notify Omnitrans, in writing, of any:

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

   2) Subsurface or latent physical conditions at the Site differing from those indicated.

   3) Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

c. Omnitrans shall promptly investigate the conditions, and if it finds that the conditions do so materially differ, or do involve hazardous waste, and cause a decrease or increase in Contractor's cost of, or the time required for, performance of any part of The Work, shall issue a change order under the procedures described in the Contract Documents.

d. In the event that a dispute arises between Omnitrans and the Contractor as to whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of The Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all Work to be performed under the Contract. Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the parties.

## 33. SANITARY FACILITIES

Contractor shall provide sanitary temporary toilet buildings for the use of all workers. All toilets shall comply with local codes and ordinances. Toilets shall be kept supplied with toilet paper, hand sanitizers and shall have workable door fasteners. Toilets shall be serviced no less than once weekly and shall be present in a quantity of not less than 1 per 20 workers as required by CAL-OSHA regulation. The toilets shall be maintained in a sanitary condition at all times. Use of toilet facilities in The Work under construction shall not be permitted. Any other Sanitary Facilities required by CAL-OSHA shall be the responsibility of the Contractor.

## 34. AIR POLLUTION CONTROL

Contractor shall comply with all air pollution control rules, regulations, ordinances and statutes. All containers of paint, thinner, curing compound, solvent or liquid asphalt shall be labeled to indicate that the contents fully comply with the applicable material requirements.

## 35. CLEAN UP

Contractor at all times shall keep premises free from debris such as waste, rubbish, and excess materials and equipment. Contractor shall not store debris under, in, or about the premises. Upon completion of Work, Contractor shall clean the interior and exterior of the building or improvement including fixtures, equipment, walls, floors, ceilings, roofs, window sills and ledges, horizontal projections, and any areas where debris has collected so surfaces are free from foreign material or discoloration. Contractor shall clean and polish all glass, plumbing fixtures, and finish hardware and similar finish surfaces and equipment and Contractor shall also remove temporary fencing, barricades, planking and construction toilet and similar temporary facilities from Site. Contractor shall also clean all buildings, asphalt and concrete areas to the degree necessary to remove oil, grease, fuel, or other stains caused by Contractor operations or equipment.

Contractor shall fully clean up the Site at the completion of the Work. If the Contractor fails to immediately clean up at the completion of the Work, Omnitrans may do so and the cost of such clean up shall be charged back to the Contractor.

## 36. OCCUPANCY

Omnitrans reserves the right to occupy or utilize any portion of the Work at any time before completion, and such occupancy or use shall not constitute Acceptance of any part of Work covered by this Contract. This use shall not relieve the Contractor of its responsibilities under the Contract.

## 37. STATE LICENSE BOARD NOTICE

Contractors are required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against Contractors if a complaint regarding a patent act or omission is filed within four (4) years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within ten (10) years of the date of the alleged violation. Any questions concerning a Contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, California 95826.

## 38. WAIVER

No provision of these Contract Documents shall be deemed waived by either party unless such waiver shall be expressly specified in writing, regardless of the actions or inaction of the parties.

## 39. MISCELLANEOUS

These Contract Documents shall be interpreted in accordance with the laws of the State of California. If any action is brought to interpret or enforce any term of these Contract Documents, the action shall be brought in a state or federal court situated in the County of San Bernardino, State of California.

## 40. INTEGRATION

No oral order, objection, direction, claim or notice by any party or person shall affect or modify any of the terms or obligations contained in the IFB. The IFB represents the entire agreement of Omnitrans and the Contractor.

## 41. SCHEDULE OF WORK

a. Normal hours of work shall be between the hours of 7:00 a.m. and 5:00 p.m. Other hours, such as weekends and holidays, are permissible provided prior authorization has been granted by Omnitrans, Project Manager (s).

b. Contractor shall submit a Schedule of Work to Omnitrans' Project Manager as follows:

1) Submit within two (2) days after the contract execution date.

2) Show all major elements of the work and their duration and interrelationships; showing the proposed dates of commencement and completion.

3) All work estimated to be completed within seven months.

4) Submit a conceptual schedule with bid.

3. If any activity falls behind schedule, Contractor shall regain the time lost at its own cost and expense.

## 42. EXAMINATION OF WORK SITE

Bidder shall visit and become acquainted with the work site and the conditions thereof to fully understand the scope of work, difficulties and restrictions attending the execution of the work under contract.

## 43. OBSTRUCTIONS

The Contractor shall remove and dispose of all structures, or other obstructions of any character necessary to accommodate the work. Where such obstructions consist of improvements not required by law to be removed by Omnitrans, improvements shall be removed, maintained, and permanently replaced by the Contractor at his expense except as otherwise specifically provided in the Contract.

## 44. QUALITY OF THE WORK

a. AUTHORITY OF THE PROJECT MANAGER

The Project Manager, and/or his designee, shall decide any and all questions which may arise as to the interpretation of the plans and specifications and shall have authority to disapprove or reject materials and equipment furnished and work performed which, in his opinion, is not in accordance with the Contract.

b. SUPPLEMENTAL DRAWINGS

1) The plans may be supplemented by such drawings as are necessary to better define the work. All such drawings delivered to the Contractor by the Project Manager shall be deemed written instructions to the Contractor. If the Contractor believes that any supplemental drawings call for changes in the work for which the contract amount or time for completion should be changed, he shall not proceed with the changes in the work so called for and shall within seven days of the receipt of the supplemental drawings notify the Project Manager in writing of his estimate of the changes in the contract amount and time for completion he believes to be appropriate.

2) No payment for changes in the work will be made and no change in the time for completion by reason of changes in the work will be made, unless the changes are covered by a written change order approved by Omnitrans in advance of the Contractor's proceeding with the changed work.

c. CONFORMITY WITH CONTRACT DOCUMENTS

1) The work shall conform to the lines, grades, dimensions, tolerances, and material and equipment requirements shown on the plans or set forth in the specifications. Although measurement, sampling, and testing may be considered evidence as to such conformity, the Project Manager shall be the sole judge as to whether the work or materials deviate from the plans and specifications, and his decision as to any allowable deviations therefore shall be final.

2) If specific lines, grades, and dimensions are not shown on plans, those furnished by the Project Manager shall govern.

d. MANUFACTURER'S INSTRUCTIONS

All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier, or distributor, except as otherwise specifically provided in the Contract.

## 45. SUPERVISION AND SUPERINTENDENCE

a. The Contractor shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the work in accordance with the Contract. The Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but the Contractor shall not be solely responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence, or

procedure of construction which is indicated in and required by the Contract except as otherwise provided.

b. The Contractor shall be responsible to see that the completed work complies with the Contract.

c. The Contractor shall designate and keep a competent superintendent on the work at all times during its progress who shall not be replaced without written notice to the Project Manager. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor. During periods when the work is suspended, the Contractor shall make appropriate arrangements for any emergency work, which may be required.

d. Whenever the superintendent is not present on any particular part of the work where the Project Manager may desire to inform the Contractor relative to interpretation of the plans and specifications or to disapproval or rejection of materials or work performed, the Project Manager may so inform the foreman or other worker in charge of the particular part of the work in reference to which the information is given. Information so given shall be as binding as if given to the superintendent.

e. All equipment, materials, and supplies to be incorporated in the work shall be new, unless otherwise specified. All equipment, materials, and supplies shall be produced in a good and workmanlike manner. When the quality of a material, process, or article is not specifically set forth in the plans and specifications, the best available quality of the material, process, or article shall be provided.

## 46. CONTRACTOR'S RESPONSIBILITY FOR THE WORK

a. In the event any hazardous materials, including but not limited to asbestos, are utilized in construction or hazardous materials are otherwise encountered during construction, the Contractor shall take all appropriate precautions to protect persons and property and shall comply with all applicable regulations for the installation and handling of such hazardous materials. The Contractor is solely responsible for protection of persons and property that could be affected by construction and the Contractor's handling of such materials.

b. Until the acceptance of the work, the Contractor shall have the responsible charge and care of the work and of the materials to be used therein (including materials for which he has received partial payment or materials which have been furnished by the Omnitrans) and shall bear the risk of injury, loss, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work.

c. The Contractor shall rebuild, repair, restore, and make good all injuries, losses, or damages to any portion of the work or the materials occasioned by any cause before its completion and acceptance and shall bear the expense thereof. Where necessary to protect the work or materials from damage, the Contractor shall, at his expense, provide suitable drainage and erect such temporary structures as are necessary to protect the work or materials from damage. The suspension of the work or the granting of an extension of time from any cause whatever shall not relieve the Contractor of his responsibility for the work and materials as herein specified.

d. In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorizations, shall act at his discretion to prevent such threatened loss or injury.

e. Notwithstanding the foregoing provisions of this clause, the Contractor shall not be responsible for the cost of repairing or restoring damage to the work, which damage is determined to have been proximately caused by an Act of God, in excess of 5 percent of the contracted amount, provided that the work damaged is built in accordance with accepted and applicable building standards and the plans and specifications. For the purposes of this paragraph, "Acts of God" shall include the following occurrence or conditions and effect: earthquakes in excess of a magnitude of 3.5 on the Richter scale.

## 47. PRESERVATION OF PROPERTY

a. The Contractor shall exercise due care to avoid injury to existing improvements or facilities, utility facilities, adjacent property, and trees and shrubbery that are not to be removed.

b. All trees, shrubbery, and landscaping that are not to be removed, and pole lines, fences, signs, survey markers and monuments, buildings and structures, conduits, pipelines under or above ground, sewer and waterlines, all highway or street facilities, and any other improvements or facilities within or adjacent to the work shall be protected from injury or damage, and the Contractor shall provide and install suitable safeguards to protect such objects from injury or damage. If such objects are injured or damaged by reason of the Contractor's operation, they shall be replaced or restored at the Contractor's expense to a condition as good as when the Contractor entered upon the work or as good as required by the plans and specifications if any such objects are a part of the work being performed.

c. The fact that any such pipe or other underground facility is not shown on the plans shall not relieve the Contractor of his responsibility under this clause.

d. In addition to any requirements imposed by law, the Contractor shall shore up, brace, underpin, and protect as may be necessary, all foundations and other parts of all existing structures adjacent to and adjoining the site of the work which are in any way affected by the excavations or other operations connected with the performance of the work. Whenever any notice is required to be given by Omnitrans or the Contractor to any adjacent or adjoining landowner or other party before commencement of any work, such notice shall be given by the Contractor.

e. In an emergency affecting the safety of life or property, including adjoining property, the Contractor, without special instructions or authorizations, shall act at his discretion to prevent such threatened loss or injury.

## 48. REGIONAL NOTIFICATION CENTER CONTACT

a. Contractor, except in an emergency, shall contact the appropriate regional notification center at least two working days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the Owner, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and carried out by the

Contractor unless such an inquiry identification number has been assigned to the Contractor or any subcontractor of the Contractor and Omnitrans has been given the identification number by the Contractor.

b. Emergency shall be defined as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage (Government Code Section 4216).

c. Subsurface installation means any underground pipeline, conduit, duct, wire, or other structure operated or maintained in or across a public street or public right-of-way (Government Code Section 4216).

## 49. SAFETY

a. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work, and the Contractor shall fully comply with all state, federal and other laws, rules, regulations, and orders relating to safety of workers and all others.

b. The right of the Omnitrans to conduct construction review or observation of the Contractor's performance will not include review or observation of the adequacy of the Contractor's safety measures in, on, or near the construction site.

3. Omnitrans reserves the right to correct unsafe practices by the Contractor’s employees, or to stop work until the Contractor makes the necessary corrections.

d. Smoking

Omnitrans uses designated areas for smoking. Smoking is not allowed at any time in the bus yard, on or in any buildings, or by the entrances to any buildings. Smoking by employees of the Contractor, or sub-Contractors, shall not create a hazardous condition for themselves, co-workers, or employees and property of Omnitrans.

e. Eye Protection

1) Per Omnitrans eye protection policy, ANSI Z87 approved eye protection shall be worn by all persons while conducting business outside the boundaries of the established “green zone”. The policy also requires that eye protection be utilized if hazardous work is being conducted within the “green zone”. The Contractor shall ensure that all of its employees have been provided eye protection that meets the requirement.

2) The Project Manager, or his designee, reserves the right to stop the Contractor’s work in the event that a Contractor employee is in violation, and that work will remain stopped until the violation is corrected.

f. Vests

1) Contractors and their employees working or performing services in outside work zones shall wear ANSI Class 2 Safety Vests.

2) Safety Vests are not required while in designated, marked with painted green borders Safety Zones on Agency property or while on sidewalks, curbs, or raised pavement.

g. Hazardous Materials

1) Contractor shall perform all work in a clean, safe and professional manner, causing no hazards to Omnitrans staff, facility the environment or Contractors service personnel.

2) All hazardous waste shall be handled, collected, stored and disposed of in accordance with federal, state and local environmental compliance regulations.

3) Coordination of hazardous waste collection, storage, and disposal shall be made through the Omnitrans' Facility Manager, or his designee.

## 50. WARRANTY OF TITLE

No materials, supplies, or equipment for the work under this contract shall be purchased subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest therein or any part thereof is retained by the seller or supplier. The Contractor warrants clear and good title to all materials, supplies, and equipment installed and incorporated in the work and agrees upon completion of all work to deliver the premises, together with all improvements and appurtenances constructed or placed thereon by him, to Omnitrans free from any claims, liens, encumbrances, or charges and further agrees that neither he nor any person, firm, or corporation furnishing any material or labor for any work covered by the contract shall have any right to a lien upon the premises or any improvement or appurtenance thereon, provided that this shall not preclude the Contractor from installing metering devices or other equipment of utility companies or of municipalities, the title of which is commonly retained by the utility company or the municipality. Nothing contained in this clause, however, shall defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection or any right under any law permitting such persons to look to funds due the Contractor in the hands of Omnitrans. The provisions of this clause shall be inserted in all subcontracts and material contracts, and notices of its provision shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

## 51. PROPERTY RIGHTS IN MATERIALS

a. Nothing in the contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, or after payment has been made for materials delivered to the site of the work, or stored subject to or under the control of Omnitrans. All such materials shall become the property of Omnitrans upon being so attached or affixed or upon payment for materials delivered to the site of the work or stored subject to or under the control of Omnitrans.

b. Soil, stone, gravel, and other materials found at the site of the work and which conform to the plans and specifications for incorporation into the work may be used in the work. No other use shall be made of such materials except as may be otherwise described in the plans and specifications.

## 52. MUTUAL RESPONSIBILITY OF CONTRACTORS

a. Nothing in the contract shall be interpreted as granting to the Contractor exclusive occupancy of the site of the project. The Contractor must ascertain to his own satisfaction the scope of the project and the nature of any other contracts that have been or may be awarded by Omnitrans in the construction of the project, to the end that the Contractor may perform this contract in the light of such other contracts, if any.

b. The Contractor shall not cause any unnecessary hindrance or delay to any other Contractor working on the project. If the performance of any contract for the project is likely to be interfered with by the simultaneous performance of some other contract or contracts, the Project Manager shall decide which Contractor shall cease work temporarily and which Contractor shall continue or whether the work under the contracts can be coordinated so that the Contractors may proceed simultaneously. On all questions concerning conflicting interest of Contractors performing related work, the decision of the Project Manager shall be binding upon all Contractors concerned and Omnitrans, the Project Manager , and their Contractors shall not be responsible for any damages suffered or extra costs incurred by the Contractor resulting directly or indirectly from the award or performance or attempted performance of any other contract or contracts on the project or caused by a decision or omission of the Project Manager respecting the order of precedence in the performance of the contracts.

c. If through acts of neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement or arbitration, if such other Contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against Omnitrans, the Project Manager , or their Contractors or any of their directors, officers, employees, or agents on account of any damage alleged to have been so sustained, Omnitrans shall notify the Contractor who shall hold harmless, indemnify, and defend Omnitrans, the Project Manager , and their Contractors, and each of their directors, officers, employees, and agents against any such claim, including all attorneys' fees and any other costs incurred by the indemnified parties relative to any such claim.

## 53. ASSIGNMENT OF ANTI-TRUST ACTIONS

a. In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

b. In submitting a bid, the bidder offers and agrees that if the bid is accepted, it will assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Section 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the

bidder for sale to the awarding body pursuant to the bid. Such assignment shall be made and become effective at the time the awarding body tenders final payment to the bidder.

## 54. EXISTING CONDITIONS

a. Drawings, if any, show existing conditions as supposed or believed. Drawings are based on the best evidence and information available, but no warranty is thereby expressed or implied that such conditions actually exist.

b. Omnitrans and any of its Contractors shall not be liable for any loss sustained by Contractor as a result of any variance between existing conditions as indicated on the plans and the actual conditions revealed during the progress of the work, provided that the Contractor should have reasonably known of or identified the existing condition.

## 55. WARRANTY OF SCOPE OF WORK AND LUMP SUM PRICING

a. Contractor represents and warrants that in setting the Lump Sum Pricing herein, that:

1) Contractor has done so after a thorough review of the description of work, plans, drawings and specifications;

2) Contractor deems that the aforementioned documents are sufficiently complete to enable Contractor to establish the Lump Sum Pricing set forth herein;

3) Contractor deems the contract price is adequate to provide all the necessary labor, service, equipment or material to complete the work as stated herein, according to industry standards and good workmanship, and within the contract time set forth herein.

b. Contractor acknowledges that except for adjustments in the Lump Sum Pricing by change orders, Contractor shall build the project in conformance to the contract documents and Omnitrans shall in no event be chargeable for more than the Lump Sum Pricing.

## 56. OBSERVATION OF WORK BY PROJECT MANAGER

a. The Project Manager, shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge respecting the progress, workmanship, and character of materials and equipment used and employed in the work.

b. Whenever the Contractor varies the normal period during which work or any portion of it is carried on each day, he shall give timely notice to the Project Manager so that the Project Manager may be present to observe the work in progress. If the Contractor fails to give such timely notice, any work done in the absence of the Project Manager will be subject to rejection.

c. The Contractor shall give timely notice to the Project Manager in advance of backfilling or otherwise covering any part of the work so that the Director of Maintenance may observe such part of the work before it is concealed.

d. The observation, if any, by the Project Manager of the work shall not relieve the Contractor of any of his obligations to fulfill the contract as prescribed. Defective work shall be made good, and materials and equipment furnished and work performed which

is not in accordance with the Contract documents may be rejected notwithstanding the fact that such materials, equipment, and work have been previously observed by the Project Manager or that payment therefore has been included in an estimate for payment.

## 57. REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

a. Any work which does not conform to the requirements of the Contract documents shall be remedied or removed and replaced by the Contractor, together with any other work which may be displaced in so doing, and no compensation or extension of time will be allowed him for such removal, replacement, or remedial work. All nonconforming materials shall be immediately removed from the site.

b. Costs for re-testing and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor and the Contract Price will be adjusted by Change Order.

c. Any work done beyond the lines and grades shown on the plans or established by the Project Manager or any changes in, additions to, or deductions from the work done without written authority will be considered as unauthorized and will not be paid for. Work so done may be ordered remedied, removed, or replaced at the Contractor's expense.

d. Upon failure on the part of the Contractor to comply promptly with any order of the Project Manager made under the provisions of this Contract, the Project Manager shall have authority to cause non-conforming materials, rejected work, or unauthorized work to be remedied, removed, or replaced at the Contractor's expense and to deduct the costs from any moneys due or to become due to the Contractor.

## 58. USE OF COMPLETED PORTIONS

a. When the Work or any portion of it is sufficiently complete to be utilized or placed into service, Omnitrans shall have the right upon written notification to the Contractor to utilize such portions of the work and to place the operable portions into service and to operate same.

b. Upon said notice and commencement of utilization or operation by Omnitrans, the Contractor shall be relieved of the duty of maintaining the portions so utilized or placed into operation; provided, however, that nothing in this article shall be construed as relieving the Contractor of the full responsibility for completing the work in its entirety, for making good defective work and materials, for protecting the work from damage, and for being responsible for damage and for the work as set forth in the Contract nor shall such action by Omnitrans be deemed completion and acceptance, and such action shall not relieve the Contractor, his sureties, or insurers of the provisions of Contractor's insurance, indemnity, and guarantees.

## 59. PROJECT COMPLETION

Project completion shall be defined as the date on which it is agreed by Omnitrans and its representatives, Contractor and permitting agencies that the project is accepted.

## 60. OBLIGATION TO CONTINUE WORK

Contractor, in the event of any dispute or controversy with Omnitrans over any matter whatsoever, shall not cause any delay or cessation in or of Contractor's work, but shall proceed under the contract with the performance of the work required thereby.

## 61. SUSPENSION OF WORK BY OMNITRANS

a. Omnitrans may, without cause, order Contractor in writing to suspend, delay, or interrupt the work in whole or in part for such period of time as Omnitrans may determine.

b. An adjustment shall be made for increases in the cost of performance of the contract, including profit on the increased cost of performance caused by suspension, delay or interruption.

c. No adjustment shall be made to the extent that:

   1) Performance is, was or would have been so suspended, delayed or interrupted by another cause for which Contractor is responsible;

   2) Force Majeure;

   3) An equitable adjustment was made under another provision of this contract.

d. Any such petitions for adjustments are subject to audit, Federal Cost Principles, and any other provision of this contract.

## 62. GENERAL REQUIREMENTS

a. Contractor to field verify all areas for appropriate square footages, linear feet, etc.

b. It is the Contractor's responsibility to coordinate the Work so as to minimize conflicts and optimize efficiency.

c. If and when it should be necessary for the Contractor to impact day-to-day operations of Omnitrans functions in order to pursue the Work, the Contractor shall furnish adequate notice to Omnitrans and coordinate the means and timing to avoid, minimize, or circumvent such impacts. Omnitrans reserves the right to assess and anticipate such impacts and the right to stop or postpone the Work until a mutually satisfactory time and means can be agreed upon.

d. The Contractor shall not stop or park any of his vehicles in such a manner to prevent the timely entrance and exit of Omnitrans coaches from the parking area. Our customers expect prompt service, and our service is scheduled on a tight timeline, and we will not accept any delays.

e. All Work is to comply with all applicable state and city code requirements.

f. The Contractor shall ensure that all of his operations strictly adhere to all Federal, State, and Local safety and environmental laws and regulations. Omnitrans, in accordance with the dual employer law, reserves the right to correct unsafe practices by the

Contractor's employees, or stop work until the Contractor makes the appropriate corrections.

g. The Contractor shall arrange for the disposal of all materials generated in the performance of this contract. No trash or waste of any kind that is generated by the Contractor shall be disposed of in any receptacle that is in place for the use of our employees. Any trash or waste that must be disposed of by Omnitrans due to the Contractor's failure to provide for proper disposal will result in a liquidated damage to the Contractor equal to the cost of disposal plus the labor costs associated with making those arrangements.

h. Contractor to repair any damage to irrigation or landscaping as a result of construction activity.

## 63. WARRANTY

a. Contractor warrants all Work under the Contract (which for purposes of this Section shall be deemed to include unauthorized work which has not been removed and any non-conforming materials incorporated into the Work) to be of good quality and free from any defective or faulty material and workmanship.

b. Contractor agrees that for a period of one year (or the period of time specified elsewhere in the Contract or in any guarantee or warranty provided by any manufacturer or supplier of equipment or materials incorporated into the Work, whichever is later) after the date of final acceptance, Contractor shall within ten (10) days after being notified in writing by Omnitrans of any defect in the Work or non-conformance of the Work to the Contract, commence and prosecute with due diligence all Work necessary to fulfill the terms of the warranty at its sole cost and expense.

c. Contractor shall act sooner as requested by Omnitrans in response to an emergency.

d. In addition, Contractor shall, at its sole cost and expense, repair and replace any portions of the Work (or work of other contractors) damaged by its defective Work or which becomes damaged in the course of repairing or replacing defective Work. For any Work so corrected, Contractor's obligation hereunder to correct defective Work shall be reinstated for an additional one-year period, commencing with the date of acceptance of such corrected Work. Contractor shall perform such tests as Omnitrans may require to verify that any corrective actions, including, without limitation, redesign, repairs, and replacements comply with the requirements of the Contract. All costs associated with such corrective actions and testing, including the removal, replacement, and reinstitution of equipment and materials necessary to gain access, shall be the sole responsibility of Contractor.

e. All warranties and guarantees of subcontractors, suppliers and manufacturers with respect to any portion of the Work, whether express or implied, are deemed to be obtained by Contractor for the benefit of Omnitrans, regardless of whether or not such warranties and guarantees have been transferred or assigned to Omnitrans by separate agreement and Contractor agrees to enforce such warranties and guarantees, if necessary, on behalf of Omnitrans.

f. In the event that Contractor fails to perform its obligations under this Section, or under any other warranty or guaranty under this Contract, to the reasonable satisfaction of Omnitrans, Omnitrans shall have the right to correct and replace any defective or non-conforming Work and any work damaged by such work or the replacement or correction thereof at Contractor's sole expense. Contractor shall be obligated to fully reimburse Omnitrans for any expenses incurred hereunder upon demand.

## 64. PROSECUTION AND COMPLETION OF WORK

Contractor shall commence performance of the Work upon execution of the contract.
Contractor shall furnish sufficient labor (including extra crews) and facilities and shall work such hours (including extra shifts and overtime operations) so as to prosecute the Work to completion in accordance with the following project milestones:

- Substantial Completion 210 calendar days; additional 30 days to final completion.

The Contractor is not authorized to perform any work unless it receives a Notice-to Proceed written authorization to begin.

## 65. HOLIDAYS

Agency Administrative offices are closed for the following holidays:

| | |
|---|---|
| Labor Day | September 7, 2020 |
| Veterans Day | November 11, 2020 |
| Thanksgiving | November 26 and 27, 2020 |
| Christmas | December 24 and 25, 2020 |
| New Year's Day | January 1, 2021 |
| Memorial Day | May 31, 2021 |

## 66. CONSTRUCTION SUBMITTALS

A. Upon award of a contract, the following shall be submitted prior to or on the day of the pre-construction meeting for Omnitrans' review and comment. The Contractor's complete submittal, due after NTP, shall not substantially differ from the information provided in these documents submitted by the Contractor.

a. Develop and submit a contract baseline schedule which includes a CPM network diagram. Project Schedule indicating proposed approach to phased construction where required at the fuel island (supplement with supporting plans and/or diagrams as required)

b. Provide contractors approach for meeting the two-phase requirement of the fuel island concrete work.

c. Schedule of Values

d. Submittal Schedule

e. Location of field office, storage areas, and layouts (east boundary of bus yard not available for laydown, flood control channel easement)

f. Site Specific Health and Safety Plan

g. Project Specific Quality Control Plan

h. Contractor's Key Personnel (Including Emergency Contact information)

i. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Omnitrans will return, without review, any submittals received from sources other than the contractor.

B. Transmittal format: Provide locations on the form for the following information:

a. Project name.
b. Date.
c. Destination (To).
d. Source (From).
e. Names of Subcontractor, manufacturer, or supplier.
f. Category and type of submittal.
g. Submittal purpose and description.
h. Specification section number and title.
i. Indication of full or partial submittal.
j. Plan number and detail references, as appropriate.
k. Transmittal number numbered consecutively.
l. Submittal and transmittal distribution record.
m. Remarks.
n. Signature of transmitter.

## 67. COOPERATION WITH OMNITRANS DURING BUSINESS OPERATIONS

a. Contractor Interface with Omnitrans Bus Operation

1) It is expected that Omnitrans will cooperate with Contractor to the extent that the Work may be handled in an efficient manner, but Contractor shall have no claim for damage or extra compensation in the event its Work is delayed by Omnitrans bus operations.

2) Contractor shall perform its Work in such manner and at such times as to not endanger or interfere with the safe and timely operation of Omnitrans' buses at or in the vicinity of the Work.

3) One fueling lane for bus fueling operations must always be kept operational.

4) Any proposed plan by Contractor that may cause infringement of clearances items A.1 and A.2 above due to Contractor's operations shall be submitted to Omnitrans' Project Manager in writing 7 Days in advance and such Work shall not begin until notified by the Engineer that such a plan has been approved by Omnitrans. No damage or extra compensation will be allowed in the event the Contractor's Work is delayed pending Omnitrans approval or if the Plan is rejected.

5) Contractor shall give a 7-Day written notice to Omnitrans' Project Manager before commencing any Work in connection with construction or other activities that affect Omnitrans route safety and performance and its customer's safety and accessibility.

## 68. PROTECTION OF PROPERTY AND RESTORATION OF EXISTING IMPROVEMENTS

a. Contractor shall be responsible for the protection of public and private property adjacent to the Work and shall exercise due caution to avoid damage to such property.

b. Contractor shall provide K-rail protection for areas surrounding the water oil separators and all bus yard/entrance concrete repair areas. Protection shall be provided as soon as concrete removals begin and be maintained until areas are complete and open for traffic.

c. Contractor shall repair or replace existing improvements within the right-of way or temporary construction easement which are not designated for removal (e.g. curbs, sidewalks driveways, fences, walls, signs, billboards, utility installations, monitoring wells, pavement, structures, landscaping, irrigations and etc.) which are damaged or removed as a result of its operations. When a portion of a sprinkler system within the right-of-way must be removed, the remaining lines shall be capped and remaining system shall be kept functional and not cause new damages. Repairs and replacements shall be at least equal to existing improvements and shall match them in finish and dimension.

d. Contractor, during the progress of the Work, shall maintain existing or temporary street lightings and traffic signal systems. If any damage to existing or temporary street lightings and traffic signal system occur, the Contractor shall immediately notify the Engineer and arrange for immediate repair and restoration of service. The Contractor shall commence repairs or replacements as soon as possible and in no case later than 4 hours after damaging the system or receiving approval of the equipment and materials by the Engineer, whichever takes longer. A licensed electrical contractor shall make all temporary and permanent repairs.

e. Trees, lawns, and shrubbery that are not to be removed shall be protected from damage or injury. If damaged or removed due to Contractor's operations, they shall be restored or replaced in as nearly the original condition and location as is reasonably possible. Lawns shall be reseeded and covered with suitable mulch.

f. Contractor shall give reasonable notice of at least 30 Days to occupants or owners of adjacent property to permit them to salvage or relocate plants, trees, fences, sprinklers, and

other improvements, within the right-of-way which are designated for removal and would be destroyed because of the Work.

g. All costs to the Contractor for protecting, removing, and restoring existing improvements shall be included in the Bid.

## 69. TRAFFIC AND ACCESS

a. The Contractor's operations shall cause no unnecessary inconvenience for bus maintenance and storage. The Contractor shall be afforded a work zone within which to complete the majority of the work. These areas are indicated on the plans and shall be separated from the Agency's operations by k-rail. Work will be performed within the operational area of the bus yard, therefore, the access rights of the Agency shall be considered at all times. Unless otherwise authorized in writing by the Engineer prior to start of Work, traffic shall be permitted to pass through the Work, or an approved detour shall be provided by the Contractor at its own cost. It is also recognized that improvements within the bus yard will impact parking areas. The Contractor shall present a plan to mitigate the impact of construction. The Agency shall have access to required parking at all times which may result in phasing of the work. The Contractor will not be entitled to damages, additional compensation, or time extension resulting from the need to phase construction.

b. Safe and adequate pedestrian and vehicular access shall be provided and maintained to: fire hydrants; schools and parking lots; residences; and establishment of similar in nature. Access to these facilities shall be continuous and unobstructed unless otherwise authorized in writing by the Engineer prior to start of Work.

c. Grading operations, excavation, and fill construction shall be conducted by the Contractor in a manner to provide a reasonably satisfactory surface for traffic. When these activities completed, the roadbed surface shall be brought to a smooth, even condition satisfactory for property access. The use of plating is encouraged. If used, plating shall be bermed with asphalt or other material to eliminate movement. Plating shall be bedded to reduce noise under vehicle loading.

d. Unless otherwise authorized in writing by Omnitrans prior to start of Work, work shall be performed in only that portion of the bus access roadway at one time that still permits safe access for buses. The access portion shall be kept open and unobstructed until the opposite side is ready for use.

    1) Restrictions

        a) No work during special events or holidays, without prior approval of the Agency

        b) Access Closures – Allowed by special permission only, determined on a case/day by case/day basis, traffic control plan required.

    2) Advance Notification– Obtain Agency approval of closure plan a minimum 72 hours prior to proposed closure.

***End of General Provisions***

## ATTACHMENT H – PREVAILING WAGES

This project is funded under a financial assistance contract by the U.S. Department of Transportation and is subject to all conditions of the Davis-Bacon Act (40 U.S.C. 276a) and the Labor Code of the State of California commencing in Section 1770 et. seq. It is required that all mechanics and laborers employed or working at the site be paid not less than the current basic hourly rates of pay and fringe benefits. Wage schedules are attached or available on the internet at:

www.dir.ca.gov/DLSR/statistics_research.html

and

https://beta.sam.gov/

Bidders shall utilize the relevant prevailing wage determinations in effect on the first advertisement date of the Invitation for Bids. In the event there are any differences between the minimum wage rates as determined by the United States Secretary of Labor and those determined by the State of California, the highest rate **MUST BE PAID.**




# MNT20-32
# CONCRETE REPAIRS AT THE WEST VALLEY FACILITY

## ATTACHMENT A

# DRAWINGS & SPECIFICATIONS

**OMNITRANS**

**CONCRETE REPAIRS AT WEST VALLEY**
**4748 ARROW HIGHWAY**
**MONTCLAIR, CA 91763**

## Certifications

The technical specifications herein have been prepared under the direction of the following licensed professionals:

### CIVIL




### ARCHITECTURAL




### PLUMBING




### STRUCTURAL




**END OF SECTION**

# OMNITRANS – CONCRETE REPAIRS
# WEST VALLEY

## PROJECT SPECIFICATIONS


**Division 00 - Procurement and Contracting Requirements**
**Introductory Information**

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| 00 00 01 | Title Page |
| 00 01 07 | Seals Page |
| 00 01 10 | Table of Contents |

**Division 01 - General Requirements**

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| 01 11 00 | Summary of Work |

**Division 02 - Existing Conditions**

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| 02 41 13 | Selective Site Demolition |

**Division 03 - Concrete**

| | |
|---|---|
| 03 10 00 | Concrete Forming and Accessories |
| 03 15 16 | Concrete Construction Joints |
| 03 20 00 | Concrete Reinforcement |
| 03 30 00 | Cast-in-Place Concrete |
| 03 53 00 | Concrete Topping |
| 03 63 00 | Epoxy Grouting |

**Division 04 - Masonry**
*Not Used*

**Division 05 - Metals**

| | |
|---|---|
| 05 12 23.13 | Welded Stud Connectors |
| 05 60 00 | Miscellaneous Metal Fabrications |

**Division 06 – Wood, Plastics, and Composites**

| | |
|---|---|
| 06 74 00 | Composite Gratings |

**Division 07**

| | |
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| 07 90 00 | Joint Protection |

**Division 08**
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**Division 09 - Finishes**

| | |
|---|---|
| 09 91 00 | Painting |
| 09 96 00 | High Performance Coatings (Rev. 04/27/2020) |

**Division 10 thru Division 14**
*Not Used*

**Division 21 - Fire Suppression**
*Not Used*

**Division 22 - Plumbing**
22 05 00 Common Work Results for Plumbing
22 05 83 Plumbing Specialties
22 05 93 Testing for Plumbing
22 13 00 Facility Sanitary Sewerage
22 13 23 Sand-Oil Interceptors Systems

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**Division 31 - Earthwork**
31 20 00 Earth Moving
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**Division 32 - Exterior Improvements**
32 11 23 Aggregate Base Courses
32 12 16 Asphalt Concrete Paving
32 13 13 Concrete Pavement and Minor Concrete
32 17 24 Pavement Marking and Signs for Parking Areas
32 17 26 Tactile Warning Surfaces
32 80 13 Irrigation Automatic Controller (New 04/27/2020)

**Division 33 - Utilities**
*Not Used*

**Division 34 - Transportation**
*Not Used*

**END OF TABLE OF CONTENTS**

## SECTION 01 11 00

## Summary of Work

## PART 1 - GENERAL

### 1.01 DESCRIPTION

A. Contract documents: The Contractor shall obtain all copies of the Contract Drawings and Specifications including all addenda through Omnitrans, as required to perform the work. The cost for obtaining any additional documents required for the contractor shall be included in the bid price and no additional compensation will be allowed.

B. All drawings, specifications, and other contract documents, and copies furnished by the Authority are its property. They are not to be used on other work and with the exception of signed contract sets are to be returned to the Authority upon request at the completion of the work. The location of the work, its general nature and extent, and the form and general dimensions of the project and appurtenant works are shown on the contract drawings which are hereby made a part of these specifications as listed herein.

C. The general intent of the contract, specifications, drawings, and other contract documents is that the Contractor shall:

1. Furnish tools, qualified labor, material, equipment, qualified superintendence, and services, assurances and guarantees, and assumptions of risk and responsibility, necessary for the performance of the Work as set forth in the contract documents unless otherwise specifically provided.

2. Begin work promptly and proceed expeditiously and continuously without cessation or shutdown of Work unless otherwise specifically approved in writing by the Project Manager, or directed by the contract documents.

3. Perform, complete, and make ready for its intended purpose, within the times specified, including additional times provided for certain conditions, the work or parts thereof covered by the contract, all in accordance with drawings, specifications, and modifications thereto and directions or instructions the Project Manager may give to supplement the drawings and specifications. The Contractor shall retain sole responsibility and expense for quality control of the work.

D. Words and abbreviations which have well-known technical or trade meanings are used in the contract documents in accordance with such recognized meanings.

E. The organization of the specifications into divisions, sections, parts, and paragraphs, and the arrangement of the drawings, shall not control the Contractor in dividing the work among subcontractors or in establishing the extent of work to be performed by any trade. Study and compare the contract documents and immediately report to the Project Manager any error, inconsistency, or omission that may be discovered. Contractor shall be liable to Omnitrans for damage resulting from unreported errors, inconsistencies, or omissions in the contract documents.

F. The Work of the project requires that the Owner (Omnitrans, or the Agency) continue bus service, maintenance and storage operations at its West Valley VMF during the full duration of the Contract.

1. It will be the responsibility of the Contractor to stage the construction activities at the project site (particularly, but not limited to, demolition and utility change-overs), using the Site Specific Work Plan (SSWP) process.

F. Ownership of Materials:

1. Materials furnished by the Contractor under this contract shall become the property of Omnitrans.

2. Omnitrans-furnished materials shall remain the property of Omnitrans.

G. General Summary of Work:

1. Work to be performed by Contractor shall consist of the construction of the work shown on the drawings and detailed in the specifications.

2. The descriptions provided in this section are general in nature and are not meant to detail all work required by the contract documents.

3. The work under this contract is the construction of modifications to the WV VMF to repair/replace existing concrete pavement and replace existing clarifiers located at Omnitrans West Valley Vehicle Maintenance Facility, located at 4748 Arrow Highway, Montclair, CA 91763.

H. Other features of the work include, but are not limited to, the following:

1. Complete mobilization and demobilization.

2. Obtaining of necessary construction and related permits from various jurisdictional agencies. Contractor shall be responsible for all related fees from various jurisdictional agencies.

3. Obtain and pay for all licenses required by all jurisdictions associated with the approval and requirements of the project.

4. Site utility improvements, including:

    a. Furnish and install new clarifiers, pipes, fittings, and connect to existing sanitary lines. Dismantle, remove, and dispose of existing clarifiers.

5. Remove and replace existing damaged concrete at locations noted on the plans:

    a. For the work in the public right-of-way, the Contractor shall submit a temporary traffic control plan to the Owner for approval prior to submitting to the City of Montclair for permits. Temporary traffic control plan shall be prepared in accordance with all requirements of the City of Montclair Public Works Department.

    b. Re-configured Employee Parking Area, including:

        (1) Remove old striping and other pavement markings, as indicated on the drawings.

        (2) Install new striping and signage.

        (3) Sequence work in stages to minimize disruption to employee parking; coordinate carefully with Owner.

    c. Miscellaneous site work including

        (1) Verify existing conditions and location of utilities.

        (2) Protect existing utilities.

    d. Additional work is noted in the second set of drawings in Attachment A2.

        (1) Drawings changed/added are noted as Amendment A.

        (2) Work includes an increased demo area to the service islands north of lanes 2 and 1 to extend the service island to allow placement of fareboxes at service island height.

    e. The Work of the project shall meet the Standard Specifications for Public Works Construction in the 2018 Edition of the Greenbook.

6. Phasing of utility service cut-overs, including the following required limitations:

    a. Bus Parking/Striping:

(1) New striping for bus parking shall be provided after installation of new clarifiers.

7. Landscaping:

a. Removal of existing trees, shrubs, ground cover, and other plants in the front and side yards of the Operations Building.
b. Re-grading the front yard to accommodate the new sloping walkway, per the dimensions and slopes noted on the plans.
c. Verifying the location and condition of the irrigation system in the front and side yards.
d. Provide irrigation system design and installation, to compliment plating layout and water needs of plants.
e. Installation of new trees, plants, hardscape elements, per the plans.

## 1.02 INTENT OF DRAWINGS AND SPECIFICATIONS

A. The intent of the drawings and specifications is to prescribe the details for construction and completion of the work that the Contractor undertakes to perform in accordance with the terms of the Contract. Where the drawings or specifications describe portions of the work in general terms, but not complete detail, it is understood that only the best industry practice is to prevail and that only materials and workmanship of the first quality are to be used. Unless otherwise specified, the Contractor shall furnish all labor, materials, tools, equipment, and incidentals, and perform all the work involved in executing the contract in a satisfactory and workmanlike manner.

B. Drawings and specifications are essential parts of the Contract, and a requirement indicated in one is binding as though indicated in all. They are intended to be complementary and to describe and provide for the complete work.

C. Summaries or introductory descriptions of the work of individual sections do not limit requirements. The Contractor's responsibilities include all requirements for proper execution of the work.

D. Omnitrans Special and General Provisions govern all divisions. Comply with Omnitrans Special and General Provisions whether or not referenced in individual sections in the specification divisions.

E. References to the singular include the plural and do not imply that only one unit of a product is required.

F. Unless an object or activity is specified to be less than the total, the quantity or amount is all of the object or activity.

G. Unless a requirement is specified to apply for a limited time, it applies for the duration of the work.

H. "Including," "such as," "as follows," and similar terms do not limit the meaning to only items listed. The phrase "but not limited to" is understood to follow these expressions.

I. All items in a list apply unless the items are specified as choices.

## 1.03 REFERENCE MATERIAL

A. Reference specifications or standards referred to in the plans or specifications shall be the most recent version developed as of Contract award. Where referenced standards refer to the "specifications" or the "special conditions," this shall be understood by Contractor to mean the drawings and specifications of this contract. Contractor is responsible for obtaining all reference material at its own expense and to make itself familiar with the requirements therein.

## 1.04 PROJECT ACCESS AND CONTRACT LIMITS

A. Contractor shall submit a transportation plan outlining access to the job site.

## 1.05 BUS TRAFFIC

A. Contractor shall consider bus movements entering, exiting, and circulating around the facility when scheduling duration and efficiency for each activity and the work.

B. Material staging and laydown areas shall be approved in advance by Omnitrans, and shall be clearly marked, including the use of reflective markings and signage, taking into account that much of the bus traffic may occur during night hours.

# PART 2 – PRODUCTS

Not Used

# PART 3 – EXECUTION

Not Used

## PART 4 – MEASUREMENT AND PAYMENT

No separate measurement or payment shall be made under this section.

**END OF SECTION**

# SECTION 02 41 13

## Selective Site Demolition

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Furnish all labor, materials, and equipment necessary and incidental to the demolition, removal, and disposal of miscellaneous items from the worksite.

B. Section Includes:

1. Demolition, removal and disposal of existing structures, overhead wiring, poles, and related facilities as indicated on the Drawings.

2. Demolition and disposal of miscellaneous concrete or asphalt paving, curb and gutter, sidewalks, pavement, station platforms, fencing, plumbing and electrical systems, signal foundations, trackwork, unsuitable soils, above-ground and underground utilities, and associated structures, frames, covers, and signs, as indicated on the drawings or as required for new construction.

3. Protection of all Owner property and adjacent private property from damage during demolition and removal activities.

4. Transport, unloading, and stacking of Owner's materials identified for salvage in the contract documents.

5. Develop construction demolition waste management plan in conformance with CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT section.

6. Comply with the requirements of the 2019 CalGreen Code.

C. Related Sections:

1. Section 31 20 00, Earth Moving

## 1.02 PROJECT CONDITIONS

A. Visit and examine the project site to assess and personally determine the extent of demolition, associated work, debris removal, disposal, and general work to be done under this section.

B. On-site burning or burial of demolition materials will not be permitted.

C. Take possession of all demolished materials, except as noted otherwise in the contract documents, and be responsible for disposing of them in accordance with applicable laws and regulations.

D. Provide continuous noise and dust abatement as required, preventing disturbances and nuisances to the public, workers, and the occupants of adjacent premises and the surrounding areas. Dampen areas affected by demolition operation as necessary to prevent dust nuisance. Provide pollution controls, dust control, erosion and sedimentation control, and other required protections in accordance with these specifications and requirements of federal, state, and local agencies having jurisdiction over the work.

E. When a certain level of noise or vibration is unavoidable because of the nature of the work or equipment involved and such noise or vibration is objectionable to the occupants of adjacent premises, make arrangements with the governmental authorities having jurisdiction, and perform such work or operate such equipment at the most appropriate time periods of the day.

F. Contractor shall comply with the Hazardous Wastes requirements of the City of Montclair and provide required information to the State of California Department of Toxic Substance Control (DTSC) for an approved state EPA ID Number.

## 1.03 NOT USED

## 1.04 SUBMITTALS

A. Make submittals in accordance with the General Provisions, Section 67, Construction Submittals.

B. Site demolition plan: Indicate methods, procedures, equipment, and structures to be employed. Specify safety measures in accordance with applicable codes including signs, barriers, and temporary walkways. Plans shall be prepared by a professional engineer licensed to practice in the state of California, when so required by the provisions of the California Board for Professional Engineer and Surveyors.

C. Equipment, haul routes, and disposal sites to be used in the demolition and disposal work.

D. Permits and notices authorizing demolition.

E. Copy of manifests showing delivery of disposed materials in accordance with the plan and permit conditions.

F. Private Property Owner's Release: If material demolished and removed from the work site will be deposited on private property, submit to the Project Manager two copies of written releases not more than 15 days before the start of work. Releases shall absolve Owner and its member agencies from any responsibility in connection with the disposal of materials on private property and shall be signed by the owner(s) of the property on which the material will be deposited.

G. Certification that all demolished materials removed from the site have been disposed of in accordance with applicable laws and regulations. No private property owner will be allowed to transfer any material from Owner's property. It will be the Contractor's responsibility to remove all demolished material.

H. Construction waste management plan. Refer to Construction and Demolition Waste Management section.

I. Refer to CALGreen Code Requirements section for additional documentation submittal information.

## PART 2 - PRODUCTS

### 2.01 PRODUCTS

A. Provide all materials and equipment required for temporary or permanent construction as required for the proper execution of the work of this section.

## PART 3 - EXECUTION

### 3.01 EXISTING STRUCTURES AND RELATED FACILITIES

A. Perform the demolition and removal of demolition debris in accordance with the Drawings and the submitted and approved site demolition plan.

B. All existing and temporary fences (when no longer required to protect and secure the construction site), structures of any character not necessary to

the construction of the work, and other obstructions shall be removed by the Contractor and disposed of to the satisfaction of the Project Manager.

C. Protect existing utilities, roadways, appurtenances, site utility structures, and other improvements that are not designated to be demolished. Provide and maintain all required temporary construction and facilities for the support and protection of the existing structures to remain. Restore damaged improvements not intended to be demolished.

D. All demolition work, both above and below grade, beyond the above noted perimeter required to construct utility lines and systems shall be the responsibility of Contractor.

E. Any utility lines abandoned in place shall be appropriately plugged and capped to prevent migration of soil or water.

F. If Contractor's operation is in interference with any fences outside of the construction/demolition limits, Contractor shall be responsible for notifying the Project Manager and shall obtain approval prior to any temporary fence relocation. The cost of relocation shall be incidental to the contract and at no cost to Owner.

G. Per the CALGreen, 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed.

## 3.02 CURB AND GUTTER, PAVEMENT, AND SIDEWALKS

A. Perform the demolition and removal of demolition debris in accordance with the submitted and approved plan.

B. Saw-cut and remove curb and gutter, pavement, and sidewalk as needed in performance of this work.

## 3.03 UTILITIES

A. Coordinate work of this section with utility companies and agencies.

B. Existing site utilities to remain intact except as noted on the drawings, and new equipment shall tie into it.

C. Arrange with and perform work required by utility companies, municipal departments, and Owner for discontinuance or interruption of utility services due to demolition work.

## 3.04 BACKFILL OF DEMOLITION EXCAVATIONS

A. Excavations created by demolition activities shall be backfilled in the same manner as excavations created for the location of existing underground utilities as set forth in Section 31 20 00, Earth Moving.

## 3.05 MAINTENANCE OF TRAFFIC, ACCESS, AND UTILITIES

A. Do not interfere with the use of or access to adjacent buildings or property while work is in progress.

B. Do not close or otherwise obstruct roads without obtaining Owner's written permission.

C. Maintain accessibility at all times to fire hydrants within the construction area.

D. Ensure that utilities serving adjacent buildings remain in service.

E. Do not remove lines or services of public utility companies. Where removal or relocation of such lines is required, make all necessary arrangements with the utility company involved.

F. Coordinate with Owner and utility companies involved for shut-off of services if lines are active.

G. Conduct operations with minimum interference to pedestrian and vehicular access. Maintain and protect egress and access at all times.

## 3.06 PROTECTION OF EXISTING PROPERTY AND IMPROVEMENTS

A. Where on-site lines are shown on the Drawings to remain, protect and maintain such lines from damage.

B. Protect from damage buildings, appurtenances, utilities, and site utility structures that are adjacent to demolition work.

C. Erect and maintain temporary bracing, shoring, lights, barricades, and warning signs as necessary to protect roads, sidewalks, parking areas, and improvements from damage, including settlement.

E. Conduct demolition activities so as to minimize interference with adjacent appurtenances, utilities, structures, site utility structures, and occupancies.

F. Cease operations immediately if existing utilities, structures, or site utility structures appear to be in danger. Notify Project Manager immediately. Do not resume operations until directed in writing by the Project Manager.

G. Restore structures and improvements within and adjacent to demolition to conditions prior to the start of work.

## 3.07 DEMOLITION ACTIVITIES

A. Sawcut at the limits of existing pavement and other surfaces to be removed where indicated on drawings.

B. Disconnect and remove utilities as shown on drawings.

C. Remove appurtenances and site utility structures as shown on drawings.

D. Backfill excavations caused as a result of demolition work. Backfill material shall be as specified in 31 20 00, Earth Moving.

E. Rough grade and compact areas affected by demolition work.

F. Demolished materials shall be temporarily relocated on site to a location designated by Owner, and ultimately removed.

G. Where abandoned pipes and conduits are permitted to be left in place, cap or plug pipes and conduits.

# PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. Demolition and removal will be measured by the unit or fraction thereof completed in accordance with the contract documents and as measured by the Engineer. The quantities contained on the approved Schedule of Values as derived from the plans will be used as the basis for this measurement. Payment requests for demolition and removal shall include certificates showing legal disposal of materials from the Owner's property. Demolition and removal performed on areas cleared in any borrow sites, on or off the Owner's property, will not be measured for payment.

## 4.02 PAYMENT

A. Demolition and removal performed in accordance with the contract documents shall be paid for at the contract unit price as listed on the Schedule of Quantities and Prices. This price shall be full compensation for furnishing all labor, materials, tools, equipment, fees, supplies, supervision, and incidentals necessary for demolition and removal described by the contract documents.

**END OF SECTION**

## SECTION 03 10 00

## Concrete Forming and Accessories

# PART 1 - GENERAL

## 1.01 SUMMARY

A. Section Includes:

1. Transport, labor, materials, and equipment to design, install, and remove formwork, including screeds and related work, for cast-in-place concrete.

2. Setting in forms, anchor bolts, metal inserts, sleeves, etc., embedded in concrete.

3. Miscellaneous concrete work, including but not limited to driveways, curbs, gutters, sidewalks, and other items as shown or required to complete the work.

B. Related Sections:

1. Section 03 15 16, Construction Joints.

2. Section 03 20 00, Concrete Reinforcing.

3. Section 03 30 00, Cast-in-Place Concrete.

4. Section 32 13 13 Concrete Pavement and Minor Concrete

5. Section 03 53 00, Concrete Topping.

6. Section 03 63 00. Epoxy Grouting.

## 1.02 REFERENCE STANDARDS

A. ASTM: ASTM International (formerly American Society for Testing and Materials).

B. APA: APA – The Engineered Wood Association (formerly American Plywood Association).

C. ACI: American Concrete Institute:

1. ACI 117, Specifications for Tolerances for Concrete Construction and Materials.

2. ACI 347, Guide to Formwork for Concrete.

3. ACI 318, Building Code Requirements for Structural Concrete.

D. SSPWC: Standard Specifications for Public Works Construction.

E. AREMA: American Railway Engineering and Maintenance of Way Association.

F. CBC: California Building Code, 2019 (CCR Title 24 Part 2).

G. American Welding Society:

1. AWS D1.1 – Structural Welding Code – Steel.

2. AWS D1.4 – Structural Welding Code – Reinforcing Steel.

H. American Concrete Institute:

1. ACI 301 – Specifications for Structural Concrete.

2. ACI 347 – Guide to Formwork for Concrete.

## 1.03 NOT USED

## 1.04 SUBMITTALS

A. Submit manufacturer's data and installation instructions for proprietary materials including form coatings, ties, and accessories, and manufactured form systems if used. Also provide technical information on waterstop.

B. Shop Drawings: Submit shop drawings showing form pattern layouts of all exposed exterior and interior concrete dimensioned to precisely locate grooves, form panel jointing, and similar features. Review and approval will not include form strength and adequacy.

C. Record Documents: Keep an accurate record of the dates of removal of forms, and furnish copies to the Engineer.

## 1.05 QUALITY ASSURANCE

A. Construct forms according to ACI 347 and conforming to tolerances specified in ACI 301, as applicable, unless exceeded by code requirements or otherwise indicated or specified.

## 1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials for forms in timely manner to ensure uninterrupted progress.

B. Store materials by methods that prevent damage and permit ready access for inspection and identification.

# PART 2 - PRODUCTS

## 2.01 GENERAL

A. Where products and manufacturers are listed, make submittals for proposed comparable products and substitutions in accordance with Section 01 60 00, Product Requirements, and Section 01 25 00, Substitution Procedures.

## 2.02 FORM MATERIALS

A. Form Lumber: WCLIB Construction grade or better, WWPA No. 1 or better, or equal.

B. Form Plywood: PS 1, Group I, Exterior Grade B-B plyform or better, minimum 5-ply and 3/4 inch thick for exposed locations and not less than 5/8 inch thick for unexposed locations, grade marked, not mill oiled. Plywood having medium or high density overlay is acceptable.

C. Coated Form Plywood: For exposed painted concrete, plastic overlaid plywood of grade specified above, factory coated with a form coating and release agent.

D. Joist Forms: Approved steel or molded plastic types as required.

E. Special Forms: For exposed integrally-colored concrete, plywood as above with high density overlay, plywood with integral structural hardboard facing or fibrous glass reinforced plastic facing, or approved equal producing specified finish.

F. Form Ties: Prefabricated rod, flat band, wire, internally threaded disconnecting type, or equal, not leaving metal within 1-1/2 inches of concrete surface.

G. Form Coating: Non-staining clear coating free from oil, silicone, wax, not grain-raising. Where form liners are used, provide form coatings recommended by form liner manufacturer.

a. Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

1) Nox-Crete PCE by Nox-Crete Products Group.

2) Formshield WB by A.C. Horn, Inc.

3) Cast-Off by Sonneborn, div. BASF Building Systems.

H. Form Liner: Rigid or resilient, types shown or directed, matching approved sample.

a. Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

1) Dayton Superior.

2) Symons by Dayton Superior.

3) Greenstreak.

## PART 3 - EXECUTION

### 3.01 FORMWORK

A. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.

B. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and assure ease of removal.

C. Provide for openings, offsets, keyways, recesses, moldings, reglets, chamfers, blocking, screeds, bulkheads, anchorages, inserts, and other features as required.

D. Form ties shall be stainless steel of the removable-end, permanently

embedded body type and shall have sufficient strength and rigidity to support and maintain the form in proper position and alignment without the use of auxiliary spreaders. Cones shall be provided on the outer ends of each tie and the permanently embedded portion shall be at least 3 inches back from the concrete face.

E. Conform to ACI 301 and ACI 347 except as exceeded by the requirements of Code, regulatory agencies, or specifications.

F. Construction: Coat forms with resin coating or form oil, as approved by Design Engineer. Construct forms to exact shapes, sizes, lines, and dimensions required to obtain level, plumb, and straight surfaces. Provide openings, offsets, keys, reglets, anchorages, recesses, moldings, chamfers, blocking, screeds, drips, bulkheads, and all other required features. Make forms easily removable without hammering or prying against concrete. Space forms apart with metal spreaders. Construct forms to accurate alignment, location and grades, and provide against sagging, leakage of concrete mortar, or displacement occurring during and after placing of concrete. Coordinate installation of inserts and anchors in forms according to shop drawings and requirements for work of other sections.

G. Camber: Place suitable jacks, wedges, or similar means to induce camber and to correct settlement in forms before and during concrete placing. Camber shall be as determined in pre-installation meeting specified above. In general, formwork shall be capable of accommodating camber of 1/8 inch per 10 feet of span plus 1/4 inch.

H. Corners and Angles: Provide 3/4 inch by 3/4 inch beveled chamfer strips for all exposed concrete corners and angles unless otherwise indicated. Form concealed concrete corners and angles square unless otherwise indicated.

I. Reglets and Rebates: Form required reglets and rebates to receive frames, flashing, and other equipment. Obtain required dimensions, details, and precise positions for work to be installed under other sections and form concrete accordingly.

J. Form Joints: Fill joints to produce smooth surfaces, intersections, and arises. Use polymer foam or equivalent fillers at joints and where forms abut or overlap existing concrete to prevent leakage of mortar.

K. Recesses, Drips, and Profiles: Provide smooth milled wood or preformed rubber or plastic shapes of types shown and required.

L. Cleanouts and Cleaning: Provide temporary openings in all wall forms and other vertical forms for cleaning and inspection. Clean forms and surfaces to receive concrete prior to placing.

M. Re-Use: Clean and recondition form material before re-use.

## 3.02 FORM CONSTRUCTION

A. Notify the Engineer one full working day prior to concrete placement, so that the forms can be inspected. Contractor shall correct any defective work found in the Engineer's inspection, prior to delivery of concrete to the project. Formwork surfaces that were in good condition and accepted for use, but were damaged during removal and handling, shall not be reused on additional pours.

B. Forms shall be braced or tied to maintain the desired position, shape, and alignment during and after concrete placement.

C. Form panels on each side of the panel joint shall be precisely aligned, by means of supports or fasteners common to both panels, to result in a continuous unbroken concrete plane surface.

D. Forms shall be brought to a true line and grade, or a wooden guide strip shall be provided at the proper location on the forms so that the top surface can be finished with a screed or template for concrete which is to be finished to a specified elevation, slope, or contour.

E. Support form materials by structural members spaced sufficiently close to prevent deflection. Undulations exceeding either 3/32 inch or 1/270 of the center-to-center distance between studs, joists, form stiffeners, form fasteners, or wales are unacceptable and may be rejected by the Engineer.

F. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins.

G. Should any form or forming system, even though previously approved for use, produce a concrete surface with unacceptable undulations, its use shall be discontinued until modifications satisfactory to the Engineer have been made.

H. Accurately place and securely support items to be built into the concrete.

## 3.03 FORM COATINGS

A. Coat form contact surfaces with form coating oil or resin (as approved by

Design Engineer) before reinforcement is placed.

B. Do not allow excess form coating to accumulate in the forms or to come in contact with surfaces which will bond to fresh concrete.

C. Apply form coating in strict accordance with the manufacturer's written recommendations.

## 3.04 CONCRETE PLACEMENT

A. The rate of deposition of concrete in forms shall be controlled to prevent deflections of the forms or form panels in excess of the deflections permitted by these specifications.

## 3.05 REMOVAL OF FORMS

A. Take care in removing forms to avoid surface gouging, corner or edge breakage, and other damage to the concrete.

B. Solidly pack form tie holes, rod holes, and similar holes in the concrete as specified in Section 03 30 00, Cast-In-Place Concrete.

C. Remove forms in accordance with SSPWC Section 303-1.4.

D. Do not remove concrete forms until concrete attains sufficient strength to support its own weight and all superimposed loads as determine by testing field cured concrete cylinders, but not sooner than specified in ACI 347, paragraph 3.7. Load supporting forms may be removed when concrete has attained 75 percent of required 28-day compressive strength, provided construction is reshored.

1. Remove formwork progressively so unbalanced loads are not imposed on the structure.

2. Avoid damaging concrete surfaces during form removal.

3. Remove formwork in same sequence as concrete placement to achieve similar concrete surface coloration

## 3.06 FORMWORK TOLERANCES

A. Deflection: Limit deflection of forming surfaces from concrete pressure to L/240.

B. Finish Lines: Position formwork to maintain hardened concrete finish lines within following permissible deviations.

1. Variation from Level or Grades Indicated

| | |
|---|---|
| a. In 10 feet | 1/4 inch |
| b. In any bay or 20 feet maximum | 3/8 inch |
| c. In 40 feet or more | 3/4 inch |

2. Cross-Sectional Dimensions

| | |
|---|---|
| a. Minus | 1/4 inch |
| b. Plus | 1/2 inch |

C. Slab Openings: Variations in size and location of sleeves and slab openings shall not exceed 1/4 inch.

## 3.07 SURVEY AND ADJUSTMENT

A. Check forms before and during placement of concrete, using an instrument, and make corrections as work proceeds.

## 3.08 EMBEDDED PIPING AND ROUGH HARDWARE

A. Where work of other sections require openings for passage of pipes, conduits, ducts, and other inserts in the concrete, obtain all dimensions and other information. All necessary pipe sleeves, anchors, or other required inserts shall be accurately installed as part of the work of other sections, according to following requirements.

B. Conduits or Pipes: Locate so as not to reduce strength of concrete. In no case place pipes, other than conduits, in a slab 4-1/2 inches thick or less. Conduit buried in a concrete slab shall not have an outside diameter greater than 1/3 the slab thickness nor be placed below the bottom reinforcing steel or over top reinforcing steel.

C. Sleeves: Pipe sleeves may pass through slabs or walls if not exposed to rusting or other deterioration and are of uncoated or galvanized iron or steel. Provide sleeves of diameter large enough to pass any hub or coupling on pipe, including any insulation.

D. Conduits: Conduits may be embedded in walls only if the outside diameter does not exceed 1/3 the wall thickness, are spaced no closer than 3 diameters on centers, and do not impair the strength of the structure.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. No separate measurement will be made for the work of this section.

### 4.02 PAYMENT

A. Payment for the work of this section will be included in lump sum payment(s) for the applicable building(s) or facility in accordance with the Schedule of Values.

**END OF SECTION**

## SECTION 03 15 16

## Construction Joints

## PART 1 – GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Contractor shall supply all labor, tools, equipment and material for the preparation of construction joints in concrete in accordance with these Specifications and as shown in the Drawings.

B. Related Sections:

1. Section 03 10 00, Concrete Forming and Accessories.

2. Section 03 20 00, Concrete Reinforcing.

3. Section 03 63 00, Epoxy Grouting

4. Section 32 13 13 Concrete Pavement and Minor Concrete.

### 1.02 REFERENCE STANDARDS

A. SSPWC: Standard Specifications for Public Works Construction.

B. Caltrans: State of California Department of Transportation, Standard Specifications.

C. ACI, American Concrete Institute:

1. ACI 117, Specifications for Tolerances for Concrete Construction and Materials.

2. ACI 301, Specifications for Structural Concrete, Sections 1-5.

3. ACI 318: Building Code Requirements for Structural Concrete and Commentary.

D. ASTM: ASTM International (formerly American Society for Testing and Materials):

1. ASTM C33, Standard Specification for Concrete Aggregates.

2. ASTM C330, Standard Specification for Lightweight Aggregates for Structural Concrete.

3. ASTM C150, Standard Specification for Portland Cement.

4. ASTM C94, Standard Specification for Ready-Mixed Concrete.

5. ASTM C1059, Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.

E. California Codes:

1. California Building Code, 2019 edition.

F. AWS: 2015 American Welding Society.

1. AWS D1.1 – Structural Welding Code – Steel.

2. AWS D1.4 – Structural Welding Code – Reinforcing Steel.

## 1.03 NOT USED

## 1.04 SUBMITTALS

A. Submit under Section 01 33 00, Submittal Procedures.

B. Product Data: For the Following: Bonding Agent.

# PART 2 - PRODUCTS

## 2.01 GENERAL

A. Where products or manufacturers are listed, make submittals for proposed comparable products and substitutions in accordance with Section 01 60 00, Product Requirements, and Section 01 25 00, Submittal Procedures.

## 2.02 MATERIALS

A. Use materials and methods which comply with Caltrans Standard Specifications Section 51, Concrete Structures.

B. Epoxy Bonding Agent:

1. Master Builders; Concresive Liquid (LPL).

2. Master Builders; Concresive Standard Liquid.

C. Concrete and Closure Grout Placement: In accordance with Section 03 63 00.

## PART 3 – EXECUTION

### 3.01 EXAMINATION

A. Engineer shall review the preparation of all construction joints prior to concrete and grout closure placements. It is the responsibility of Contractor to notify Engineer of these activities. If joint placement is performed without Engineer's presence or approval, the Work may be deemed unacceptable and non-conforming to these Specifications. If Engineer determines that construction review of a particular activity is unnecessary, Engineer will provide direction to Contractor to proceed with that particular activity without construction review.

### 3.02 SURFACE PREPARATION

A. The surface of concrete construction joints shall be clean of all materials that inhibit bond. Materials such as curing compounds, laitance, saw dust, wood, dirt, polyethylene, pipe tape coating, and paper shall be removed. Concrete shall be roughened to produce a surface texture of plus or minus one-sixteenth (±1/16) inch. Concrete surfaces shall be wetted with clean potable water and standing water removed immediately before new concrete or closure grout is placed. Unless otherwise called out in the Drawings, a bonding agent shall be used prior to placing the concrete or grout.

### 3.03 PIPE GROUT CLOSURE SECTIONS

A. Pipe Surface Preparation: Unless otherwise detailed in Drawings, all pipes penetrating concrete sections such as wall and floor slabs shall have all coatings and other materials that can inhibit bond completely removed from the portion of the pipe to be in contact with the concrete or slab closure grout.

B. Ground Surface Preparation: The ground surface at joints such as pipe/slab closures shall be smooth and properly graded and compacted. All debris such as Styrofoam, paper, polyethylene and wood shall be removed. The

ground surface shall be dampened and prepared to prevent the inclusion of dirt, pieces of aggregate or balls of soil in the concrete or grout.

## 3.04 CONCRETE AND CLOSURE GROUT PLACEMENT

A. Mixing, surface preparation in addition to that prescribed above, placement, and curing of grout at pipe closure joints shall be performed in strict accordance with Section 03 63 00, Epoxy Grouting, and when a proprietary grout is specified, with the grout manufacturer's directions. Special care shall be taken to ensure that the grout is thoroughly and properly consolidated at waterstops, pipe weep rings, and existing concrete surfaces. An appropriate capacity vibrator shall be used when necessary or required by the manufacturer to properly consolidate the grout.

**END OF SECTION**

## SECTION 03 20 00

## Concrete Reinforcing

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes: Labor, materials, and equipment necessary and incidental to placing:

1. Reinforcing bars for cast-in-place concrete.

2. Reinforcing mesh for cast-in-place concrete.

3. Accessories, including but not limited to chairs and tie wires.

4. Miscellaneous concrete work, including but not limited to driveways, curbs, gutters, sidewalks, and other items as shown or required to complete the work.

B. Related Sections:

1. Section 03 10 00, Concrete Forming and Accessories.

2. Section 03 30 00, Cast-in-Place Concrete.

3. Section 32 13 13 Concrete Pavement and Minor Concrete.

### 1.02 REFERENCE STANDARDS

A. ACI – American Concrete Institute:

1. ACI 301, Specifications for Structural Concrete.

2. ACI 318, Building Code Requirements for Structural Concrete.

3. ACI SP-66, ACI Detailing Manual.

B. AWS – American Welding Society:

1. ACI 301, Specifications for Structural Concrete.

2. AWS D1.4, Structural Welding Code—Reinforcing Steel.

C. Caltrans – California Department of Transportation:

1. Standard Specifications.

## 1.03 NOT USED

## 1.04 SUBMITTALS

A.. Shop Drawings: Indicate bar sizes, spacing, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, supporting and spacing devices, and lengths of any lap splices.

B. Product data and certifications for mechanical couplers.

C. Product data for epoxy bonding adhesive.

D. Certification: Manufacturer or supplier's certification that products meet specified requirements.

E. Plan, procedures, and materials for anchoring reinforcing bars into existing concrete.

F. Certification: Welding operator's certificate.

G. Chemical Analysis: For bars to be welded, in accordance with code.

## 1.05 QUALITY CONTROL AND QUALITY ASSURANCE

A. Perform work in accordance with ACI 301, ACI SP-66, ACI 318, and Caltrans Standard Specifications.

B. Provide the Engineer with access to fabrication plant to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection.

C. Source Quality Control: Testing laboratory shall perform following conformance testing, shall select test samples of bars, ties, and stirrups from the material at the site or from place of distribution, each sampling including at least two 18-inch pieces, and shall perform the following tests according to ASTM A615.

1. Identified Bars: If samples are obtained from bundles as delivered from the mill, identified as to heat number, accompanied by mill analyses and mill test reports, and properly tagged with Identification

Certificate so as to be readily identified, perform one tensile and one bend test for each 10 tons or fraction thereof of each size of bars. Submit mill reports when samples are selected.

2. Unidentified Bars: When positive identification of reinforcing bars cannot be made and when random samples are obtained, perform tests for each 2.5 tons or fraction thereof, one tensile and one bend test from each size of bars.

D. Certification of Welders: All welding both in shop and in field shall be performed by certified welding operators.

## 1.06 MARKING AND SHIPPING

A. Deliver materials in a timely manner to ensure uninterrupted progress.

B. Bundle bars, tag with identification, and transport and store so as not to damage any material. Use metal tags indicating size, length and other marking shown on placement drawings. Maintain tags after bundles are broken. Store materials by methods that permit ready access for inspection and identification.

# PART 2 - PRODUCTS

## 2.01 MATERIALS

A. Reinforcing Steel for Welding: ASTM A706, Grade 60, for structural concrete.

B. Spiral Reinforcement: ASTM A82.

C. Mechanical Couplers: Sleeve-threaded per Caltrans Standard Specifications Section 52-1.08C(2).

D. Magnesium Phosphate Concrete: Conform to Caltrans Section 83-2.02D(1).

E. Welded Wire Fabric: ASTM A185, furnished in sheets only.

F. Reinforcing Bars: Chapter 19 of Code, ASTM A706, Grade 60. Deformations shall be in conformance with ASTM A615, unless otherwise indicated on drawings.

G. Reinforcing Mesh: ASTM A185, mesh size and gauge as shown, 60 ksi minimum tensile strength. Provide mesh in flat sheets only.

H. Welding Electrodes: AWS D1.4, Table 5.1 and 5.5 low hydrogen electrodes, E9018 for Grade 60 steel, E70XX Series for grade 40 steel.

## 2.02 ACCESSORY MATERIALS

A. Tie Wire: ASTM A82, annealed copper-bearing steel, minimum 0.0625 inch (aka 16 gauge) uncoated diameter, galvanized.

B. Chairs and Similar Support Items:

1. Standard manufactured products conforming to CRSI Manual of Standard Practice.

2. Use dense precast concrete supports with embedded wire ties for reinforcement placed on grade. Elsewhere, use wire bar supports.

## 2.03 FABRICATION

A. Comply with CRSI Manual of Standard Practice for fabrication of reinforcing steel.

B. Bending and Forming: Fabricate bars of the indicated sizes and bend and form to required shapes and lengths by methods not injurious to materials. Do not heat reinforcement for bending. Bend bars No. 6 size and larger in the shop only. Bars with unscheduled kinks or bends are subject to rejection. Use only tested and approved bar materials.

C. Welding: Use only ASTM A706 steel where welding is proposed. Perform welding, where shown or approved, by the direct electric arc process in accordance with AWS D1.4 using specified low-hydrogen electrodes. Preheat 6 inches each side of joint. Protect joints from drafts during the cooling process; accelerated cooling is prohibited. Do not tack weld bars. Clean metal surfaces to be welded of all loose scale and foreign material. Clean welds each time electrode is changed and chip burned edges before placing welds. When wire brushed, the completed welds must exhibit uniform section, smooth welded metal, feather edges without undercuts or overlays, freedom from porosity and clinkers, and good fusion and penetration into the base metal. Cut out welds or parts of welds found defective with chisel and replace with proper welding. Prequalification of welds shall be in accordance with Code.

D. Galvanizing: Hot-dip galvanize fully completed reinforcing assemblies where indicated, in accordance with ASTM A123.

# PART 3 - EXECUTION

## 3.01 PLACEMENT

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

B. Install mechanical couplers in accordance with Caltrans Sections 52-1.08C(2) and manufacturer's instructions.

C. Place, support, and secure reinforcement against displacement. Do not deviate from required position. Spot welding of chairs or other items to reinforcing steel is not permitted.

D. Provide additional reinforcing bars at wall and slab openings as required. Before placing bars, and again before concrete is placed, clean bars of loose mill scale, oil, or any other coating that might destroy or reduce bond.

E. Drill, install, and bond reinforcing steel dowels into existing concrete as indicated on the drawings, in accordance with Caltrans Section 51-1.13 and 83-2.02D(1) using the approved magnesium phosphate concrete (not mortar) and in accordance with the approved plan, procedures, and materials.

F. Maintain concrete cover around reinforcing as indicated on drawings.

G. Securing in Place: Accurately place bars and wire tie in precise position where bars cross. Bend ends of wire ties away from the forms. Wire tie bars to corners of ties and stirrups. Support bars according to CRSI's Placing Reinforcing Bars using approved accessories and chairs. Place precast concrete cubes with embedded wire ties to support reinforcing steel bars in concrete placed on grade and in footings. Use care not to damage vapor barriers where they occur.

H. Exposed Concrete Surfaces: Provide stainless steel or exterior quality vinyl plastic tipped chairs, bolsters, and accessories where exposed on exterior or interior concrete surfaces not to be painted or permanently covered.

I. Splices: Do not splice reinforcing bars at the points of maximum stress except where indicated. Lap splices as shown or required to develop the full strength or stress of bars. Stagger splices in horizontal wall bars at least 48 inches longitudinally in alternate bars and opposite faces.

J. Field Welding of Bars: As specified for fabrication.

K. Maintaining Bars In Position: Take adequate precautions to assure that reinforcing position and spacing is maintained during placement of concrete.

L. Reinforcing Mesh: Lap one full mesh plus 2 inches, but not less than 6 inches, at splices, wire tie, and support the same as specified for bars.

M. Splice Devices:

1. Type and manufacture as noted on drawings. If substitution is requested, Contractor shall supply manufacturer's calculations and supporting data showing that proposed substitution conforms to requirements indicated and supplied.

2. Install in accordance with manufacturer's written instructions.

3. Splice in a manner developing at least 125 percent of the yielding strength of the bar.

## 3.02 FIELD QUALITY CONTROL

A. The Engineer will perform field inspection under Section 01 46 00, Quality Assurance and Quality Control. Reinforcement shall be placed in accordance with the approved detailed shop drawings.

1. Inspection: Obtain inspection and approval of reinforcing before concrete is placed.

2. Welding Inspection. Whether welding is done in the shop or at the site, perform welding of reinforcing bars under inspection of the independent testing laboratory welding inspector retained by Contractor.

## PART 4 – MEASUREMENT AND PAYMENT

A. No separate measurement or payment will be made under this section. Work of this section will be included in measurement and payment for Section 03 30 00, Cast-in-Place Concrete.

**END OF SECTION**

# SECTION 03 30 00

## Cast-In-Place Concrete

## PART 1 – GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Furnishing, placing, patching, and initial curing of cast-in-place concrete unless otherwise specified.

2. Grout and drypack, except as otherwise specified.

3. Placing of embedded anchor bolts and inserts.

4. Miscellaneous concrete work, including but not limited to driveways, curbs, gutters, sidewalks, and other items as shown or required to complete the work.

5. Admixtures, curing materials, and concrete hardeners.

B. Related Sections:

1. Section 03 10 00, Concrete Forming and Accessories.

2. Section 03 20 00, Concrete Reinforcing.

3. Section 32 13 13, Concrete Pavement and Minor Concrete.

### 1.02 REFERENCE STANDARDS

A. SSPWC: Standard Specifications for Public Works Construction.

B. Caltrans: State of California Department of Transportation, Standard Specifications.

C. ACI, American Concrete Institute:

1. ACI 117, Specifications for Tolerances for Concrete Construction and Materials.

2. ACI 301, Specifications for Structural Concrete, Sections 1-5.

3. ACI 318: Building Code Requirements for Structural Concrete and Commentary.

D. ASTM: ASTM International (formerly American Society for Testing and Materials):

1. ASTM C33, Standard Specification for Concrete Aggregates.

2. ASTM C330, Standard Specification for Lightweight Aggregates for Structural Concrete.

3. ASTM C150, Standard Specification for Portland Cement.

4. ASTM C94, Standard Specification for Ready-Mixed Concrete.

E. California Codes:

1. California Building Code, 2019 edition.

F. AWS: 2015 American Welding Society.

1. AWS D1.1 – Structural Welding Code – Steel.

2. AWS D1.4 – Structural Welding Code – Reinforcing Steel.

## 1.03 NOT USED

## 1.04 SUBMITTALS

A. Submit according to the General Provisions, Section 67, Construction Submittals.

B. Mix Designs: Submit concrete design documentation before bringing material to project site. Demonstrate conformance with specifications.

C. Product Data: For cement, aggregates, admixtures, curing materials, joint devices, bonding epoxy, and attachment accessories.

D. Shop Drawings: For structural concrete and concrete slabs showing dimensioned locations, types of construction and expansion joints, and method of keying.

## 1.05 QUALITY CONTROL

A. Perform work in accordance with ACI 301.

B. Compliance with Regulations: All materials shall comply with the current rules and regulations of SCAQMD, including rules regarding volatile organic compounds, and with EPA rules and regulations for dangerous substances in construction products.

C. Concrete Manufacturer: Furnish concrete from licensed commercial ready-mix concrete plants conforming to ASTM C94 and approved by building official. Requirements herein govern when exceeding ASTM C94.

D. Allowable Tolerances: Construct concrete conforming to the tolerances specified in ACI 117, Standard Specifications for Tolerances for Concrete Construction and Materials, as applicable, unless exceeded by requirements of regulatory agencies or otherwise indicated or specified.

E. Source Quality Control: Refer to the following paragraphs for specific procedures. Concrete materials which, by previous tests or actual service, have shown conformance may be used without testing when so approved by the Engineer and building official. Testing laboratory retained by Contractor shall perform following conformance testing.

1. Portland Cement: Furnish mill certificates, acceptable to Engineer and building official, showing conformance with requirements specified; otherwise, the testing laboratory shall test each 250 barrels of cement in accordance with ASTM C150.

2. Aggregate For Normal Weight Concrete: Test the aggregate before and after concrete mix is designed and whenever character of aggregate varies or source of material is changed. Include a sieve analysis. Obtain samples of aggregates at the dry batching or ready-mix concrete plant in accordance with ASTM D75 and perform tests for the following properties:

| PHYSICAL PROPERTIES | | |
|---|---|---|
| Physical Properties | Test Method | Minimum Values |
| Sieve analysis | ASTM C136 | |
| Organic impurities | ASTM C40 | Fine aggregate not darker than reference standard color |

| Physical Properties | Test Method | Minimum Values |
|---|---|---|
| Soundness | ASTM C88 | Loss after 5 cycles not more than 8 percent of coarse aggregate, nor more than 10 percent of fine aggregate |
| Abrasion | ASTM C131 | Weight loss not more than 10.5 percent after 100 revolutions, 42 percent after 500 revolutions |
| Deleterious materials | ASTM C33 | |
| Materials finer than No. 200 sieve | ASTM C117 | Not over 1 percent for gravel, 1.5 percent for crushed aggregate |
| Reactivity potential | ASTM C227, C289 | Ratio of silica released to reduction in alkalinity not to exceed 1.0. |
| Sand equivalent | ASTM D2419 | California sand equivalent values operating range not below 71 percent |

## 1.06 CONCRETE MIX DESIGNS

A. Testing laboratory shall design concrete mixes for concrete requiring 28-day compressive strength exceeding 2000 psi. Contractor shall bear all costs for concrete mix designs.

B. Strength Requirements: Design mixes for structural concrete for minimum 28-day compressive strengths required by drawings and specifications. All mix designs for structural concrete shall be proportioned in accordance with Section 3.9 of ACI 301. If trial batches are used, the mix design shall be prepared by Contractor's independent testing laboratory and shall achieve an average compressive strength 1200 psi higher than the specified strength. This over-design shall be increased to 1400 psi when concrete strengths over 5000 psi are used.

C. Basis of Mix Designs: Design all mixes for workability and durability of concrete. Control mixes in accordance with ACI 301. Make adjustments in water/cement ratios as necessary for required concrete strengths at the Contractor's expense. Calcium chloride, thiocyanates or admixtures containing more than 0.05 percent chloride ions are not permitted.

D. Maximum Aggregate Sizes: Not exceeding 3/4 of minimum clear space between bars and between bars and forms, nor larger than 1/5 of least dimensions between the forms. Design the mixes with 3/4 inch maximum size, except maximum 1-1/2 inch size for foundations and maximum 3/8 inch size at congested reinforcing or thin sections, when approved by the Engineer.

E. Air Content: All normal weight concrete shall contain an air-entraining agent producing air content of 3.5 percent to 6.5 percent by volume and adjusted for weather conditions.

## 1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials in timely manner to ensure uninterrupted progress of the work. Also see 3.06, Field Quality Control, herein, for requirements regarding truck load tickets and time limits from when concrete is dispatched until it is placed.

B Store materials by methods that prevent damage and permit ready access for inspection and identification.

## 1.08 PROJECT SITE CONDITIONS

A. Do not place concrete during rain or adverse weather conditions without means to prevent all damage. Conform to requirements specified hereinafter whenever concrete placement is required during cold or hot weather.

# PART 2 - PRODUCTS

## 2.01 GENERAL

A. Where products or manufacturers are listed, for proposed comparable products and substitutions, requests must be submitted during the solicitation phase in accordance with Instruction to Bidders, Section F, Request for Clarification / approved Equals / Exceptions.

## 2.02 MATERIALS

A. Use materials and methods which comply with Caltrans Standard Specifications Section 51, Concrete Structures.

B. Concrete not otherwise specified shall have compressive strength of not less than 4000 psi at 28 days with a maximum slump of 4 inches.

C. Cement: Type II low alkali conforming to ASTM C150. The same type and source of cement shall be used throughout the entire project.

D. Bonding Epoxy: Epoxy resin adhesive conforming to Caltrans Standard Specifications Section 95-2.03.

E. Premolded Expansion Joint Filler: ASTM D1751

F. Aggregates:

1. Normal Weight Aggregates: ASTM C33, Class 1N.

2. Lightweight Aggregates: ASTM C330.

G. Admixtures:

1. Chemical (Water Reducing) Admixture: ASTM C494, Type A, D, or E. Use only one brand. Use is subject to approval of Engineer; when used, reduce the mixing water at least 10 percent without entraining air in excess of 2 percent by volume. If the water reducing agent entrains more than 2 percent air, the water reduction shall be at least 12 percent, but in no case shall the water reducing agent entrain air in excess of 4 percent.

2. Air-Entraining Admix: ASTM C260.

3. Pozzolan: ASTM C618, Class F or C Fly Ash, 100 pounds maximum per cubic yard, containing 1 percent or less carbon. Fly ash shall not be used in excess of 20 percent by weight of total cement quantity.

4. Super-Plasticizers (High Range Water Reducers): ASTM C494, Type F or G. Capable of producing concrete which can be placed at 8-11 inch slump without segregation, capable of maintaining slump within 2 inches of that initially mixed for 2 hours, and of maintaining concrete temperature within 2 deg F from time of batching for 2 hours minimum.

a. Products: Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

1) Rheobuild 1000, BASF Construction Chemicals.

2) Eucon 37, Euclid Chemical Company.

5. Concrete Slab Hardeners/Sealers:

   a. Apply liquid penetrating floor hardener/sealer; clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

   b. Locations: Apply at the following location:

      1) Fuel/Service Island.

   c. Basis of Design: Dayton Superior, “Day-Chem Sure Hard”, J-17. Or subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

      1) ChemMasters; Chemisil Plus.

      2) ChemTec Int’l; ChemTec One.

      3) Conspec by Dayton Superior; Intraseal.

6. Water Vapor Reducing Admixture (WVRA):

   a. Designed to have a natural chemical reaction with elements inside the cementitious material to eliminate the route of moisture vapor emission through material by integrally and permanently closing the capillary system.

      1) Product: Vapor Lock 20/20, by SPG (Basis of Design).

      2) Water Vapor Transmission: Maximum 0.03 US perms per ASTM E-96

      3) Water Proofing: Minimum 1x10-8 cm/s per ASTM D-5084

      4) Toxicity: None

      5) Flammability: None

      6) Solvent: None; water base

      7) Acid Resistance: Excellent

      8) Hazardous Vapors: None

9) Capillary Break: Calcium Silicate Hydrate

10) VOC Levels: Zero

11) Location: As noted on the plans.

12) Warranty: Ten year warranty.

b. Products: Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

1) SPG (Basis of Design)

2) Moxie International

3) Barrier One, Inc.

H. Water: From potable domestic source.

I. Curing Materials:

1. Liquid Curing Compound: ASTM C309, Type I, Class B, complying with SCAQMD rules and Federal air quality regulation 40 CFR 52.254.

a. Products: Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

1) Mastercure 100 WB, BASF Construction Chemicals.

2) 1100-Clear Series, W. R. Meadows.

2. Curing Sheet: ASTM C171, non-staining white types.

3. Evaporation Retardant and Finishing Aid:

a. Products: Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

1) Confilm, BASF Admixtures.

2) Eucobar, Euclid Chemical Company.

J. Non-Shrink Grout: Conform to Corps of Engineers CRD-C621, and as follows:

1. Metallic for Concealed Areas: Factory packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107; non-gas-forming and free of oxidizing catalysts and inorganic accelerators, used as dry or damp pack, or mixed to a 20-second flow (CRD-C621), without segregation or bleeding at any temperature between 45 deg F and 100 deg F. Working time 30 minutes or more.

    a. Products: Subject to compliance with requirements, provide one of the following, or, or equal approved as a comparable product.

        1) Embeco 885, BASF Building Systems.

        2) Five Star Metallic Grout, Five Star Products.

2. Non-Metallic for Exposed Areas: With same characteristics as specified for concealed areas.

    a. Products: Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product.

        1) Masterflow 928, BASF Building Systems.

        2) Hi-Flow Grout, Euclid Chemical Company.

        3) SikaGrout 212 High Performance Anchoring Grout, Sika Corporation.

3. Epoxy Grout Where Indicated: Comply with Section 03 63 00, Epoxy Grouting.

K. Drypack: Field mixture of 1 part portland cement to 2 parts fine aggregate mixed to a damp consistency such that a ball molded in the hands will stick together and hold its shape. At Contractor's option, the specified admixture may be added for increased workability at lower water/cement ratio. In lieu of field mixing, Contractor may use factory mixed drypack material as follows:

1. Products: Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

a. Set Grout, BASF Building Systems.

b. Dry Pack Grout, Euclid Chemical Company.

L. Expansion Joint Filler: Asphalt impregnated fiber or non-extruding foam type, conforming to ASTM D994 and D1751, or D1752.

M. Construction Joint Materials:

1. Products: Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

a. Key-Loc Joints, Form-a-Key Products.

b. Keyway PVC Tongue and Groove Joint Form, Sealtite by W. R. Meadows.

N. Bonding Agent:

1. Products: Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

a. Weld-Crete, Larsen Products Co.

b. Intralok, Sealtite by W. R. Meadows.

## 2.03 ANCHOR BOLTS

A. As specified under 05 60 00, Miscellaneous Metal Fabrications.

## 2.04 GROUT MIXES

A. Portland Cement Grout:

1. Prepare grout consisting of portland cement, sand, and water.

2. Use portland cement grout in recesses, holes, and surfaces under structural members, and at other locations shown.

3. Do not use staining ingredients in grout exposed to view.

4. Formulation: Two parts sand and one part cement measured by volume. Mix grout with sufficient water to permit placing and packing, approximately 45 minutes before use.

B Non-Shrink Grout: Non-shrink grout shall conform to ASTM C1107, Grade A, and shall be a commercial formulation suitable for the proposed application.

C. Curing: After grout has attained initial set, keep damp for minimum of 24 hours.

## 2.05 JOINT SEALANT

A. As specified under Section 07 90 00, Joint Protection.

1. Sealants for horizontal concrete surfaces in exposed areas shall be non-tracking, and sealants for vertical joints shall be non-sagging.

2. For work above grade, use silicone sealants and quick-drying clear primers as recommended by sealant manufacturer.

3. Sealant Backer Rod: Compressible rod stock of polyethylene foam, neoprene foam, or other flexible, permanent, durable, non-absorptive material as recommended by sealant manufacturer and compatible with sealant.

## 2.06 CONCRETE MIXING

A. Furnish ready-mixed concrete from an approved concrete batch plant. Conform to ASTM C94, except materials, testing, and mix designs as specified herein. Use transit mixer trucks equipped with automatic devices for recording number of revolutions of drum.

B. Admixtures: All approved admixtures shall be introduced into the concrete at the batch plant. Field additions are not acceptable.

C. Slump: Adjust quantity of water so that concrete at point and time of placing does not exceed the following slumps when tested according to ASTM C143. Use the minimum water necessary for workability required by part of structure being cast.

| SLUMP AND WATER/CEMENT RATIOS | | |
|---|---|---|
| Part of Structure | Maximum Slump Inches* | Maximum Water-Cement Ratio |
| Footings, foundation walls, and mass concrete, not reinforced | 4 | 0.6 |
| Slabs on grade, reinforced and non-reinforced | 4 | 0.45 |
| Reinforced concrete over 8" thick | 4 | 0.5 |
| Reinforced concrete 8" or less thick | 4 | 0.5 |
| All other concrete | 4 | 0.5 |

*If super-plasticizers are used, slumps may be 8 inches to 10 inches for all concrete, with water-cement ratio unchanged or lower than slumps without admixture.

## PART 3 – EXECUTION

### 3.01 EXAMINATION

A. Verify requirements for concrete cover over reinforcement.

B. Verify that anchors, seats, plates, weep drains, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete. Temporarily fill voids in sleeves, inserts, and anchor slots using readily removable materials to prevent entry of concrete into voids.

### 3.02 PREPARATION

A. Where new concrete is to be placed against existing concrete, prepare previously placed concrete by abrasive blasting or bush hammering to expose clean aggregate and roughened surface to 1/4 inch amplitude. Coat the surface with bonding epoxy in accordance with manufacturer's instructions.

B. Remove all free water from forms before concrete is deposited. Remove hardened concrete, debris, and foreign materials from interior surfaces of forms, exposed reinforcing, and from surfaces of mixing and conveying equipment.

C. Wetting: Wet wood forms sufficiently to tighten up cracks. Wet other materials sufficiently to reduce adsorption and to help maintain concrete workability.

D. Earth Subgrade: Dampen 24 hours before placing concrete, but do not muddy. Re-roll where necessary for smoothness and remove loose material.

E. Gravel Fill: Recompact disturbed gravel and bring to correct elevation.

F. Sand Beds or Subslab Drainage Fill: Recompact disturbed material and bring to correct elevation.

G. Expansion Joint Filler: Install where slabs abut buildings and elsewhere as indicated. Install full depth of concrete with top level with finished surface of concrete.

## 3.03 PLACING CONCRETE

A. Load Tickets: See 3.06, Field Quality Control.

B. Conveying and Placing: Do not place concrete until the reinforcing steel, forms, or metal decking have been approved. Do not use aluminum tubes or any aluminum equipment for pumping concrete, nor allow concrete to free fall from its point of release at mixer, hoppers, tremies, or conveying equipment more than 6 feet for concealed concrete and 3 feet for exposed concrete. Deposit concrete so that the surface is kept level throughout, a minimum being permitted to flow from one portion to another. Place concrete in horizontal layers not more than 18 inches thick within 45 minutes after water is first added to the batch. Place concrete by methods that prevent segregation of materials.

1. Where new concrete is placed against or on old or existing concrete, apply bonding agent to properly prepared surface of old concrete prior to placement of new concrete.

B. Joints In Concrete: Locate joints only where approved, and obtain prior approval for points of stoppage of any pour. Clean and roughen the surface of construction joints by removing the entire surface and exposing 1/4 inch amplitude of clean aggregate solidly embedded in mortar matrix by sandblasting, chipping, use of an approved surface retarder, or equal. Water and keep hardened concrete wet for not less than 24 hours and slush with portland cement slurry just before placing joining concrete. Cover horizontal surfaces of existing or previously placed and hardened concrete with a 2 inch thick layer of fresh concrete less 50 percent of coarse aggregate just before balance of concrete is placed.

1. Exception: When using super-plasticizers, the free fall, horizontal layer thickness and time limitations may be doubled.

C. Compacting: Compact each layer of the concrete as placed with mechanical vibrators or equivalent equipment. Transmit vibration directly to concrete and in no case through the forms unless approved. Accomplish thorough compaction. Supplement by rodding or spading by hand adjacent to forms. Compact concrete into corners and angles of forms and around reinforcement and embedded fixtures. Recompact deep sections with congestion due to reinforcing steel as required.

D. Operation of Vibrators: Do not horizontally transport concrete in forms with vibrators nor allow vibrators to contact forms or reinforcing. Push vibrators vertically into the preceding layers that are still plastic and slowly withdraw, producing maximum obtainable density in concrete without creating voids or segregation. In no case disturb concrete that has partially set. Vibrate at intervals not exceeding two-thirds the effective visible vibration diameter of the submerged vibrator. Avoid excessive vibration that causes segregation. Use and type of vibrators shall conform ACI 309R, Guide for Consolidation of Concrete.

E. Correction of Segregation: Before placing next layer of concrete, and at the top of last placement for vertical elements, remove concrete containing excess water or fine aggregate or showing deficiency of coarse aggregate and fill the space with compacted concrete of correct proportions.

F. Slabs:

1. Float Finish: Place, consolidate, strike off, and level concrete slab to proper elevation. Use highway straightedge, bull float or darby. Remove all bleed water. After the concrete has stiffened sufficiently to permit the operation, and water sheen has disappeared, the surface shall be floated, at least twice, to a uniform sandy texture. Remainder of finishing operations shall be as specified for each type of surface.

2. On-Grade Slabs: Place with maximum 40-foot edge dimension. Generally locate joints on column lines, exact locations as directed or approved.

3. On-Grade Slab Construction and Contraction Joints: Use types as indicated at column lines intermediate locations.

4. Expansion Joints: Conform to Drawing details and approved submittal. Provide expansion joint filler finished flush with slab surface except for

those joints shown to be sealed with sealant. Conform to Section 07 90 00, Joint Protection, where sealant sealed joints are shown or specified, including multicomponent urethane sealant, backing, and bond breaker.

5. Control Joints: Provide for concrete slabs as indicated. At Contractor's option, "Soff-Cut" saw or equal may be used to depth of 1-1/4 inches immediately providing spalling or undercutting of the concrete does not occur, and in no case shall slab reinforcement be cut or damaged. Conventional saws shall be used as soon as possible without dislodging aggregate to 1/4 slab thickness. Complete sawing of joints within 24 hours after finishing is completed. If early sawing causes undercutting or washing of the concrete, delay the sawing operation and repair the damaged areas. The saw cut shall not vary more than 1/2 inch from the true joint alignment. Discontinue sawing if a crack develops ahead of a saw cut. Immediately after each joint is sawed, thoroughly clean the saw cut and adjacent concrete surface. Respray surfaces treated with curing compound which are damaged during the sawing operations as soon as the water disappears. Protect joints in a manner to prevent the curing compound from entering the joints.

6. On-Grade Slab Construction and Contraction Joints: Use standard types equal to Key-Loc construction joint at column lines and Keyway contraction joint at intermediate spacings. Machine saw cut 1/8 inch by 3/4 inch deep intermediate joints where indicated or approved. Conform to approved submittal.

G. For proper application of concrete hardener/sealer, curing periods of concrete must comply with manufacturer’s recommendations.

## 3.04 FINISHES

A. General: Comply with recommendations in ACI-302.1R for screeding, re-straightening, and finishing operations for concrete surfaces.

B. Formed surfaces not exposed to view shall receive ordinary surface finish in accordance with Caltrans Standard Specification Section 51-1.18A, Ordinary Surface Finish.

C. Fresh concrete at unformed surfaces, other than construction joints, shall be tamped, struck off level, and given a wood float finish that provides a surface free of undulations greater than 1/4 inch in 10 feet. Surfaces subject to pedestrian or vehicle traffic shall receive a broom finish.

D. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish, built-up or membrane roofing.

E. Smooth/Hard Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view, interior slab areas, or to be covered with resilient flooring, epoxy flooring, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.

2. Finish surfaces to the following tolerances, measured within 24 hours according to ASTM-E-1155/E-1155M for a randomly trafficked floor surface:

a. Specified overall values of flatness, F(F)-35; and levelness, F(L)-25; with minimum local values of flatness, F(F)-24; and levelness, F(L)-17; for slabs-on-grade.

3. Finish and measure surface so gap at any point between concrete surface and an unleveled freestanding 10-foot- long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed the following:

a. 1/8 inch.

4. Coordinate with concrete hardener.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

## 3.05 CURING AND PROTECTION

A. Keep forms containing concrete in a wet condition until removed. Keep concrete continuously moist for not less than 7 days after placement. Keep concrete moist with a fine fog water spray until protected by curing media.

B. During times of dry or excessive winds, high ambient temperature, low humidity, or other ambient conditions causing rapid drying, use specified evaporation retardant and finishing aid material according to the manufacturer's instructions and cure concrete with a fine fog spray of water, or equal, applied both during and after finishing and continued until final curing operations are started.

C. Use the water curing method, curing sheet material, or a clear liquid membrane-forming curing compound except as otherwise specified.

D. Do not use any type of finishing or curing materials or methods that interfere with the correct application or bonding of subsequent materials; verify exact requirements as they apply to all applicable materials.

## 3.06 FIELD QUALITY CONTROL

A. Truck Load Tickets: Obtain a load ticket for each concrete delivery. Provide a legible copy to the Owner’s Inspector. Prior to pouring, verify that concrete in truck has not exceeded allowable travel time – as defined by ACI standards – between plant and site.

B. Level of Floors: Continuously monitor concrete placing to maintain level floor by use of an instrument level, transit, or laser.

B. Continuous Inspection: Construct structural concrete exceeding 2000 psi compressive strength under continuous inspection of inspector. Obtain inspection and approval of forms and reinforcing by building department as required and by the inspector before placing structural concrete.

C. Testing of Concrete: Omnitrans will engage a testing laboratory to perform the following tests. Samples for testing shall be obtained in accordance with ASTM C172, and shall be taken from as close to point of placement as possible. The following procedures will be utilized by Omnitrans’ laboratory:

1. Compressive Strength Tests: Cast one set of three or more cylinders from each day's placing and each 150 cubic yards, or fraction thereof, or not less than once for each 2000 square feet of surface area for slabs and walls, of each strength of structural concrete. Date cylinders, assign record number, and tag showing the location from which sample was taken. Also record slump test result of sample. Do

not make more than two series of tests from any one location or batch of concrete.

b. Test Cylinders: Samples will be made in accordance with ASTM C172. Cast cylinders according to ASTM C31; 24 hours later, store cylinders under moist curing conditions at about 70 deg F. Test according to ASTM C39 at 7 and 28 day ages. The remaining cylinder shall be kept in reserve in case tests are unsatisfactory.

c. Control Test Cylinders: Cast a set of two or more cylinders for each day's placing of concrete for slabs supported on shoring. Place test cylinders on slabs represented by cylinders and cure the same as slabs. Test cylinders to determine proper times for removal of shores and reshoring. A strength test shall be the average of the compressive strengths of 2 cylinders made from the same sample of concrete and tested at 28 days.

d. For water vapor reducing admixture: Maintain 4” cylinders minimum (1) year from date of substantial completion. Product assurance testing per ASTM D-5084 and per manufacturer’s instructions; one test cylinder per building borne by the supplier.

C. Core Tests: If tests show the compressive strength of any concrete falls below the required minimum, additional testing of concrete which unsatisfactory tests represent may be required. Omnitrans’ testing laboratory will make core tests according to ASTM C42. Fill core holes with drypack concrete of strength required for concrete. Contractor shall bear cost of tests for below-strength concrete even if such tests indicate concrete has attained required minimum compressive strength, and all costs for required corrections.

D. Testing by Omnitrans laboratory does not relieve Contractor of responsibility for project quality, nor does it preclude the Contractor from making and testing his own test cylinders. All test data obtained by Omnitrans will be made available to the Contractor.

## 3.07 PATCHING

A. Remove fins, projections, and offsets. Cut out rock pockets, honeycomb, and all other defects to sound concrete, with edges of cuts straight and back-beveled. Dampen cut-outs and edges, and scrub with neat portland cement slurry just before patching, or an apply approved epoxy concrete adhesive.

B. Saturate form tie holes with water and fill voids and patches with flush smooth-finished mortar with non-shrink grout.

## 3.08 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances, specified material, or installation requirements.

B. Repair or replace defective concrete as directed by the Engineer at no additional cost to Omnitrans.

## 3.09 HOT WEATHER PROVISIONS

A. Conform to ACI 305R and the following requirements.

B. Take extra care to reduce the temperature of the concrete being placed and to prevent rapid drying of newly placed concrete. When the outdoor ambient temperature is more than 90 deg F, shade the fresh concrete as soon as possible after placing, and start curing as soon as the surface of the fresh concrete is sufficiently hard to permit it without damage.

C. Concrete placement temperatures shall be controlled by the Contractor and shall not be limited to:

1. Shading and cooling the aggregate.

2. Avoiding use of hot cement.

3. Cooling mixing water by additions of ice.

4. Insulating water supply lines and tanks.

5. Insulating mixer drums or cooling them with sprays or wet burlap.

## 3.10 GROUTING AND DRYPACKING

A. Install as indicated or required. Where grouting and drypacking is part of the work of other sections, it shall conform to the following requirements, as applicable.

B. Drypacking: Mix materials thoroughly with minimum amount of water. Install drypack by forcing and rodding to fill voids and provide complete bearing under plates. Finish exposed surfaces smooth and cure with damp burlap or liquid curing compound.

C. Non-Shrink Grouting:

1. Mixing: Mix the approved non-shrink grout material with sufficient water per manufacturers recommendations.

2. Application: Surfaces to receive the non-shrink grout shall be clean, and shall be moistened thoroughly immediately before placing the mortar. Before grouting, surfaces to be in contact shall be roughened and cleaned thoroughly, all loose particles shall be removed and the surface flushed thoroughly with neat cement grout immediately before the grouting mortar is placed. Place fluid grout from one side only and puddle, chain, or pump for complete filling of voids; do not remove the dams or forms until grout attains initial set. Finish exposed surfaces smooth, and cure as recommended by grout manufacturer.

3. For epoxy grout, comply with Section 03 63 00, Epoxy Grouting.

## 3.11 SITE CONCRETE WORK

A. Use bituminous type joint filler. Cure all concrete for at least 10 days with liquid curing compound or sheet material except as otherwise specified. Construct all site concrete of 2500 psi concrete unless otherwise indicated or specified. Provide reinforcing bars or mesh only where indicated. Conform to requirements specified hereinbefore for slab finishing and curing as applicable.

B. Concrete Curbs: Provide 1/2 inch thick expansion joints, at beginning and at end of curves and intersections and at 20-foot intervals between, set plumb, square, and to same profile as the curbs. Edge curb tops to 1/2 inch radius and vertical joints to 1/4 inch radius. Apply smooth finish followed by fine hair brush finish.

C. Concrete Gutters: Provide 1/2 inch thick expansion joints as above for curbs and apply a light broom finish with a 3 inch wide steel trowel finish at flow line.

D. Combination Curb and Gutter: As above for curbs and gutters, including expansion joints, 3 inch troweled flow line at base of curb.

E. Concrete Walks: Provide 1/2 inch expansion joints as specified for curbs and where walks abut rigid structures, aligned with joints in curbs where adjoining, and apply light broom finish perpendicular to traffic direction. Score walks as shown or directed.

F. Control Joints: Provide sawed joints for concrete walks and exterior concrete pavement as indicated. Use Sandell's Zip Strip by Sandell Manufacturing Company, Inc., or equal approved as a comparable product, only where specifically indicated. Install tops of the joints flush with the concrete surface and depth of joint a minimum of 1/4 the thickness of slab.

## 3.12 OFF-SITE CONCRETE WORK

A. Provide new concrete items where indicated, and replace existing items damaged by Contractor's operations. Secure and pay for required permits, inspections, engineering, and surveying.

## 3.13 INSTALLATION OF WATERSTOPS

A. Heat fuse waterstop joints and connections in accordance with manufacturer's instructions including heating tools and devices. Run waterstops continuous in joints, following offsets and angles in joints until spliced to waterstops at intersecting joints, completely sealing the structure. Align and center waterstops in joints unless otherwise indicated.

B. Tie flanges to reinforcing with minimum 0.0475 inch diameter (aka 18 gauge) wire ties spaced at maximum 18 inch intervals. Test all waterstops, including splices, intersections, and welds, with approved holiday spark detector before concrete is placed.

## 3.14 FINISH PENETRANTS AND COATINGS

A. Treat concrete slabs not indicated to receive epoxy-urethane floor finish with concrete hardener/sealer.

1. Penetrating Floor Hardener/Sealer: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

2. Subject to compliance with requirements, provide one of the following, or equal approved as a comparable product:

a. ChemMasters; Chemisil Plus.
b. ChemTec Int'l; ChemTec One.
c. Conspec by Dayton Superior; Intraseal.
d. Curecrete Distribution Inc.; Ashford Formula.
e. Dayton Superior Corporation; Day-Chem Sure Hard (J-17).
f. Edoco by Dayton Superior; Titan Hard.

g. Euclid Chemical Company, an RPM company; Euco Diamond Hard.
h. Kaufman Products, Inc.; SureHard.
i. L&M Construction Chemicals, Inc.; Seal Hard.
j. Metalcrete Industries; Floorsaver.
k. Nox-Crete Products Group; Duro-Nox.
l. Symons by Dayton Superior; Buff Hard.
m. US Spec, Division of US Mix Products Company; US Spec Industraseal.
n. Vexcon Chemicals, Inc.; Vexcon StarSeal PS Clear.

## PART 4 – MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. Cast-in-place concrete will be measured by the unit or fraction thereof installed in accordance with the contract documents and as measured by the Engineer. The quantities contained on the approved Schedule of Values as derived from the drawings will be used as the basis for this measurement.

### 4.02 PAYMENT

A. Cast-in-place concrete constructed in accordance with the contract documents will be paid for at the contract unit price listed in the approved Schedule of Values. This price shall be full compensation for furnishing all labor, materials, tools, equipment, supplies, supervision, and incidentals necessary for cast-in-place concrete described by the contract documents.

**END OF SECTION**

## SECTION 03 53 00

## Concrete Topping

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Cement-based self-drying, self-leveling topping for fast track resurfacing, smoothing or leveling of concrete.

B. Related Sections:

A. Section 03 10 00, Concrete Forming and Accessories.

B. Section 03 30 00, Cast-in-Place Concrete.

### 1.02 REFERENCES

A. ACI - American Concrete Institute:

1. ACI 301 – Standard Specifications for Structural Concrete

2. ACI 302.1 – Guide for Concrete Floor and Slab Construction

3. ACI 308 – Guide to Curing Concrete

B. ASTM - ASTM International (formerly American Society for Testing and Materials):

1. ASTM C 171 – Standard Specification for Sheet Materials for Curing Concrete

2. ASTM C 1315 – Liquid Membrane-Forming Compounds Having Special Properties of Curing and Sealing Concrete.

3. ASTM C 109M, Compressive Strength Air-Cure Only.

4. ASTM C348, Flexural Strength of Hydraulic-Cement Mortars.

5. ASTM F2170, Relative Humidity in Concrete Floor Slabs Using in situ Probes.

6. ASTM F1869, Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

7. ASTM F1869, Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

## 1.03 NOT USED

## 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Product Data: Submit manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.

   2. Storage and handling requirements and recommendations.

   3. Installation methods.

C. Qualification Data:

   1. Submit qualification data for installer.

## 1.05 QUALITY ASSURANCE

A. Installation must be completed by a factory-trained applicator using mixing equipment and tools approved by the manufacturer.

B. Product must have a hydraulic cement-based inorganic binder as the primary cement binder to include Portland cement per ASTM C150: Standard Specification for Portland Cement and other specialty hydraulic cements. Gypsum-based products are not acceptable.

C. Floor Finish: “Nonslip finish” in combination with a “troweled finish” or fine “broom finish” conforming to applicable requirements of ACI 301.

D. Floor Tolerance: “Flat” tolerance conforming to ACI 117.

E. Application of the non-slip floor coating shall be in accordance with the written or printed instructions and recommendations of the manufacturer.

## 1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.

B. Store products in a dry area with temperature maintained between 50° and 85° F, and protect from direct sunlight.

## 1.07 PROJECT CONDITIONS

A. Do not install material below 50° F surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section.

# PART 2 - PRODUCTS

## 2.01 MATERIALS

A. Cement-based Self-Leveling, Self-Drying Topping:
   1. Acceptable Products: ARDEX SD-T, by ARDEX Engineered Cements; Deep Patch, by Surecrete; or approved equal.

   2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F and 50% +/-5% relative humidity:

      a. Compressive Strength: 6100 psi at 28 days, ASTM C109M.
      b. Flexural Strength: 1200 psi at 28 days, ASTM C348.

B. Primer: per manufacturer’s recommendation.

C. Water: Clean and free from deleterious amounts of oils, acids, alkalis, salts, chlorides, or organic materials.

D. Sealer: per manufacturer’s recommendation.

E. Non-Slip Coating: per manufacturer’s recommendation.

# PART 3 - EXECUTION

## 3.01 PREPARATION

A. Prepare substrate in accordance with manufacturer’s instructions.

1. All concrete subfloors must be sound, solid, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker before priming. Mechanically clean if necessary using shot blasting or other. Acid etching and the use of sweeping compounds and solvents are not acceptable.

2. All cracks in the subfloor shall be repaired to minimize telegraphing through the topping.

3. Substrates shall be inspected in accordance with ASTM F1869 or ASTM F2170 and corrected for moisture or any other conditions that could affect the performance of the topping or sealer.

## 3.02 INSTALLATION

A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.

C. Priming: Comply with manufacturer's printed instructions.

D. Mixing: Comply with manufacturer's printed instructions.

E. Application: Comply with manufacturer's printed instructions and the following.

1. Topping may be installed at a minimum thickness of 1/8” and up to 2” over large areas neat, and can also be tapered to match existing elevations.

2. Pour or pump the liquid topping and spread in place with spreader, use the smoother and featheredge to touch-up. Wear non-metallic cleats to avoid leaving marks in the liquid topping.

F. Curing: Dry time prior to sealer application varies by sealer type and thickness of application. Follow manufacturer’s recommendation for dry time prior to the installation of the sealer.

G. Sealing: For areas to receive heavier traffic, sealing should be done using an appropriate wear protection coating. As the performance of coating systems varies greatly, the installer is responsible for assessing the suitability of these coatings.

1. If a waterborne sealer is to be applied at a thickness not-to-exceed a total of 20 mil (0.5mm), the coating can be applied as soon as the surface is hard (2 to 3 hours At 70°F/21°C).
2. When using a solvent-borne or 100% solids coating applied at a total thickness of 20 mils (0.5 mm) or less, the surface must cure for a minimum of 24 hours at 70°F (21°C).

G. Non-Slip Coating: Product and application per manufacturer's recommendation.

## 3.03 PROTECTION

A. Protect the work until Substantial Completion.

## 3.04 CLEANUP

A. Remove rubbish, debris, and waste materials and legally dispose of off project site.

# PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. No separate measurement will be made for the work of this section.

## 4.02 PAYMENT

A. Payment for the work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

## SECTION 03 63 00

## Epoxy Grouting

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. High performance epoxy grout materials.
2. Placement procedures.
3. Finishes.

B. Related Sections:

1. Various sections for cementitious non-shrink grouting.

### 1.02 DEFINITIONS

A. High Performance Epoxy Grout System: Pre-packaged three-component, non-shrink, non-cementitious, 100 percent solids precision grout system, compatible with high-impact and dynamic loading, high vibration, and chemical resistance, suitable for machinery and rail applications.

B. Three-component system shall consist of thermosetting epoxy resin, hardener, and aggregate in separate containers or lined bags.

### 1.03 REFERENCES

A. ASTM International:

1. ASTM C307 – Standard Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacings.
2. ASTM C531 – Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
3. ASTM C579 – Standard Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
4. ASTM C580 – Standard Test Method for Flexural Strength and Modulus of Elasticity of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.

5. ASTM C827 – Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.

6. ASTM C882 – Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.

7. ASTM C1064 – Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.

8. ASTM C1077 – Standard Test Method for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.

9. ASTM C1181 – Standard Test Methods for Compressive Creep of Chemical-Resistant Polymer Machinery Grouts.

10. ASTM E329 – Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.

B. SSPC – Society for Protective Coatings:

1. SSPC-SP 6 – Commercial Blast Cleaning.

## 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Product Data: For each type of manufactured material and product indicated.

C. Material Certificates: Signed by manufacturer certifying that epoxy grout system complies with requirements.

D. Test data from a laboratory listed in the ASTM Directory of Testing Laboratories that material complies with requirements in Warranty and Performance Criteria articles of this section.

## 1.05 QUALITY ASSURANCE

A. Installer Qualifications: Experienced installer having minimum 5 years' documented experience in industrial or transit applications similar in material, design, and extent to that indicated.

B. Manufacturer Qualifications: Manufacturer shall be ISO 9001 certified and have at least five years' documented experience in the manufacture of precision epoxy-based machinery grout.

1. Manufacturer shall maintain records of all sands, aggregate, resin, and hardener used. All containers of finished product shall have a code marking so that the source of all materials can be traced and verified as meeting the manufacturer's standards.

2. Manufacturer shall maintain test records on production runs and retain them for at least one year. Shipping tickets shall be maintained at the plant and at the main office for all shipments.

C. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM 329 to conduct the testing indicated, as documented according to ISO 17025.

D. Source Limitations:

1. Obtain all epoxy grout from the same manufacturer. All pre-packaged components shall be for the same type of epoxy grout.

2. Materials shall be in original unopened packaging, clearly labeled with the manufacturer's identification and printed instructions.

3. Expended shelf life of components shall not have exceeded six months or 25 percent of total shelf life, whichever is less.

E. Publications: Comply with the following, unless more stringent provisions are indicated:

1. California Building Code as adopted by local authorities having jurisdiction.

## 1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle bags to prevent loss of product, or contamination by water or other materials.

B. Store epoxy grout components at 70 +/- 5 deg F in a dry environment.

C. Immediately remove from site, and replace at no additional cost to Owner, leaking resin or hardener cans and material that becomes damp or otherwise defective.

D. Owner and Engineer reserve the right to reject damaged, contaminated, or expired product; replace such product at no additional cost to Owner.

## 1.07 WARRANTY

A. Manufacturer's warranty that the epoxy grout shall permanently maintain its initial placement volume, if placed according to manufacturer's instructions, when tested in accordance with ASTM C827.

## PART 2 - PRODUCTS

### 2.01 GENERAL

A. Where products or manufacturers are listed, make submittals for proposed comparable products or substitutions in accordance with Section 01 60 00, Product Requirements. or Section 01 25 00, Substitution Procedures.

### 2.02 MATERIALS

A. Basis of Design: Sikadur 42 Grout-Pak by Sika Corporation.

B. Products: Subject to compliance with requirements, provide pre-packaged high performance epoxy grout system by one of the following manufacturers, or equal approved as a substitution:

1. Sikadur 42 Grout-Pak by Sika.
2. Masterflow CP Plus, BASF Building Systems.
3. E3-HP High Performance Epoxy Grout System, Euclid Chemical Company.

### 2.03 PERFORMANCE CRITERIA

A. Grout material shall meet the following typical performance criteria when cured at 73 deg F (23 deg C), as determined by the below-referenced ASTM standards:

1. Effective Bearing Area: 95 percent minimum.
2. Tensile Strength, ASTM C307: 2100 psi minimum.
3. Flexural Strength, ASTM C580: 3600 psi minimum.
4. Coefficient of Expansion, ASTM C531: 25 x $10^{-6}$ in/in/deg F maximum.
5. Bond Strength to Concrete: 3500 psi minimum or concrete failure.
6. Compressive Strength, ASTM C579 B, 1 Day: 10,000 psi minimum.
7. Compressive Strength, ASTM C579 B, 7 Days: 13,500 psi minimum.

## PART 3 - EXECUTION

### 3.01 SURFACE PREPARATION

A. Surfaces to be in contact with epoxy grout, particularly baseplates, shall be free of rust, oil, grease, laitance, and other contaminants.

B. Concrete shall be clean, sound, dry (visibly free of surface moisture), and roughened to ensure a good bond. Do not wet concrete substrate.

C. Install epoxy grout after concrete slabs and pit walls have achieved their design strength, unless otherwise approved in writing by Engineer.

D. Provide an SSPC-SP 6 (“bare metal”, medium sanding) commercial finish on all metal surfaces to ensure proper adhesion.

### 3.02 FORMWORK

A. Provide a chamfered finish between metal surface (track pedestal, rail base, or rail pad) and concrete slab or pit wall. Epoxy cannot be trimmed after set. Chamfer strips must be built into forms.

B. Construct formwork of rigid nonabsorbent materials, securely anchored, liquid tight, and strong enough to resist forces developed during grout placement. Provide 3 to 5 inch clearance between formwork and baseplate to allow for headbox. On remaining sides, provide clearance of 1 to 2 inches. Treat areas where bond is not desired with paste wax or polyethylene.

C. Clean forms and adjacent surfaces to receive epoxy grout. Remove chips, wood, sawdust, dirt, and other debris just before placing grout.

D. Retighten forms before placing epoxy grout, as required to prevent leaks and maintain proper alignment. Make forms liquid tight.

E. Line forms with polyethylene for easy grout release. Alternately, carefully wax contact surfaces of forms with two coats of heavy-duty paste wax, according to manufacturer’s written instructions, before placing reinforcement.

F. Locate expansion joints on two to three foot centers.

### 3.03 REMOVING AND REUSING FORMS

A. Formwork may be removed after cumulatively curing at minimum 50 deg F for 24 hours after placing epoxy grout, provided grout has sufficiently hardened to avoid damage by form removal operations.

B. Clean and repair surfaces of forms reused in the work. Split, frayed, delaminated, or damaged form facing material is not acceptable for exposed surfaces. Apply new polyethylene liner or re-apply paste wax if required, according to manufacturer's written instructions.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed surfaces.

## 3.04 AGGREGATE CONTENT

A. Use maximum aggregate content of epoxy grout system whenever possible.

B. Do not reduce aggregate content of epoxy grout system beyond manufacturer's recommendations.

C. For increased flowability in cold temperatures, tight clearances, or long flow distances, aggregate content may be reduced to not less than 80 percent of manufacturer's standard aggregate amount (i.e., to not less than 4 bags for a 5 bag system), upon approval of Engineer.

D. Obtain from manufacturer data for epoxy grout at reduced aggregate content and submit to Engineer for approval.

## 3.05 MIXING

A. For optimum performance, condition all components to between 70 deg F and 80 deg F prior to use. Mix components in accordance with manufacturer's written instructions. For large volume placements, use a mortar mixer with moving blades.

B. Provide adequate ventilation, and protect against contact with skin and eyes, during mixing and placement of product.

C. Do not overmix. Avoid excessive or rapid mixing as they will cause foaming and result in voids and reduced effective bearing area.

D. To maintain proper proportions of components, mix full units only. Do not use partial units.

## 3.06 PLACEMENT PROCEDURES

A. Bases and Foundations: Provide bases and foundations as shown on Drawings. Set anchor bolts for track pedestals. Cover shims, wedges, and blocks which are to be removed with putty, grease, or similar non-binding material to prevent grout from adhering.

B. Place grout in accordance with manufacturer's written instructions. Check placement temperature of materials to estimate the time available for placing grout. Do not exceed manufacturer's recommended working time of mixed product.

C. Flowability and strength gain are adversely affected by lower temperatures. Monitor ambient conditions. Do not place epoxy grout at temperatures below 50 deg F or above 90 deg F, without approval of the Engineer nor without supervision of grout manufacturer's representative. If grouting is to be done when ambient temperatures are below 50 deg F, follow additional recommendations of grout manufacturer's technical service department or on-site representative.

D. Do not add solvents, or vary the ratio of components, to increase flowability.

E. Elimination of voids and cold joints:

1. Place grout in a manner that will assure the filling of all spaces and intimate contact of grouting materials with the surfaces to be grouted.

2. Place grouting from one side to the other to avoid trapping air, maintaining contact with the bottom of the baseplate at all times.

3. Place grout rapidly and continuously so as to avoid cold joints and voids under the baseplate.

4. Mix and place additional batches quickly to avoid blockages and cold joints.

## 3.07 POST-PLACEMENT PROCEDURES AND CLEAN-UP

A. Final finishing of exposed surfaces may be aided by using a solvent wiped trowel just before material becomes unworkable.

B. Clean baseplates and surrounding concrete to remove excess epoxy material.

C. Protect freshly placed epoxy grout from excessively cold or hot temperatures, in accordance with manufacturer's written instructions.

D. In no case shall any surface in contact with grout be allowed to fall below 50 deg F for a minimum of 48 hours.

## 3.08 SURFACE REPAIRS

A. Defective Grout: Repair and patch defective areas when approved by Engineer, in accordance with manufacturer's written instructions. Remove and replace epoxy grout that cannot be repaired and patched to Engineer's approval.

B. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. On surfaces exposed to view, repair defects in accordance with manufacturer's written instructions.

## 3.09 FIELD QUALITY CONTROL

A. A representative of the epoxy grout manufacturer shall be on-site to supervise mixing and placement of the epoxy grout during the first two days of such operations, and subsequently if requested by Engineer.

B. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during epoxy grout placement. Sampling and testing for quality control may include those specified in this article.

C. Testing Services: Testing of samples of fresh epoxy grout obtained according to ASTM C579 Method B shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of grout mix exceeding 0.5 cu. yd. but less than 2 cu. yd., plus one set for each additional 1 cu. yd. or fraction thereof.

    a. When frequency of testing will provide fewer than 2 each EBA and compressive strength tests for each day, conduct testing from at least 2 randomly selected batches.

2. Epoxy Temperature: ASTM C1064; one test hourly when air temperature is 40 degrees F and below and one when 80 degrees F and above, and one test for each sample.

3. Effective Bearing Area (EBA) Field Quality Test:

    a. Tests to be conducted by Owner's testing agency, or by Contractor and witnessed by Owner's representative or Engineer.

    b. Fill a 2 inch by 4 inch cylinder or can with the freshly mixed epoxy grout until it is slightly overfilled. Carefully place a glass plate (sprayed with silicone release) on top of the cylinder so as to avoid air entrapment, and place a weight on top of the plate. If air is entrapped, mark the locations of the voids on the glass plate.

    c. Twenty-four hours after placement, remove the plate and inspect the sample for voids by probing with a sharp instrument. If, after eliminating the effect of the trapped voids, the EBA is less than 95 percent, remove and replace the epoxy grout at no cost to OWNER.

4. Compression Test Specimens: ASTM C579 Method B; cast and laboratory cure one set of four standard specimens for each composite sample.

    a. Any evidence of unusual accumulation of large aggregate in the bottom portion of a specimen shall be cause for rejection of the epoxy grout.

5. Compressive Strength Tests: ASTM C579 Method B; test two laboratory-cured specimens at 1 day and 7 days.

    a. Test two field-cured specimens at 1 day and 7 days.

    b. A compressive strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.

C. When strength of field cured blocks is less than 85 percent of companion laboratory cured blocks, evaluate operations and provide corrective procedures for protecting and curing in place concrete.

D. Strength of each mix will be satisfactory if every average of any three consecutive compressive strength tests equals or exceeds specified compressive strength and no compressive strength test value falls below specified compressive strength by more than 500 psi.

E. Report test results in writing to Engineer, grout manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain project identification name and number, date and ambient temperature of grout placement, name of testing and inspecting agency, location of grout in work (building column grid reference, or STA reference), design compressive strength at 7 days, mix proportions and materials, compressive breaking strength, and type of break for both 1 and 7 day tests.

F. Additional Tests: Testing and inspecting agency shall make additional tests of epoxy grout when test results indicate that effective bearing area, compressive strengths, or other requirements have not been met, as directed by Engineer.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. No separate measurement will be made for the work of this section.

### 4.02 PAYMENT

A. Payment for the work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

# SECTION 05 12 23.13

# Welded Stud Connectors

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Welded stud connectors.

B. Requirements apply to other sections which require stud connectors, anchor studs, stud shear connectors, and similar items.

### 1.02 NOT USED

### 1.03 NOT USED

### 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Product Data: Submit following items for information only if requested; however, maintain copies of the following readily available at the site whenever welded stud connectors are being installed:

1. Certified evidence that stud bases are qualified in accordance with Code.

2. Copies of building department approvals for all studs, stud bases, and arc shields.

3. Stud manufacturer's installation instructions with a complete listing, by manufacturer and model, of stud welding equipment approved by stud manufacturer.

C. Welding certificates.

D. Samples: As requested.

## 1.05 QUALITY ASSURANCE

A. Furnish studs and stud bases currently qualified in accordance with Code, and install in accordance with procedures conforming to procedure qualification tests and research reports approved by authorities having jurisdiction. Employ welding mechanics skilled, and having documented work experience, in installing the required studs and who are currently qualified.

## 1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Protect materials from damage during shipping, handling, and storage at the site. Deliver studs to site in unbroken sealed packages bearing manufacturer's name and label identifying the contents.

# PART 2 - PRODUCTS

## 2.01 STUD CONNECTORS

A. Standard product steel stud units intended for welding by automatically timed stud-welding equipment, furnished complete with an arc shield (ferrule) of heat-resistant ceramic or equivalent for all studs and, for studs 5/16 inch diameter or larger, a deoxidizing and arc stabilizing flux; no studs painted, galvanized, or cadmium plated prior to welding and all finished by cold heading, cold rolling, or machining; all of uniform quality and condition, free of injurious laps, fins, seams, cracks, twists, bends not indicated, rust, rust pits, scale, oil, or other injurious defects or substances.

B. Stud Steel: Furnish end-welding studs manufactured of steel conforming to ASTM A108, C-1010 through C-1020 cold-drawn steel of minimum 60,000 psi tensile strength with 20 percent elongation in 2 inches and 50 percent area reduction.

# PART 3 - EXECUTION

## 3.01 INSPECTION

A. Verify that galvanizing on steel deck does not exceed the zinc coating approved for stud installation. Report in writing all conditions that prevent or interfere with the proper installation of studs including loose steel decking or improper fitting.

## 3.02 PREPARATION

A. Conform to 2019 California Building Code.

B. Cleaning: Clean surfaces to receive the studs of paint, scale, rust, and other injurious substances by wire brushing, peening, prick-punching, grinding, or other method as required to produce clean bare substrates.

C. Preparation for Replacement Studs and Repairs: Repair steel surfaces as follows wherever a defective stud is removed. Make area where a stud is removed flush and smooth if the surface remains exposed in the work. Complete repairs before installing a replacement stud on a defect area.

1. Areas Subject To Tensile Stress: Make the area flush and smooth. If the base metal is pulled out by stud removal, fill pocket by shielded metal-arc welding conforming to AWS D1.1 using low-hydrogen electrodes, and grind the weld surfaces flush.

2. Areas Subject To Compression: Where any stud failures are confined to shanks or fusion zones of the studs, a new stud may be installed adjacent to the defective area in lieu of repairing defective area and installing a replacement stud, subject to approval. If metal is pulled out of base metal, fill pocket as specified above for tensile stress areas except, if the defect depth is not more than the lesser of 1/8 inch or 7 percent of base metal thickness, the defect may be faired by grinding in lieu of weld filling.

## 3.03 STUD WELDING

A. Conform to Code and Building Department approvals, approved submittals, and requirements herein.

B. Welding Equipment: Furnish automatically timed stud-welding equipment and a suitable power source, of type and manufacturer listed as approved by the stud manufacturer. Interlock the welding equipment supplying current to two or more stud-welding guns so that only one gun can operate at a time and so that power source has fully recovered from making one weld before another weld is started.

C. Installation: Do not install studs on wet surfaces, nor any studs showing defects, rust, rust pits, scale, oil, or other deleterious substance. Hold the steel decking tight to the supports prior to stud installation. Install studs promptly after cleaning and preparation. Hold welding gun in correct position and without movement until the weld metal has solidified. Break

and remove arc shields after welding. Produce welded studs free from any defect or substance that interferes with intended functions.

1. Placing Locations: Individually space shear stud connectors along the beam with excess double studs spaced symmetrically from each end of the beam. Place adjacent studs on centers not closer than 3 inches transversely and not closer than 4-1/2 inches longitudinally, on centers. Provide minimum distance between edges of the shear stud bases and flange edges equal to the stud diameter plus 1/8 inch, but minimum 1-1/2 inch clearance wherever possible. Location accuracy of other types of studs shall permit the assembly of attachments without alterations or reaming.

2. Stud Lengths: Stud lengths indicated or noted are minimum acceptable net lengths after welding. If reduction in length of a stud as it is welded is such that length of the stud is more than 1/16 inch greater than that specified by stud manufacturer, discontinue stud installation until the cause is determined and eliminated and pre-production testing is satisfactorily repeated.

3. Defective Fillets: Any stud not showing a full 360 degree weld fillet after welding may be repaired by welding a 3/16 inch fillet weld in lieu of missing weld fillet in accordance with AWS D1.1 using low-hydrogen electrodes.

## 3.04 FIELD QUALITY CONTROL

A. Inspection: Perform pre-production testing, welded stud installation, and production testing under continuous inspection of the testing laboratory welding inspector. In addition to standard reports, welding inspector's reports shall detail the location of all defective studs with the repair or replacement action taken, damage resulting from the stud installation, and all defects and unusual occurrences.

B. Exception: Inspection and testing is waived for studs connecting only non-structural and non-stressed finish materials.

C. Pre-Production Testing: The following tests are required for each welding equipment power source at start of each production period (time interval from start-up to any shutdown of any stud-welding equipment), at the start of any new welding procedure, and after any change in the welding procedure.

1. Pre-Production Tests - Stud Shear Connectors: After cooling, test the first two studs on a member by hammer bending to a 45 degree angle.

If failure occurs in the weld zone of either stud, correct the procedure, and weld and bend test two more studs on the member. If either of the second two studs fails, continue additional welding on separate materials until two consecutive studs are tested and found satisfactory. Then weld two studs to the same member, bend test, and find satisfactory before any more studs are welded to the member.

2. Pre-Production Tests For Studs Other Than Shear Connectors: Weld two studs to separate material in the same general position (such as flat, vertical, sloping, or overhead) and of similar steel material and thickness as members to receive studs. After cooling, hammer bend the studs to a 30 degree angle. If failure occurs in any stud shank, ascertain and correct the cause before making further welds. If failure occurs in the weld zone of either stud, correct the procedure and successfully weld and test two successive studs before any studs are welded to members.

D. Production Inspection and Testing:

1. Inspection of Stud Shear Connectors: After cooling, test at least one stud on each steel member by hammer bending to a 15 degree angle, or test each stud by striking twice with a 6-pound hammer to verify that quality welds are obtained. If failure occurs either in weld zone or stud shank, follow method of correction as required herein for pre-production testing until successful installations are produced, and replace all defective studs. Test all those studs (a) not showing full 360 degree fillet weld or (b) repaired by welding, (c) replacement studs, and (d) studs in which the reduction in length is less than correct by hammer bending to a 15 degree angle. For studs showing less than a 360 degree weld fillet, bend the stud in the direction opposite to missing fillet metal. Remove and replace studs that crack in the weld zone, base metal, or the shank under inspection and testing or under subsequent straightening.

2. Stud Inspection Other Than Shear Connectors: Test not less than one stud in every 100 studs by hammer bending to a 15 degree angle or, if threaded, torque test with a calibrated torque wrench to an approved value for stud diameter and thread in an approved device. If the stud fails, correct the welding procedure as required herein for pre-production testing and bend or torque test two more in-place studs. If either of the two second studs fails, all studs represented by the tests shall be bend or torque tested, or shall be rejected and replaced. Extent of additional inspection and testing for critical structural connections shall be as required by building department and approved by structural engineer.

E. Straightening: Leave in a bent condition those stud shear connectors and shear transfer devices that are bent less than 16 degrees and are free of any failure provided no part of studs is within 1 inch of an exposed concrete surface. Perform stud bending and straightening without heating and before the completion of each day's welding operations. Obtain inspection and approval of straightened studs before covering.

F. Load Testing: Testing laboratory shall load test studs to the extent and by the methods directed.

## PART 4 – MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. No separate measurement will be made for the work of this section.

### 4.02 PAYMENT

A. Payment for the work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

## SECTION 05 60 00

## Miscellaneous Metal Fabrications

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section includes:

1. Rough Hardware.
2. Metal Railings.
3. Steel Gates and Fences.
4. Rolling Gate Track.
5. Latchkey and Lockset.
6. Accessories Required for a Complete Installation.

B. Related Sections:

1. Section 09 91 00, Painting.
2. Section 09 96 00, High Performance Coatings.

### 1.02 NOT USED

### 1.03 NOT USED

### 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Shop Drawings: Detail fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

1. Provide templates for anchors and bolts specified for installation under other work.

C. Samples: Upon Engineer or Architect's request.

D. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.

E. Welding Certificates: Copies of certificates for welding procedures and personnel.

## 1.05 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Accessibility Requirements:

a. California Building Code.

b. ADA Standards for Accessible Design, 28 CFR Part 36, Appendix A.

2. California Building Code as adopted by local authorities having jurisdiction.

B. Fabricator Qualifications: Firm having minimum 10 years' documented experience in successfully producing similar metal fabrications, and with sufficient production capacity to produce required units without causing delay in the work.

C. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, Structural Welding Code—Steel.

2. AWS D1.6, Structural Welding Code—Stainless Steel.

3. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

## 1.06 PROJECT CONDITIONS

A. Field Measurements: Where metal fabrications are indicated to fit walls and other construction, verify dimensions by field measurements before

fabrication and indicate measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.

1. Established Dimensions: Where field measurements cannot be made without delaying work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate construction to ensure that actual dimensions correspond to established dimensions. Allow for trimming and fitting.

## 1.07 COORDINATION

A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, to be embedded in concrete or masonry. Deliver such items to site in time for installation.

# PART 2 - PRODUCTS

## 2.01 METALS

A. Metal Surfaces: For metal fabrications exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

B. Ferrous Metals:

1. Steel Plates, Shapes, and Bars: ASTM A36.

2. Steel Tubing: Cold formed steel tubing complying with ASTM A500.

3. Steel Pipe: ASTM A53, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

4. Rolled Steel Floor Plate: ASTM A786, rolled from plate complying with ASTM A36 or ASTM A283, Grade C or D.

.

5. Stainless Steel Sheet, Strip, and Plate: ASTM A240 or ASTM A666, Type 316L.

6. Stainless Steel Bars and Shapes: ASTM A276, Type 316L.

7. Slotted Channel Framing: Cold formed metal channels with flange edges returned toward web and with 9/16 inch wide slotted holes in webs at 2 inches o.c.

    a. Width of Channels: 1-5/8 inches.

    b. Metal and Thickness: Galvanized steel complying with ASTM A653, structural quality, Grade 33, with G90 coating; 0.079 inch nominal thickness.

    c. Metal and Thickness: Uncoated steel complying with ASTM A1011, 0.0677 inch minimum thickness.

    d. Finish: Hot dip galvanized after fabrication.

8. Cast in Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E488, conducted by a qualified independent testing agency.

9. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

C. Aluminum:

1. Aluminum Extrusions: ASTM B221, alloy 6063-T6.

2. Aluminum Alloy Rolled Tread Plate: ASTM B632, alloy 6061-T6.

3. Aluminum Rivets: ASTM B316, alloy 6053-T4 or 6061-T6.

4. Aluminum Plate: Diamond plate panels, minimum 3/16 inch thick.

5. Fasteners: Use fasteners made of same basic metal as fastened metal except use galvanized fasteners complying with ASTM A153 for exterior aluminum units. Do not use corrosive metals or metals incompatible with metals joined.

D. Paint:

1. High Performance Coatings: See Section 09 96 00 High Performance Coatings, for painting of gates and fences, and all steel items exposed to the exterior.

2. Paint: See Section 09 91 00 Painting, for all other steel items indicated to be painted.

3. Galvanizing Repair Paint: See Section 09 96 00 High Performance Coatings for additional information.

4. Bituminous Paint: Cold applied coal tar mastic complying with SSPC-Paint 33 and containing no asbestos fibers, or cold applied asphalt emulsion complying with ASTM D1187.

E. Fasteners: Provide Type 316 stainless steel fasteners for exterior use and for use with stainless steel interior elements, and zinc plated fasteners with coating complying with ASTM B633, Class Fe/Zn 5, where built into exterior walls. Select fasteners for type, grade, and class required.

1. Bolts and Nuts: Regular hexagon head bolts, ASTM A307, Grade A; with hex nuts, ASTM A563; and, where indicated, flat washers.

2. Anchor Bolts: ASTM F1554, Grade 36.

3. Machine Screws: ASME B18.6.3.

4. Lag Bolts: ASME B18.2.1.

5. Wood Screws: Flat head, carbon steel, ASME B18.6.1.

6. Plain Washers: Round, carbon steel, ASME B18.22.1.

7. Lock Washers: Helical, spring type, carbon steel, ASME B18.21.1.

8. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, load equal to six times load imposed when installed in unit masonry and equal to four times load imposed when installed in concrete determined by testing per ASTM E488, conducted by qualified independent testing agency.

a. Material: Carbon steel components zinc plated to comply with ASTM B633, Class Fe/Zn 5.

F. Grout:

1. Nonshrink, Nonmetallic Grout: Factory packaged, nonstaining, noncorrosive, nongaseous cementitious grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications. Subject to compliance with

requirements, provide products of one of the following, or equal approved as a comparable product:

a. Masterflow 928, BASF Building Systems.

b. Hi-Flow Grout, Euclid Chemical Company.

c. Conspec 100 Non-Shrink Non-Metallic Grout, Conspec by Dayton Superior.

G. Concrete Fill:

1. Concrete Materials and Properties: Comply with requirements of Section 03 30 00, Cast-in-Place Concrete, for normal weight, air entrained, ready mix concrete with minimum 28 day compressive strength of 3000 psi unless noted otherwise on drawings or in specifications.

## 2.02 FABRICATION

A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Shear and punch metals cleanly and accurately. Remove burrs.

C. Ease exposed edges to a radius of approximately 1/32 inch. Form bent metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

E. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

F. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

G. Fabricate joints to weather to exclude water or provide weep holes where water may accumulate.

H. Allow for thermal movement resulting from maximum change (range) in ambient and surface temperatures of 120 deg F, ambient; 180 deg F, material surfaces by preventing buckling, opening up of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.

I. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

J. Remove sharp or rough areas on exposed traffic surfaces.

K. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. For exposed fasteners, use Phillips flat head (countersunk) screws or bolts. Locate joints where least conspicuous.

L. Metal Fence and Gate: Fabricate fence and gate for locations shown in the Drawings. Dimensions, spacings, details, and anchorages as indicated.

1. Prior to fabrication, field verify required dimensions.

2. Materials and Finish: Contractor to verify in field the materials and finish of the existing steel fence and gate. Match new fence and gate to the existing.

3. Dimensions: Contractor to verify in field the dimensions of the existing steel fence and gate. Match new fence and gate to the existing.

4. Cast concrete footings in accordance with section 03 30 00 – Cast-in-Place-Concrete, and as detailed on Drawings and approved shop drawings.

M. Metal Railings:

1. Posts and Rails:

a. Material: Extruded bars and tubing per ASTM B 221, Alloy 6063-T5/T52, 6005-T5 aluminum.

b. Material: Extruded structural pipe and round tubing per ASTM B 429, Alloy 6061-T6 aluminum.

c. Drawn Seamless Tubing per ASTM B 210: Alloy 6063-T832 aluminum.

d. Post Size: 1-1/2 inch (38 mm) schedule 80.

1) Outside Diameter: 1.900 inch (48 mm)

2) Wall: 0.200 inch (5.1 mm)

e. Rail Size: 1-1/2 inch schedule 40:

1) Outside Diameter: 1.900 inch (48 mm)

2) Wall: 0.145 inch (3.7 mm)

f. Plate and Sheet per ASTM B 209: Alloy 6061-T6 aluminum.

g. Base Flange Castings per ASTM B 26/B 26M: Alloy Almag 535.

h. Panel Clips and Structural Fasteners: Alloy 6063-T6 aluminum.

2. Rail Attachment Fittings:

a. Externally connected to the post with anodized aluminum, tubular rivet nuts, and an austenitic 302 alloy stainless steel, hexagon socket, button head, cap screw.

b. Internally connected to the pipe with an internal double tang which is expanded by an austenitic 302 alloy stainless steel, internal and external, reverse knurl, cup point, hexagon socket set screw.

c. Handrail brackets are connected to the underside of the rail with 2 stainless steel, flat countersunk, Type F self-tapping screws conforming to ANSI/ASME methods.

d. Pop rivets, sheet metal screws, and adhesives are not acceptable fastening methods.

5. Pickets:

a. Externally connected to the post with anodized aluminum, tubular rivet nuts, and an austenitic 302 alloy stainless steel, hexagon socket, button head, cap screw.

b. Spacing: 4 inch (102 mm) on centers.

c. Picket Tees: Attached to top and bottom rails with threaded self-tapping machine screws, size ¼-20 UNC x 1 inch (25 mm). Picket tees shall be attached to pickets by friction fit through the use of mechanical or hydraulic pressure.

1) Individual picket tees to have notches allowing escape of any water pressure.

d. Top and Bottom Rail: 1-1/2 inch (38 mm) IPS, Schedule 40, 6063-T6 aluminum.

e. Installed such that no welding or tool marks will be needed or visible, and firmly fixed with no movement allowed.

6. Finishes:

a. Posts and Rails: Anodized per AA-M10C22A41; Architectural Class I, 0.7 mil (0.018 mm) thickness or greater.

1) Color: Clear

b. Fittings: Anodized per AA-M10C22A41; Architectural Class I, 0.7 mil (0.018 mm) thickness or greater.

2) Color: Clear

N. Rolling Gate Track: Provide steel track to match existing track profile and thickness.

## 2.03 FINISHES

A. Comply with NAAMM's Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designating finishes. Finish metal fabrications after assembly.

B. Steel and Iron Finishes:

1. Galvanizing: Hot dip galvanize items as indicated to comply with applicable standard listed below:

a. ASTM A123, for galvanizing steel and iron products.

b. ASTM A153, for galvanizing steel and iron hardware.

2. Preparation for Shop Priming: See Section 09 96 00 for painting of roof ladders

3. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry. Comply with SSPC-PA 1, Shop, Field, and Maintenance Painting of Steel, for shop painting.

4. Stripe paint corners, crevices, bolts, welds, and sharp edges.

## 2.04 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

# PART 3 - EXECUTION

## 3.01 PREPARATION

A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to site.

## 3.02 INSTALLATION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal fabrications to in place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

D. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot dip galvanized after fabrication and are for bolted or screwed field connections.

E. Field Welding:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

## 3.03 ERECTION TOLERANCES

A. Maximum Variation from Plumb: 1/4 inch per story, noncumulative.

B. Maximum Offset from True Alignment: 1/4 inch.

C. Maximum Out of Position: 1/4 inch.

## 3.04 ADJUSTING AND CLEANING

A. Touchup Painting: Comply with requirements of Section 09 91 00, Painting, or Section 09 96 00 High Performance Coatings, for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780.

## PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. No separate measurement will be made for the work of this section.

## 4.02 PAYMENT

A. Payment for the work of this section, will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

## SECTION 06 74 00

## Composite Gratings

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Heavy duty fiberglass molded gratings.

2. Metal frames and supports for fiberglass molded gratings.

3. Accessories required for a complete installation.

### 1.02 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide gratings capable of withstanding imposed structural loads without exceeding the allowable design working stress of the materials involved, including anchors and connections:

1. At Fuel/Service Island: Capable of withstanding HS20 traffic loads.

2. Sidewalks, Vehicular Driveways, Other Traffic Locations: Capable of withstanding HS20 traffic loads.

3. Personnel Platforms and Walkways: Capable of withstanding a uniform live load of 250 lbf/sq. ft. plus dead load.

4. Greater Loads: As required to support equipment or where indicated.

### 1.03 NOT USED

### 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Product Data: Manufacturer's technical data including:

1. Clips and anchorage devices for gratings.

## 1.05 QUALITY ASSURANCE

A. Fiberglass Molded Grating Standards: Comply with applicable requirements of the following:

1. Capable of withstanding HS20 traffic loads.

## 1.06 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations by field measurements before installation. Coordinate fabrication of metal frames and supports for to avoid delays.

## 1.07 COORDINATION

A. Coordinate installation of anchorages for gratings, grating frames, and supports. Furnish setting drawings, templates, and directions for installation. Deliver items to site in time for installation.

# PART 2 - PRODUCTS

## 2.01 MATERIALS

A. Obtain composite grating products from a manufacturer specializing in fabrication of the types of units required, which has tested its units for load-bearing strength and deflection, and has currently published load tables based on recognized testing procedures.

B. Basis of Design: Fibergrate Composite Structures. Subject to compliance with requirements, or equal approved as a substitution.

## 2.02 FIBERGLASS GRATINGS

A. Removable Grating Sections: Include anchors and fasteners of type indicated or, if not indicated, as recommended by manufacturer for attaching to supports.

1. Grating: Heavy Traffic Load

2. Furnish threaded bolts with nuts and washers for securing grating to supports if required based on manufacturer’s specifications.

## 2.03 GRATING METAL FRAMES AND SUPPORTS

A. Steel Frames and Supports: Fabricate from structural steel shapes, plates, and bars of welded construction to sizes, shapes, and profiles indicated and as necessary to receive gratings. Miter and weld connections for perimeter angle frames. Cut, drill, and tap units to receive hardware and similar items.

B. Equip units with integrally welded anchors for casting into concrete or building into masonry.

1. Unless otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps as indicated on the drawings.

C. Galvanize exterior and interior frames and supports.

## 2.04 FINISHES

A. Composite removable grating finish to match fabrication of metal frames and supports.

# PART 3 - EXECUTION

## 3.01 INSTALLING COMPOSITE BAR GRATINGS

A. Install gratings to comply with recommendations of referenced composite grating standards that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.

B. Attach removable units to supporting members with type and size of clips and fasteners indicated or, if not indicated, as recommended by grating manufacturer for type of installation conditions shown.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. No separate measurement will be made for the work of this section.

### 4.02 PAYMENT

A. Payment for the work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

# SECTION 07 90 00

# Joint Protection

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Exterior pavement joint sealants for PCC and AC:

a. Elastomeric sealants:

1) Silicone joint sealants.

2. Preformed Joint backing and other materials.

3. Accessories required for a complete installation.

### 1.02 NOT USED

### 1.03 CALGREEN REQUIREMENTS

A. Adhesives, adhesive bonding primers adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products as specified in subsection B, below.

B. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

C. Refer to Calgreen Code Requirements section for material documentation submittal procedures

## 1.04 SUBMITTALS

A. Product Data: Technical data, materials description, and installation instructions for each compound and filler.

B. Samples: Upon Engineer's request.

C. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing.

D. Compatibility and Adhesion Test Reports:

1. Evidence that materials forming joint substrates and joint sealant backings have been tested for compatibility with and adhesion to joint sealants.

a. Include compatibility with and adhesion to other sealant types at or adjacent to joints as a result of earlier work.

2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

E. Product Test Reports: From qualified testing agency indicating that sealants comply with requirements based on comprehensive testing of current product formulations.

D. Calgreen Code Requirement: Provide the following submittals to Engineer to verify conformance prior to verification by the Enforcing Agency:

1. A summary listing all applicable products used.

2. VOC content of each product used in grams per liter.

3. Material Safety Data Sheets (MSDS) cut sheets for all applicable products used.

4. Product data cut sheets for all applicable products used.

5. Highlighting the VOC limits on all MSDS and product data sheets.

5. Material submittals shall be organized into the following major groupings: adhesives; sealants; caulks; primers.

6. Any other documentation required by the enforcing agency to verify compliance.

F. Manufacturer's Certification: That products supplied comply with applicable SCAQMD VOC limits and environmental regulations.

## 1.05 QUALITY ASSURANCE

A. Installer Qualifications: Installer having minimum 5 years' documented experience in applying sealant systems.

B. Contractor Responsibility: Designate individual trained in the application and use of sealants manufacturer and having minimum 5 years' sealants experience to coordinate and oversee installation of sealants installed by each installing trade.

C. Single Source Responsibility: Obtain each type of joint sealant through one source from single manufacturer.

D. Product Testing: Obtain test results from qualified testing agency based on testing current sealant formulations within the immediate 36 month period.

1. Testing Agency Qualifications: Independent testing agency qualified in accordance with ASTM C1021 to conduct testing indicated and documented according to ISO 17025.

2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C920 and other standard test methods.

3. Test elastomeric sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C920 for adhesion and cohesion under cyclic movement, adhesion in peel, and indentation hardness.

4. Test latex sealants for compliance with requirements specified by reference to ASTM C834 and ASTM C920.

5. Test other sealants for compliance with requirements indicated by referencing standard specifications and test methods.

E. Preconstruction Field Adhesion Testing: Before installing sealants, field test adhesion to joint substrates:

1. Locate test joints where directed by Engineer.

2. Conduct field tests for each application:

    a. Each type of elastomeric sealant and joint substrate.

    b. Each type of non-elastomeric sealant and joint substrate.

    c. Include testing for compatibility with water-repellent coatings and sealers and graffiti-resistant coatings.

3. Notify Engineer 7 days in advance of dates and times when test joints will be erected.

4. Test Method: Test joint sealants by hand pull method:

    a. Install joint sealants in 60 inch long joints using same materials and methods for joint preparation and joint sealant installation required for the completed Work. Allow sealants to cure fully before testing.

    b. Make knife cuts from one side of joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from cross cut end of 2 inch piece.

    c. Use fingers to grasp 2 inch piece of sealant between cross cut end and 1 inch mark; pull firmly at a 90 degree angle or more in direction of side cuts while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.

    d. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.

5. Report whether sealant in joint connected to pulled out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants failing adhesively, retest until satisfactory adhesion is obtained.

6. Evaluation of Preconstruction Field Adhesion Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered

satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

## 1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials in compliance with manufacturer's written instructions to prevent deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

## 1.07 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with installation of sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.

2. When joint substrates are wet.

B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than or greater than those allowed by joint sealant manufacturer for applications indicated.

C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

## 1.08 WARRANTY

A. Installer's Warranty: Written warranty, signed by installer, agreeing to repair or replace elastomeric joint sealants not complying with specified performance and requirements within warranty period.

1. Warranty Period: 2 years from date of Final Acceptance.

B. Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer, agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with specified performance and requirements within specified warranty period.

1. Warranty Period: 20 years from date of Final Acceptance.

C. Specified warranties exclude deterioration or failure of elastomeric joint sealants from the following:

1. Movement of the structure resulting in stresses on sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.

2. Disintegration of joint substrates from natural causes exceeding design specifications.

3. Mechanical damage caused by individuals, tools, or other outside agents.

4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## PART 2 - PRODUCTS

### 2.01 GENERAL

A. Where products or manufacturers are listed, for proposed comparable products and substitutions, requests must be submitted during the solicitation phase in accordance with Instruction to Bidders, Section F, Request for Clarification / approved Equals / Exceptions.

B. Basis of Design and Quality: The specifications are based on products and equipment manufactured by specific manufacturers. It is not intended to limit or restrict products by other manufacturers but to establish a minimum baseline of operational functions to be met. Submit proposals for use of products by other manufacturers as a substitution to Engineer who will render final judgment regarding proposed substituted products.

C. Compatibility: Provide joint sealants, backings, and related materials compatible with one another and with joint substrates under conditions of service and application as demonstrated by sealant manufacturer based on testing and field experience.

D. VOC Emissions: Provide materials complying with VOC limits of SCAQMD.

E. Colors: For exposed materials, provide color as selected from manufacturer's standard colors by Engineer and noted on the submitted schedule of sealants.

1. Notify Engineer in writing of locations requiring exposed sealants that are not noted on the Contractor's schedule of sealants, to obtain a sealant color prior to installation.

2. For concealed materials, provide the natural color that has the best overall performance characteristics.

F. Classification of Sealants: Classified under ASTM C920 according to type, grade, class, and use.

1. Type: S (single component); M (multi-component).

2. Grade: P (pourable, for horizontal joints); NS (non-sag, for vertical joints).

3. Class: 12-1/2, 25, 35, 50, 100/50 (movement capability as a percentage of sealant width in joint). Class 100/50 indicates 100 percent expansion and 50 percent contraction for a total of 150 percent movement. All other classes indicate equal expansion and contraction, so that Class 25 provides 25 percent expansion and 25 percent contraction, etc.

4. Use:

a. Exposure: T (traffic, pedestrian or vehicular); NT (nontraffic); I (immersion).

b. Adhesive Performance (within parameters): M (mortar); G (glass); A (aluminum); O (other materials).

G. Modulus of Elasticity: Measure of tensile strength. Refer to movement Class instead.

H. Hardness: Provide material with Shore hardness as recommended by manufacturer for application shown, unless otherwise indicated.

I. Size and Shape: For preformed materials, provide size and shape recommended by manufacturer for type and condition of joint, and for indicated joint performance or movement.

J. Grade of Sealant:

1. For each application, provide Grade of sealant (traffic or nontraffic) as recommended by manufacturer for particular condition of installation

(locations, joint shape, ambient temperature, and similar conditions), to achieve the best possible overall performance.

2. Grades specified herein are for normal conditions of installation.

K. Sealant Standards:

1. Elastomeric Sealant Standard: Comply with ASTM C920 and other requirements indicated.

L. Nonstaining: Products that have undergone testing according to ASTM C1248 or ASTM C510 and have not stained porous joint substrates.

M. Acid Cure: Chemical cure that results in release of acids; acetoxy cure.

N. Neutral Cure: Chemical cure that does not result in release of acids; alkoxy, methoxy, oxime, moisture, or condensation cure.

## 2.02 ELASTOMERIC SEALANTS

A. Silicone Sealants:

1. Pavement Sealant: Type S, Grade NS, Class 100/50, Use T; neutral cure, resistant to moisture, hardness 80 or greater per ASTM D2240, ozone and UV resistant per ASTM C793, compatible with both concrete and asphalt, minimum 500 percent joint elongation while maintaining adhesion to concrete and asphalt, joint modulus less than 50 psi at 150 percent elongation.

a. Applications: Horizontal joints in concrete or between concrete and asphalt

b. Products: Subject to compliance with requirements, provide the following, or equal approved as a substitution:

1) DOW, Dowsil 890-SL Silicone Joint Sealant

2) Pecora Corporation, Pecora 301 NS non-sag silicone highway and pavement joint sealant.

## 2.06 OTHER MATERIALS

A. Preformed Joint Sealant Backing:

1. Provide nonstaining sealant backings; compatible with joint substrates, sealants, primers, and joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

2. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin) or Type B (consisting of both open- and closed-cell material) as recommended by manufacturer for application, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self adhesive tape where applicable.

C. Miscellaneous Materials:

1. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated under anticipated service conditions, as determined from preconstruction joint sealant substrate tests and field tests.

2. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

# PART 3 - EXECUTION

## 3.01 EXAMINATION

A. Examine joints indicated to receive joint sealants for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.02 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:

1. Remove foreign material from joint substrates interfering with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Concrete, Masonry, Porous Substrate: Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants.

    a. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil free compressed air.

    b. Remove laitance and form release agents from concrete.

3. Nonporous Surfaces: Clean nonporous surfaces with chemical cleaners or means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

## 3.03 INSTALLATION OF JOINT SEALANTS

A. Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Installation of Sealant Backing: Install fillers to support sealants during application and at position required to produce cross sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.

2. Do not stretch, twist, puncture, or tear sealant backings.

3. Remove absorbent sealant backings that become wet before sealant application and replace them with dry materials.

4. Install bond breaker tape behind sealants where sealant backings are not used between sealants and back of joints.

D. Installation of Sealants: Install sealants by proven techniques to comply with the following and at the same time backings are installed:

1. Place sealants in direct contact and fully wet joint substrates.

2. Completely fill recesses provided for each joint configuration.

3. Produce uniform, cross sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealants from surfaces adjacent to joint.

2. Use tooling agents approved in writing by sealant manufacturer and do not discolor sealants or adjacent surfaces.

3. Provide concave joint configuration in accordance with Figure 5A in ASTM C1193.

4. Provide flush joint configuration in accordance with Figure 5B in ASTM C1193, where indicated.

5. Provide recessed joint configuration in accordance with Figure 5C in ASTM C1193, of recess depth and at locations indicated.

    a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

## 3.04 FIELD QUALITY CONTROL

A. Field Adhesion Testing: Field test joint sealant adhesion to joint substrates:

1. Extent of Testing: Test completed elastomeric sealant joints as follows:

    a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and joint substrate.

    b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.

2. Test Method: Test joint sealants by hand pull method described below:

    a. Make knife cuts from one side of joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from cross cut end of 2 inch piece.

    b. Use fingers to grasp 2 inch piece of sealant between cross cut end and 1 inch mark; pull firmly at a 90 degree angle or more in direction of side cuts while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.

    c. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side, and then repeating this procedure for opposite side.

3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field adhesion test log.

4. Inspect tested joints and report on the following:

   a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field- adhesion hand pull test criteria.

   b. Whether sealants filled joint cavities and are free from voids.

   c. Whether sealant dimensions and configurations comply with specified requirements.

5. Record test results in a field adhesion test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.

6. Repair sealants pulled from test area by applying new sealants following same procedures used to originally seal joints. Ensure that original sealant surfaces are clean and new sealant contacts original sealant.

B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements, will be considered satisfactory. Remove sealants failing to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

## 3.05 CLEANING

Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

## 3.06 PROTECTION

Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction

operations or other causes so that sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A No separate measurement will be made for work of this section.

### 4.02 PAYMENT

A. Payment for work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

# SECTION 09 91 00

# Painting

## PART 1 - GENERAL

### 1.01 SUMMARY

A Section Includes:

1. Surface preparation, painting, and finishing of indicated substrates.

2. Shop priming and painting of miscellaneous architectural steel items such as flanges, escutcheons, interior trims, shall be primed and painted per this section.

3. Not included in this section: Steel items referred to throughout the specifications or drawings that are indicated to receive High Performance Coating per 09 96 00.

B Related Sections:

1. Section 09 96 00 High Performance Coatings.

### 1.02 REFERENCES

A. UL – Underwriters Laboratories Inc.

B. FM – FM Approvals.

C. ASTM – ASTM International (formerly American Society for Testing and Materials):

1. ASTM B117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.

2. ASTM D523 – Standard Test Method for Specular Gloss.

3. ASTM D1640 – Standard Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature.

4. ASTM D1653 – Standard Test Methods for Water Vapor Transmission of Organic Coating Films.

5. ASTM D2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

6. ASTM D2486 – Standard Test Methods for Scrub Resistance of Wall Paints.

7. ASTM D2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

8. ASTM D2805 – Standard Test Method for Hiding Power of Paints by Reflectometry.

9. ASTM D3359 – Standard Test Methods for Measuring Adhesion by Tape Test.

10. ASTM D3363 – Standard Test Method for Film Hardness by Pencil Test.

11. ASTM D4060 – Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

12. ASTM D4214 – Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.

13. ASTM D4287 – Standard Test Method for High-Shear Viscosity Using a Cone/Plate Viscometer.

14. ASTM D4541 – Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

15. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

16. ASTM E1347 – Standard Test Method for Color and Color-Difference Measurement by Tristimulus (Filter) Colorimetry

D. SSPC – Society for Protective Coatings (formerly Steel Structures Painting Council):

1. SSPC-SP 1 – Solvent Cleaning.

2. SSPC-SP 2 – Hand Tool Cleaning.

3. SSPC-SP 3 – Power Tool Cleaning.

4. SSPC-SP 6 – Commercial Blast Cleaning.

5. SSPC-SP 7 – Brush-Off Blast Cleaning.

6. SSPC-SP 10 – Near-White Blast Cleaning.

7. SSPC-SP 13 – Surface Preparation of Concrete

E. NACE – NACE International (formerly National Association of Corrosion Engineers):

1. NACE TM0174 – Laboratory Methods for the Evaluation of Protective Coatings and Lining Materials on Metallic Substrates in Immersion Service.

## 1.03 CALGREEN REQUIREMENTS

A. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

B. Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

1. Title 17 may be found at http://ccr.oal.ca.gov/.

C. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification

2. Field verification of on-site product containers

D. Refer to CALGREEN CODE REQUIREMENTS section for additional documentation submittal procedures.

## 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Product Data: Manufacturer's technical data for each paint system specified, including block fillers and primers, including label analysis and instructions for handling, storage, and application of each material proposed for use.

1. Provide paint samples of each specific color, specific coating, finish system and application.

2. List each material and cross reference specific coating, finish system, and application. Identify material by manufacturer's catalog number and general classification.

3. Indicate manufacturer's instructions for special surface preparation procedures and substrate conditions requiring special attention.

4. Manufacturer's certification that products comply with SCAQMD requirements.

C. Certification by the manufacturer that products supplied comply with South Coast Air Quality Management District regulations controlling use of volatile organic compounds (VOCs).

D. Samples: Provide 8-1/2 inches x 11 inches samples of each color, gloss and material to be applied with texture to simulate actual conditions.

E. CALGREEN CODE REQUIREMENT: Provide the following submittals to Engineer to verify conformance prior to verification by the Enforcing Agency:

1. A summary listing all applicable interior products used.

2. VOC content of each in grams per liter.

3. Material Safety Data Sheets (MSDS) cut sheets for all applicable products used.

4. Product data cut sheets for all applicable products used.

5. Highlighting the VOC limits on all MSDS and product data sheets.

6. Any other documentation required by the enforcing agency to verify compliance.

## 1.05 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with referenced ASTM, SSPC, and NACE standards as applicable to the coatings indicated.

2. Comply with Federal and state toxicity and air quality regulations and with Federal requirements on content of lead, mercury, and other heavy metals. Do not use solvents in paint products that contribute to air pollution. Comply with SCAQMD requirements for VOC content.

B. Manufacturer: Company specializing in manufacturing products specified with minimum 5 years' documented experience.

C. Applicator: Company specializing in performing work having minimum 5 years documented experience and approved by manufacturer.

D. Coordination of Work: Review related work in which primers are provided to ensure compatibility of total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

E. Material Quality: Provide manufacturer's best quality trade sale paint material of various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.

## 1.06 PROJECT CONDITIONS

A. Weather Conditions:

1. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

2. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

3. Minimum Application Temperatures for Latex Paints: Between 50 deg F and 90 deg F.

4. Minimum Application Temperature for Solvent Thinned Paints: Between 45 deg F and 95 deg F.

5. Minimum Application Temperature for Varnish Finishes: 65 deg F for interior or exterior, unless required otherwise by manufacturer's instructions.

6. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

B. Provide lighting level of 80 foot candles (860 lx) measured midheight at substrate surface.

C Labels: Do not paint over UL, FM, or other code required labels or equipment name, identification, performance rating, or nomenclature plates.

## PART 2 - PRODUCTS

### 2.01 GENERAL

A. Where products and manufacturers are listed, make submittals for proposed comparable products and substitutions in accordance with Section 01 60 00, Product Requirements, and Section 01 25 00, Substitution Procedures.

### 2.02 MATERIALS

A. Basis of Design and Quality: Selections in finish schedule indicate colors and textures selected for aesthetics and have been approved by Engineer. It is not intended to limit or restrict products by other manufacturers but to establish the aesthetic, technical, and performance requirements to be met. Propose other products as substitutions. Provide the indicated products, or equal approved as a substitution.

1. Manufacturer: For convenience, the Paint Schedule is based upon the below Basis of Design, 100 percent acrylic paint (vinyl acrylic paints not permitted), top of commercial line or better (residential quality paints not permitted); and epoxy coating systems by Tnemec Company. Subject to compliance with requirements, provide products of one of the following, or equal approved as a substitution:

a. Paints:

1) Basis of Design: Sherwin-Williams Company (Pro Industrial Series).

2) Dunn-Edwards Corporation (Sparta series not permitted).

3) Pittsburgh Paints, PPG Industries.

4) Frazee Paints.

5) Tnemec.

6) Keeler & Long International Protective Coatings.

B. Material Compatibility: Provide block fillers, primers, finish coat materials, and related materials recommended by manufacturer and compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

C. Material Quality: Provide manufacturer's best quality commercial paint material of various coating types specified. Vinyl acrylic and residential paints are not permitted. Paint material containers not displaying manufacturer's product identification are not acceptable.

1. Proprietary Names: The Paint Schedule is based on paint systems of a single manufacturer. Use of manufacturer's proprietary systems to designate materials and colors is not intended to imply that only products named are required to be used to the exclusion of equivalent products of specified manufacturers.

D. Coatings: Ready mixed, except field catalyzed coatings. Process pigments to soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; good flow and brushing properties; capable of drying or curing free of streaks or sags.

E. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners, and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

F. Patching Materials: Latex filler.

G. Fastener Head Cover Materials: Latex filler.

H. Primer:

1. Priming for Steel Items: All steel items that are to receive a finish paint shall shall receive the following primer. Use types complying with SCAQMD VOC limits.

a. For Above-Grade Applications: Lead-free, zinc-rich primer.

1) Basis of Design: Tnemec Primer 904 H2O.

2) Subject to compliance with requirements, provide the indicated product, a comparable product by one of the following, or equal approved as a comparable product:

I. Tnemec Company.

II. Keeler & Long, div. PPG Industries.

III. International Protective Coatings, div. International Paint.

b. Steel items visually exposed shall receive finish paint per this section, or as noted on the drawings.

c. Use this product for galvanizing repair compound of hot-dipped galvanized materials.

d. Hot-dipped galvanized materials that are to be painted shall be primed per the see paint schedule indicated in this section.

I. Colors: Provide color selections made by the Engineer from manufacturer's full range of standard colors.

1. Standard Gloss Ranges: Comply with ASTM D523.

a. Flat: Below 15 percent, measured at 85 degree meter.

b. Eggshell: 5 percent to 20 percent, measured at 60 degree meter.

c. Satin: 15 percent to 35 percent, measured at 60 degree meter.

d. Semigloss: 30 percent to 65 percent, measured at 60 degree meter.

e. Gloss: Over 65 percent, measured at 60 degree meter.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

A. Verify that substrate conditions are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are specified maximums:

1. Concrete Floors: 8 percent.

E. Notify Engineer of anticipated problems using materials specified over substrates primed by others.

### 3.02 PREPARATION

A. Prior to applying paint over the entire surface, paint surface with proposed color, specific coating, finish system and application. Dimensions of painted area shall be at least 3 ft by 3 ft, as space allows.

B. Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

C. Correct defects and clean surfaces which affect new work. Remove existing coatings exhibiting loose surface defects.

D. Seal with shellac and seal marks which may bleed through surface finishes.

E. Cleaning: Before applying paint or other surface treatments, clean substrates of substances impairing bond of various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from cleaning process will not fall on wet, newly painted surfaces.

F. Impervious Surfaces: Remove mildew by scrubbing with solution of trisodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified. Provide barrier coats over incompatible primers or remove and reprime.

1. Cementitious Materials: Prepare concrete, concrete masonry block, and mineral fiber reinforced cement panel surfaces to be painted. Comply with SSPC-SP 13 for preparation of wall surfaces to receive epoxy coating systems. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

    a. Roughen to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

    b. Use abrasive blast cleaning methods if recommended by paint manufacturer.

    c. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause finish paint to blister and burn, correct conditions before application. Do not paint surfaces where moisture content exceeds that permitted by manufacturer's printed directions when measured by moisture meter.

    d. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

    e. Floor Slabs: Clean floors with 5 percent solution of muriatic acid or etching cleaner. Flush floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.

        1) Brush Off Blast Cleaning, SSPC-SP 7: Dry blast cleaning of surfaces with commercial nonstaining, new, and clean, fine abrasive grit. Use dry blast cleaning over entire surface to remove contaminants and loosely adherent materials and to roughen surfaces for specified painting system.

2. Concrete Masonry Units (CMU): Clean to remove contaminants. Test for alkali using red litmus paper. Use muriatic acid when recommended by manufacturer.

3. Ferrous Metals:

   a. Ungalvanized Surfaces: Clean surfaces that have not been shop coated including field welds, field connections; remove oil, grease, dirt, loose mill scale, and foreign substances. Use solvent or mechanical cleaning methods complying with SSPC recommendations.

   b. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.

   c. Blast steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC-SP 10.

   d. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.

   e. Touch up bare areas and shop applied prime coats that have been damaged. Wire brush, clean with solvents recommended by the paint manufacturer, and touch up with same primer as shop coat.

   f. Manual Cleaning Methods: Use one or combination of methods to obtain prepared visual surface condition based upon initial surface condition.

      1) Solvent Cleaning, SSPC-SP 1: Use solvent detergent or cleaning solution as recommended by finish system manufacturer. Apply solvent by either hand rubbing, wiping, or scrubbing with clean cloths and brushes. Rinse the surfaces and remove solvent residue.

      2) Hand Tool Cleaning, SSPC-SP 2: Use hand methods such as wire brushing, chipping, sanding, scraping, and similar abrasive and impact equipment.

      3) Power Tool Cleaning, SSPC-SP 3: Use power operated brushes, chipping hammers, scalers, sanders, grinders, and similar abrasive and impact equipment.

      4) Blast Cleaning Methods: For architecturally exposed structural steel, provide dry blast cleaning of surfaces with commercial type of nonstaining, new, unused, and clean, fine abrasive grit.

Employ blast cleaning system with suitable dust removal equipment. Obtain prepared visual surface condition based upon initial surface condition.

5) Commercial Blast Cleaning, SSPC-SP-6: Use dry blast cleaning as necessary to obtain thorough commercial cleaning with 2 mil (0.050 in.) anchor pattern and surface condition C or D Sa2.

4. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

5. Aluminum: Clean surfaces to remove oil, grease, and other contaminants in accordance with SSPC-SP 1. Lightly abrade surface with a nonmetallic pad.

6. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

7. Pipe Covering and Insulation: Clean to remove loose, foreign, and objectionable material before applying sealing coat.

G. Materials Preparation: Carefully mix and prepare paint materials according to manufacturer's directions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.

2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3. Use only thinners approved by the paint manufacturer, within recommended limits, and complying with SCAQMD VOC requirements.

4. Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

## 3.03 APPLICATION

A. Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Paint colors, surface treatments, and finishes are indicated in finish schedules and as approved pursuant to visual inspection/verification noted in Part 3.02 A of this Section.

2. Provide finish coats compatible with primers used.

3. The number of coats and film thickness required are same regardless of application method. Do not apply succeeding coats until previous coat has dried and cured in accordance with manufacturer’s recommendations.

4. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to coating.

5. Sand between applications where sanding is required to produce smooth even surface according to manufacturer's directions.

6. Apply additional coats if undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensuring that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to surfaces of flat surfaces.

7. The term "exposed surfaces" includes areas visible when permanent or built in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings as required to maintain system integrity and provide desired protection.

8. Paint exposed and bare surfaces and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.

9. Back prime wood to be set against concrete, masonry or plaster.

10. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

11. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.

12. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

13. Finish interior of wall and base cabinets and similar field finished casework to match exterior.

14. Finish exterior doors on tops, bottoms, and side edges same as exterior faces.

15. Sand lightly between each succeeding enamel or varnish coat. Wipe clean of dust prior to recoating.

16. Omit primer on metal surfaces that have been shop primed and touch up painted.

17. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

    a. Labels: Do not paint over UL, FM, or other code required labels or equipment name, identification, performance rating, or nomenclature plates.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.

2. Omit primer on metal surfaces that have been shop primed and touchup painted.

3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, it does not deform or feel sticky under moderate thumb pressure, and application

of another coat of paint does not cause the undercoat to lift or lose adhesion.

C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.

2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.

3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.

4. Apply each coat of paint slightly darker than preceding coat.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

E. Exposed Surfaces: Paint areas visible when permanent and built in fixtures, covers, grilles, mechanical and electrical equipment housings, ducts and conduits, are in place within finish areas. Finish surfaces in back of movable equipment and furniture. Finish interior surfaces of ducts visible through grilles, interior surfaces visible through equipment covers, blank off panels, and visible duct metal behind registers and grilles in black matte finish system compatible with substrate.

F. Concealed Members: Wherever steel and other metal parts to be painted will be built into and concealed by construction, paint as specified for exposed parts so that finish painting is completed before areas are concealed.

G. Mechanical and Electrical Work:

1. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

2. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, heat exchangers, tanks, ductwork, conduit, switchgear, and insulation except where items are prefinished.

3. Color code equipment, piping, conduit, and exposed duct work in accordance with requirements indicated. Color band and identify with flow arrows, names, and numbering.

4. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

H. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

I. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

J. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.

1. Provide satin finish for final coats.

K. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

L. Touch Up for Previously Coated Surfaces:

1. Touch up marred, scraped, and blemished areas of surfaces which were factory primed or previously coated.

2. Properly prepare and touch up scratches, abrasions, and blemishes and remove foreign matter before proceeding with succeeding coats.

3. Feather touch up coating, overlapping minimum 2 inches onto adjacent unblemished areas, producing smooth, uniform surface.

4. As soon after erection and installation as possible, touch up fasteners, welded surfaces and surroundings, field connections, and areas on which shop coat has been abraded or damaged with specified primer before corrosion and other damage occurs from exposure.

## 3.04 CLEANING

A. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site. After completing painting, clean paint spattered surfaces. Do not scratch or damage adjacent finished surfaces.

## 3.05 SHOP PRIMING FOR STEEL

A. Clean surfaces according to AISC Specifications. Apply one shop coat of specified metal primer to minimum 1.0 mil dry film thickness. Work primer into joints. Do not prime the following:

1. Steel surfaces embedded in concrete or masonry.

2. Permanently concealed structural steel surfaces.

3. Contact surfaces of high-strength bolted connections.

## 3.06 PAINT SCHEDULE (NOT USED)

# PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. No separate measurement will be made for the work of this section.

## 4.02 PAYMENT

A. Payment for the work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

# SECTION 09 96 00

# High Performance Coatings

## PART 1 - GENERAL

### 1.01 WORK INCLUDED

A. HIGH PERFORMANCE COATINGS consists of furnishing transportation, labor, materials, and equipment to furnish and apply special coatings for the following items:

1. All steel items including structural steel beams; steel decking, fabricated steel items; sheet metal fabricated items; and all other steel or sheet metal surfaces that are exposed to the atmosphere shall receive priming per this section. Unless noted otherwise, the items listed above that are visually exposed shall receive high performance coating per this section; concealed items may remain as primed or galvanized only. See other specification sections for application of this section.

2. Epoxy coating for portion of structural steel embedded in concrete.

3. Polyurethane and resin coating for concrete curbs, as indicated.

4. Not included in this section: For painting of miscellaneous architectural steel items see 09 91 00 Painting.

### 1.02 RELATED WORK

| | | |
|---|---|---|
| A. | CAST-IN-PLACE CONCRETE | Section 03 30 00 |
| B. | CONCRETE TOPPING | Section 03 53 00 |
| C. | PAINTING | Section 09 91 00 |

### 1.03 REFERENCES

A. South Coast Air Quality Management District (SCAQMD):

Rule 1113 Architectural Coatings

B. The Society for Protective Coatings (SSPC):

SSPC-SP6 Commercial Blast Cleaning

## 1.04 CALGREEN CODE

A. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Coatings Suggested Control Measure, as shown in Table 5.504.4.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 5.504.4.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in Subsections 4.21, 4.36 and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 5.504.4.3 shall apply.

B. Aerosol paints and coatings shall meet the PWMIR Limits for ROC in Section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(c)(2) and (d)(2) of California Code of Regulations, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8 Rule 49.

1. Title 17 may be found at http://ccr.oal.ca.gov/.

C. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification

2. Field verification of on-site product containers

D. Refer to CALGREEN CODE REQUIREMENTS section for additional documentation submittal procedures.

## 1.05 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Product Data: Provide the manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each material proposed for use.

C. Certification by the manufacturer that products supplied comply with South Coast Air Quality Management District regulations controlling use of volatile organic compounds (VOCs).

D. Samples: Provide 8-1/2 inches x 11 inches samples of each color, gloss and material to be applied with texture to simulate actual conditions.

E. CALGREEN CODE REQUIREMENT: Provide the following submittals to Engineer to verify conformance prior to verification by the Enforcing Agency:

1. A summary listing all applicable interior products used.

2. VOC content of each in grams per liter.

3. Material Safety Data Sheets (MSDS) cut sheets for all applicable products used.

4. Product data cut sheets for all applicable products used.

5. Highlighting the VOC limits on all MSDS and product data sheets.

6. Any other documentation required by the enforcing agency to verify compliance.

## 1.06 QUALITY ASSURANCE

A. Manufacturer's Services: Qualified technical representative shall be available to visit Site for technical support as required to resolve field problems associated with substrate preparation, use, mixing, application, and curing of special coating systems.

B. Applicator Qualifications: Engage an experienced applicator who has successfully completed coating system applications similar in material and extent to those indicated for the Project.

C. Single-Source Responsibility: Provide primers and undercoat material produced by the same manufacturer as the finish coats for each type of coating. Use only thinners recommended by the manufacturer and only within recommended limits.

## 1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the job site in the manufacturer's original, new, unopened packages, and containers bearing manufacturer's name and label, and the following information:

1. Name or title of material.

2. Product description (generic classification or binder type).

3. Manufacturer's name, stock number, and date of manufacture.

4. Contents by volume, for major pigment and vehicle constituents.

5. Thinning instructions.

6. Application instructions.

7. Color name and number.

8. Handling instructions and precautions and material safety data sheets.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 degrees Fahrenheit. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

C. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and supplying the coatings.

## 1.08 EXTRA MATERIALS

A. Provide five 1-gallon containers of paint, in original and sealed containers bearing manufacturer’s label, for each type, gloss and color used for finish coats. Identify each container by color, gloss and type.

B. Deliver required paint materials upon completion of the Project, as directed by the Engineer.

## 1.09 PROJECT CONDITIONS

A. Apply coatings only when the temperature of surfaces to be coated and surrounding air temperatures are between 45 degrees Fahrenheit and 85 degrees Fahrenheit.

B. Do not apply coatings in rain, fog or mist; when the relative humidity exceeds 85 percent; at temperatures less than 5 degrees Fahrenheit above the dew point; or to damp or wet surfaces.

1. Allow wet surfaces to dry thoroughly and attain the temperature and conditions specified before proceeding with or continuing the coating operation.

2. Work may continue during inclement weather only if areas and surfaces to be coated are enclosed and the temperature within the area can be maintained within limits specified by the manufacturer during application and drying periods.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

A. General:

1. Material Compatibility: Provide primers, finish coat material, and related materials that are compatible with one another and the substrates indicated under conditions of service and application as demonstrated by the manufacturer based on testing and field experience.

2. Material Quality: Provide the highest grade of the various coatings as regularly manufactured by acceptable coating manufacturers. Materials not displaying manufacturer's identification as a best grade product will not be acceptable.

3. Colors: Provide color selections as noted on Drawings.

B. Steel Substrates:

1. Primer:

a. Manufacturer’s inorganic zinc-rich primer with 60% minimum solids content.

2. Intermediate Coat Materials:

a. Manufacturer's recommended factory-formulated, intermediate coat epoxy materials, minimum of 5 mils dry film thickness.

3. Finish Coat Materials:

a. Manufacturer's recommended factory-formulated, aliphatic acrylic polyurethane finish coat materials, minimum 5 mils dry film thickness.

C. Concrete Substrates:

1. Primer:

a. Manufacturer’s one component non-toxic bio-based polyurethane and bio emulsion resins, 1 coat at 6-8 wet mils thickness.

2. Finish Coat Materials:

a. Manufacturer's recommended factory-formulated, 100% acrylic emulsion and urethane dispersion finish coat materials, 3 coats for heavy traffic areas (service island).

## 2.02 COATING SYSTEM

A. Exposed Steel:

1. Zinc rich/epoxy/polyurethane coating system as manufactured by Tnemec Company, Incorporated (Tnemec) shall be the Basis of Design. Other approved equal products and manufacturers may be submitted for review, such as:

a. Carboline

b. Sherwin Williams, Heavy Duty Marine Application Series

c. PPG

d. Tnemec

2. Basis of Design: Tnemec

| | | |
|---|---|---|
| a. | Primer: | Series 904 – H2O Tneme-Zinc |
| b. | Intermediate Coat: | Series L69F Hi-Build Epoxoline II |
| c. | Finish Coat: | Series 740 UVX |

B. Galvanizing Repair Paint:

1. High zinc dust content paint for regalvanizing welds in steel, complying with SSPC-Paint 20; two-component, moisture-cured, urethane; with gray topcoat to cover. Provide from the following products, or other approved equal product:

    a. Basis of Design: Tnemec, Series 904 – H2O Tneme-Zinc.

    b. Carboline, Carbozinc 858.

    c. International Paint Company, Interzinc 52.

C. Concrete Substrates:

1. One component, fast-drying, UV-resistant, bio-based polyurethane and bio emulsion resins coating system as manufactured by Eco Procote Company, shall be the Basis of Design. Other approved equal products and manufacturers may be submitted for review.

    a. Primer: Eco-Tuff Primecoat Primer

    b. Top Coat: Eco-Tuff Non-Skid Coating, Rubber Mesh, Tint Base

## PART 3 - EXECUTION

### 3.01 EXAMINATION

A. Examine substrates and conditions under which coatings will be applied for compliance with application requirements. Surfaces to receive coatings shall be thoroughly dry before coatings are applied.

1. Do not proceed with coating application until unsatisfactory conditions have been corrected.

2. Start of application will be construed as the Contractor's acceptance of surfaces within that particular area.

B. Review sections in which coatings are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on the characteristics of specified finish materials to ensure compatible primers.

1. Notify the Engineer of problems anticipated using the coatings specified over substrates primed by others.

### 3.02 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures and similar items already in place that are not to be coated, or provide surface-applied protection prior to surface preparation and coating. Remove these items, if necessary, to completely coat the items and adjacent surfaces. Following the coating operations in each space or area, have removed items reinstalled by workers skilled in the trades involved.

B. Cleaning: Before applying coatings or other surface treatment, clean the substrates of substances that could impair bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and coating application so dust and other contaminates from the cleaning process will not fall on wet, newly coated surfaces.

C. Surface Preparation:

1. General: Clean and prepare surfaces to be coated in accordance with manufacturer's written instructions for each particular substrate condition and as specified.

    a. Provide barrier coats over incompatible primers, or remove and reprime. Notify the Engineer in writing of problems anticipated when using the specified finish-coat material with substrates primed by others.

2. Ferrous Metal: Clean ungalvanized ferrous metal surfaces that have not been shop-coated; remove oil, grease, dirt, loose mill scale and other foreign substances. Use solvent or mechanical cleaning methods as recommended by the manufacturer of special coating. Prepare according to SSPC-SP-6 Commercial Blast Cleaning.

    a. Touch-up shop-applied prime coats that have been damaged and bare areas. Comply with SSPC-SP-6, Commercial Blast Cleaning and touch-up with the same primer as the shop coat.

3. Galvanized Surfaces: SSPC-SP1 Solvent Clean all surfaces to remove soluble contaminants. Uniformly roughen entire surface by either chemical or mechanical etch.

4. Nonferrous Metal Surfaces: Clean nonferrous surfaces in accordance with manufacturer's written instructions for the type of service, metal substrate, and application required.

5. Concrete Surfaces: Clean, patch, and roughen surfaces in accordance with the manufacturer’s written instructions.

D. Material Preparation: Carefully mix and prepare materials in accordance with the coating manufacturer's written instructions.

1. Maintain containers used in mixing and application of coatings in accordance with the manufacturer's written instructions.

2. Stir materials before applying to produce a mixture of uniform density; stir as required during application. Do not stir surface film into the material. Remove film and if necessary, strain the coating material before using.

3. Use only the type of thinners approved by the manufacturer and only within recommended limits.

## 3.03 APPLICATION

A. General: Apply special coatings by brush, roller, or spray in accordance with the manufacturer's written instructions. Use brushes best suited for the material being applied. Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.

1. Do not apply coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.

2. Coating colors, surface treatments, and finishes are indicated in the Schedules on Drawings.

3. Provide finish coats compatible with the primers used.

4. The number of coats and film thickness required shall be the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Where sanding is required, according to the manufacturer's directions, sand between applications to produce a smooth, even surface.

5. When undercoats or other conditions show through the final coat, apply additional coats until the cured film has a uniform coating finish, color, and appearance. Give special attention to edges, corners, crevices, welds, exposed fasteners, and similar surfaces to ensure that they receive a dry film thickness equivalent to that of flat surfaces.

6. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, and similar components are in place. Extend coatings into these areas to maintain the system integrity and provide desired protection.

    a. Coat surfaces behind movable equipment and furniture the same as similar exposed surfaces.
    b. Coat the back sides of access panels, removable or hinged covers, and similar exposed surfaces.
    c. Omit primer on metal surfaces that have been shop-primed and touched-up painted.

B. Schedule Coating: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for coating as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient drying time between successive coats. Do not recoat until the coating has dried so it feels firm and does not deform or feel sticky under moderate thumb pressure and where applying another coat does not cause the undercoat to lift or lose adhesion.

C. Minimum Coating Thickness: Apply each material no thinner than the manufacturer's recommended spreading rate. Provide total dry film thickness of the entire system as recommended by the coating manufacturer.

D. Prime Coats: Before applying intermediate coats, apply a prime coat of material, compatible with the special coating and as recommended by the coating manufacturer, to the material required to be coated or finished that has not been prime-coated by others. Touch up any damaged or defective areas of shop-applied inorganic zinc rich primer coats.

1. Recoat primed and sealed substrates where there is evidence of suction spots or unsealed areas in the first coat to ensure a finish coat with no burn-through or other defects caused by insufficient sealing.

2. Factory Primed Finish: Apply air dried primer immediately after cleaning and pretreatment, to provide a minimum dry film thickness of 2 mils per applied coat, to surfaces exposed after assembly and installation, and to concealed, nongalvanized surfaces.

E. Brush Application: Brush-out and work brush coats into surfaces in an even film. Eliminate cloudiness, spotting, holidays, laps, brush marks, sags, ropiness, or other surface imperfections. Neatly draw glass lines and color breaks.

1. Apply primers and first coats by brush unless the manufacturer's instructions permit using mechanical applicators.

F. Mechanical Applications: Use mechanical methods to apply coating when permitted by the manufacturer's recommendations and governing regulations.

1. Wherever using spray application, apply each coat to provide the equivalent hiding of brush applied coats. Do not double-back with spray equipment building-up film thickness of two coats in one pass, unless recommended by the manufacturer.

G. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish, or recoat work not complying with specified requirements.

## 3.04 FIELD QUALITY CONTROL

A. The Engineer reserves the right to call for the following test procedures at any time and as often as the Engineer deems necessary during coating operations:

1. The Engineer will provide the services of an independent testing agency to sample the coating being used. Samples of material delivered to the Project site will be taken, identified, sealed, and certified in the presence of the Contractor.

2. The testing agency will perform appropriate tests for the following characteristics as required by the Engineer:

a. Quantitative materials analysis.
b. Absorption.
c. Accelerated weathering.
d. Accelerated yellowness.
e. Color retention.
f. Alkali and mildew resistance.
g. Abrasion resistance.
h. Apparent reflectivity.
i. Washability.
j. Dry Opacity.
k. Recoating.
l. Skinning.

3. If results show materials being used do not comply with requirements, Engineer will direct Contractor to stop work, remove non-complying

coating materials, and clean, prime, and recoat surfaces with approved materials. Contractor shall pay for the testing and retesting until the coating work is approved by the Engineer.

## 3.05 CLEANING

A. Clean-up: At the end of each work day, remove rubbish, empty cans, rags, and other discarded materials from the site.

B. After completing work, clean glass and spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent painted surfaces.

## 3.06 PROTECTION

A. Protect work of other trades, whether being coated or not, against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as acceptable to the Engineer. Leave in an undamaged condition.

1. Provide "Wet Paint" signs to protect newly coated finishes. Remove temporary protective wrappings provided by others to protect their work after completing coating operations.

2. Touch-up and restore damaged or defaced coated surfaces using same materials as the coating system.

**END OF SECTION**

## SECTION 22 05 00

## Common Work Results for Plumbing

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Piping materials and installation instructions common to most piping systems.
2. Transition fittings.
3. Dielectric fittings.
4. Mechanical sleeve seals.
5. Sleeves.
6. Escutcheons.
7. Grout.
8. Equipment installation requirements common to equipment sections.
9. Painting and finishing.
10. Concrete bases.
11. Supports and anchorage.
12. Training requirements.
13. Expansion loops.

B. The requirements of this section apply to all sections in Division 22.

### 1.02 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

F. The following are industry abbreviations for plastic materials:

1. ABS: Acrylonitrile-butadiene-styrene plastic.

2. CPVC: Chlorinated polyvinyl chloride plastic.

3. PE: Polyethylene plastic.

4. PVC: Polyvinyl chloride plastic.

G. The following are industry abbreviations for rubber materials:

1. EPDM: Ethylene-propylene-diene terpolymer rubber.

2. NBR: Acrylonitrile-butadiene rubber.

## 1.03 SUBMITTALS

A. Product Data: Manufacturer's technical data and installation instructions for transition fittings, dielectric fittings, mechanical sleeve seals, escutcheons, and welding certificates.

B. Shop Drawings: Submit detailed fabrication drawings for metal and wood supports and anchorage for mechanical materials and equipment.

C. Coordination Drawings: Prepare coordination drawings to a 1/4 inch equals 1 foot scale or larger. Detail major elements, components, and systems of plumbing equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Include the following:

1. Proposed locations of piping, equipment, and materials. Include the following:

a. Planned piping layout, including valve and specialty locations and valve stem movement.

b. Clearances for installing and maintaining insulation.

c. Clearances for servicing and maintaining equipment, including space for equipment disassembly required for periodic maintenance.

d. Equipment service connections and support details.

e. Exterior wall and foundation penetrations.

f. Fire rated wall and floor penetrations.

g. Sizes and location of required concrete pads and bases.

2. Scheduling, sequencing, movement, and positioning of large equipment into the building during construction.

3. Floor plans, elevations, and details to indicate penetrations in floors, walls, and ceilings and their relationship to other penetrations and installations.

4. Reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communication systems components, sprinklers, and other ceiling mounted items.

D. Samples: Submit samples of color, lettering style, and other graphic representation required for each identification material and device.

E. Certificates: Submit copies of required certificates, certifications, and reports.

## 1.04 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Work in accordance with 2019 California Plumbing Code.

2. Steel Support Welding: Qualify processes and operators according to AWS D1.1, Structural Welding Code--Steel.

3. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, Welding and Brazing Qualifications.

a. Comply with provisions in ASME B31 Series, Code for Pressure Piping.

b. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

4. Welding: Perform welding in accordance with Factory Mutual Hot Water Permit conditions.

5. ASME A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

B. Equipment Selection: Should equipment of greater or larger power, dimensions, capacities, and ratings be proposed by Contractor, written approval of Engineer is required prior to ordering equipment. Submit written request for a substitution and indicate provisions for connecting plumbing and electrical services and upgrading and increasing circuit breakers, conduit, motors, bases, and equipment spaces at no additional cost.

1. Where minimum energy ratings or efficiencies of the equipment are specified, provide equipment that meets design requirements and commissioning requirements.

C. Electrical Characteristics for Plumbing Equipment: Should equipment of higher electrical characteristics be proposed by Contractor, written approval of Engineer is required prior to ordering equipment. Submit written request for a substitution and indicate provisions for connecting and modifying electrical services, circuit breakers, and conduit sizes.

1. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

## 1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. When stored inside, do not exceed structural capacity of the floor.

C. Protect flanges, fittings, and piping specialties from moisture and dirt.

D. Work Shall be in accordance with 2019 California Plumbing Code.

## 1.06 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for plumbing installations.

B. Coordinate installation of required supporting devices and set sleeves in poured in place concrete and other structural components as they are constructed.

C. Coordinate requirements for access panels and doors for plumbing items requiring access that are concealed behind finished surfaces.

D. Coordinate plumbing equipment installation with other building components.

1. Arrange for chases, slots, and openings in building structure during progress of construction, to allow for plumbing installations.

E Sequence, coordinate, and integrate installations of plumbing materials and equipment for efficient flow of work. Coordinate installation of large equipment requiring positioning prior to closing in the building.

F. Coordinate connection of plumbing systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.

G. Coordinate installation of identifying devices after completion of covering and painting, where devices are applied to surfaces. Install identifying devices prior to installation of acoustical ceilings and similar concealment.

## PART 2 - PRODUCTS

### 2.01 GENERAL

A. Where products or manufacturers are listed, for proposed comparable products and substitutions, requests must be submitted during the solicitation phase in accordance with Instruction to Bidders, Section F, Request for Clarification / approved Equals / Exceptions.

### 2.02 MATERIALS

A. Pipe, Tube, Fittings: Refer to individual piping sections for requirements for pipe, tube, and fitting materials and joining methods.

1. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

B Joining Materials:

1. Pipe Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

a. ASME B16.21, nonmetallic, flat, asbestos free, 1/8 inch maximum thickness unless thickness or specific material is indicated.

1) Full Face Type: For flat face, Class 125, cast iron and cast bronze flanges.

2) Narrow Face Type: For raised face, Class 250, cast iron and steel flanges.

b. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full face or ring type, unless otherwise indicated.

2. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

3. Solder Filler Metals: ASTM B32, lead-free alloys. Include water flushable flux according to ASTM B813.

4. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.

5. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

6. Solvent Cements for Joining Plastic Piping:

a. ABS Piping: ASTM D2235.

b. CPVC Piping: ASTM F493.

c. PVC Piping: ASTM D2564. Include primer according to ASTM F 656.

d. PVC to ABS Piping Transition: ASTM D3138.

7. Fiberglass Pipe Adhesive: As furnished or recommended by pipe manufacturer.

8. Flanged, Ductile Iron Pipe Gasket, Bolts, and Nuts: AWWA C110, rubber gasket, carbon steel bolts and nuts.

9. Copper Tubing:

a. Solder for Copper Pipe, 4 inch and smaller: No lead for copper pipes above ground.

b. Sil-Fos silver alloy for pipe underground and for piping above ground having a continuous street main pressure of 100 psi or more.

c. Wire solder only; paste mixed solder not permitted.

d. Flux: As recommended by manufacturer of solder.

C. Transition Fittings:

1. AWWA Transition Couplings: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.

a. Underground Piping NPS 1-1/2 and Smaller: Manufactured fitting or coupling.

b. Underground Piping NPS 2 and Larger: AWWA C219, metal sleeve type coupling.

c. Aboveground Pressure Piping: Pipe fitting.

d. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

1) Cascade Waterworks Mfg. Co.

2) Ford Meter Box Company, Incorporated.

3) JCM Industries.

4) Smith-Blair, Inc.

5) Viking Johnson.

2. Couplings: Iron body sleeve assembly, fabricated to match outside diameters of plain-end, pressure pipes.

a. Sleeve: ASTM A126, Class B, gray iron.

b. Followers: ASTM A47, Grade 32510 or ASTM A536 ductile iron.

c. Gaskets: Rubber.

d. Bolts and Nuts: AWWA C111.

e. Finish: Enamel paint.

3. Plastic to Metal Transition Fittings: PVC or CPVC and PVC one piece fitting with manufacturer's Schedule 80 equivalent dimensions; one end with threaded brass insert, and one solvent cement joint end.

a. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

1) Charlotte Pipe and Foundry.

2) Eslon Thermoplastics.

3) JCM Industries.

4) Smith-Blair, a Sensus company.

4. Plastic to Metal Transition Adaptors: One piece fitting with manufacturer's SDR 11 equivalent dimensions; one end with threaded brass insert, and one solvent cement joint end.

a. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

1) Charlotte Pipe and Foundry.

2) Thompson Plastics, Inc.

3) JCM Industries.

4) Smith-Blair, a Sensus company.

5. Plastic to Metal Transition Unions: MSS SP-107, PVC or CPVC and PVC four part union, include brass end, solvent cement joint end, rubber O-ring, and union nut.

a. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

1) NIBCO INC.

2) Chemtrol brand, NIBCO, Inc.

6. Flexible Transition Couplings for Underground Non-pressure Drainage Piping: ASTM C 1173 with elastomeric sleeve, ends same size as piping to be joined, and corrosion resistant metal band on each end.

a. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

1) Cascade Waterworks Mfg. Co.

2) Fernco, Inc

3) Mission Rubber Company, div. MCP Industries, Inc.

D. Dielectric Fittings: Assembly or fitting having insulating material isolating joined dissimilar metals, to prevent galvanic action and stop corrosion.

1. Fitting: Combination of copper alloy and ferrous; threaded, solder, plain, and weld neck end types and matching piping system materials.

2. Insulating Material: Suitable for system fluid, pressure, and temperature.

3. Dielectric Unions: Factory fabricated, union assembly, for 250 psig minimum working pressure at 180 deg F temperature.

    a. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

        1) Capitol Manufacturing Co., member Phoenix Forge Group.

        2) Central Plastics Company.

        3) Hart Industries, International, Inc.

        4) Watts Water Technologies, Inc.

        5) Wilkins Water Control Products, div. Zurn Industries.

4. Dielectric Flanges: Factory fabricated, companion flange assembly, for 150 or 300 psig minimum pressure to suit system pressures.

    a. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

        1) Capitol Manufacturing Co., member Phoenix Forge Group

        2) Central Plastics Company.

        3) Watts Water Technologies, Inc.

5. Dielectric Flange Insulation Kits: Field assembled, companion flange assembly, full face or ring type. Components include neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

    a. Separate companion flanges and steel bolts and nuts shall have 150 psig or 300 psig minimum working pressure where required to suit system pressures.

    b. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

        1) Advance Products & Systems, Inc.

2) Calpico, Inc.

3) Central Plastics Company.

4) Pipeline Seal and Insulator, Inc.

6. Dielectric Couplings: Galvanized steel coupling, having inert and noncorrosive, thermoplastic lining, with threaded ends and 300 psig minimum working pressure at 225 deg F temperature.

7. Dielectric Nipples: Electroplated steel nipple, having inert and noncorrosive, thermoplastic lining, with combination of plain, threaded, or grooved end types and 300 psig working pressure at 225 deg F temperature.

a. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

1) Perfection Corporation, subsidiary of American Motor Company

2) Precision Plumbing Products, Inc.

3) Sioux Chief Manufacturing Co., Inc.

4) Victaulic Company.

E. Mechanical Sleeve Seals: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

2. Pressure Plates: Carbon steel; include two for each sealing element.

3. Connecting Bolts and Nuts: Carbon steel with corrosion resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

4. Manufacturers: Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

a. Advance Products & Systems, Inc.

b. Calpico, Inc.

c. Metraflex Company

d. Pipeline Seal and Insulator, Inc.

F. Sleeves:

1. Galvanized Steel Sheet: 0.0239 inch minimum thickness; round tube closed with welded longitudinal joint.

2. Steel Pipe: ASTM A53, Type E, Grade B, Schedule 40, galvanized, plain ends.

3. Cast Iron: Cast or fabricated wall pipe equivalent to ductile iron pressure pipe, with plain ends and integral water stop, unless otherwise indicated.

   a. Cast Iron Sleeve Fittings: Commercially made, sleeve having integral clamping flange, with clamping ring, bolts, and nuts for membrane flashing.

      1) Underdeck Clamp: Clamping ring with set screws.

4. Stack Sleeve Fittings: Manufactured, cast iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

   a. Underdeck Clamp: Clamping ring with set screws.

5. Molded PVC: Permanent, with nailing flange for attaching to wooden forms.

6. PVC Pipe: ASTM D1785, Schedule 40.

7. Molded PE: Reusable, PE, tapered cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

8. Steel Sheet Metal: 0.020 inch minimum thickness (aka 24 gauge) or heavier, galvanized sheet metal, round tube closed with welded longitudinal joint.

9. Wall Penetration Systems: Wall sleeve assembly, consisting of housing, gaskets, and pipe sleeve, with one mechanical joint end conforming to AWWA C110 and 1 plain pipe sleeve end.

   a. Penetrating Pipe Deflection: 5 percent without leakage.

   b. Housing: Ductile iron casting having water stop and anchor ring, with ductile iron gland, steel studs and nuts, and rubber gasket conforming to AWWA C111, of housing and gasket size as required to fit penetrating pipe.

   c. Pipe Sleeve: AWWA C151, ductile iron pipe.

d. Housing to Sleeve Gasket: Rubber or neoprene, push on type, of manufacturer's design.

G. Escutcheons: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

1. One Piece, Deep Pattern Type: Deep drawn, box shaped brass with polished chrome plated finish.

2. One Piece, Cast Brass Type: Set screw; Finish: Polished chrome plated.

3. One Piece, Stamped Steel Type: Set screw; Finish: Chrome plated finish.

4. One Piece, Floor Plate Type: Cast iron floor plate.

5. Inside Diameter: Closely fit around pipe, tube, and insulation of insulated piping.

6. Outside Diameter: Completely cover opening.

H. Grout: ASTM C1107, Grade B, non-shrink and nonmetallic, dry hydraulic-cement grout; premixed and factory packaged.

1. Characteristics: Post hardening, volume adjusting, non-staining, noncorrosive, nongaseous, and recommended for interior and exterior applications.

2. Design Mix: 5000 psi minimum 28 day compressive strength.

3. Subject to compliance with requirements, provide products of one of the following, or equal approved as a comparable product:

a. Masterflow 928, BASF Building Systems.

b. Hi-Flow Grout, Euclid Chemical Company.

I. Protective Wrapping for Underground Pipe and Fittings:

1. Copper Pipe, Cast Iron Soil Pipe, and Ductile Pipe and Fittings: Factory applied 10 mil thick polyethylene pipe encasement complying with AWWA C105, Class C.

2. Steel Pipe and Fittings: Standard pipe protection, X-Tru-Coat, 20 mil thick or Scotchkote 6233 fusion bonded epoxy powder coating, 12 mil thick.

J. Steel Casing Pipe at transit: Schedule 40 steel pipe, type of connection, and vent piping complying with owner.

1. Casing Size: Per SANDAG's engineering standards.

K. Sand and Trench Backfill Materials: Refer to Section 31 20 00, Earth Moving.

L. Concrete Materials: Refer to Section 03 30 00, Cast-in-Place Concrete.

M. Expansion Loops: Provide products of one of the following, or equal approved as a comparable product:

1. Adsco Manufacturing.

2. Advanced Thermal Systems.

3. Metraflex Company.

## PART 3 - EXECUTION

### 3.01 PIPING SYSTEMS COMMON REQUIREMENTS

A. Install piping according to requirements for piping systems.

B. General Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

C. Install components having pressure rating equal to or greater than system operating pressure.

D. Install piping and components:

1. In concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

2. Indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

3. Exposed interior and exterior piping at right angles or parallel to building walls. Diagonal runs are prohibited, except where indicated.

4. Tight to slabs, beams, joists, columns, walls, and other building elements. Allow sufficient space above removable ceiling panels to allow for ceiling panel removal.

5. Piping to allow application of insulation plus 1 inch clearance around insulation.

6. Above accessible ceilings to allow sufficient space for ceiling panel removal.

7. To permit valve servicing.

8. At indicated slopes.

9. Free of sags and bends.

10. To allow application of insulation.

E. Install fittings for changes in direction and branch connections.

F. Locate groups of pipes parallel to each other, spaced to permit valve servicing.

G. Install couplings according to manufacturer's printed instructions.

H. Select system components with pressure rating equal to or greater than system operating pressure.

I. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

1. Piping with Fitting or Sleeve Protruding from Wall: One piece, deep pattern type.

2. Chrome Plated Piping: One piece, cast brass type with polished chrome plated finish.

3. Insulated Piping: Cast brass or stamped steel, with concealed hinge, spring clips, and chrome plated finish; one piece, stamped steel type with spring clips.

4. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One piece, stamped steel type.

5. Bare Piping at Ceiling Penetrations in Finished Spaces: One piece, cast brass type with polished chrome plated finish.

6. Bare Piping in Unfinished Service Spaces: One piece, cast brass type with rough brass finish.

7. Bare Piping in Equipment Rooms: One piece, cast brass type.

8. Bare Piping at Floor Penetrations in Equipment Rooms: One piece, floor plate type.

9. Un-insulated Piping Wall Escutcheons: Cast brass or stamped steel, with set screw.

10. Un-insulated Piping Floor Plates in Utility Areas: Cast iron floor plates.

11. Piping in Utility Areas: Cast brass or stamped steel, with set-screw or spring clips.

J. Sleeves are not required for core drilled holes.

K. Permanent sleeves are not required for holes formed by removable PE sleeves.

L. Install sleeves for pipes passing through concrete and masonry walls, gypsum board partitions, and concrete floor and roof slabs. (Steel Pipe Sleeves are to be galvanized to prevent rusting).

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level. Extend cast iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.

3. Install sleeves that are large enough to provide 1/4 inch annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

a. Steel Pipe Sleeves: For pipes smaller than NPS 6.

b. Steel Sheet Sleeves: For pipes NPS 6 and larger, penetrating gypsum board partitions.

4. Stack Sleeve Fittings: For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level. Refer to Section 07 62 00, Sheet Metal Flashing and Trim, for flashing.

a. Seal space outside of sleeve fittings with grout.

5. Except for underground wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint. Refer to Section 07 90 00, Joint Protection, for materials and installation.

M. Aboveground, Exterior Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1 inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Install steel pipe for sleeves smaller than 6 inches in diameter.

2. Install cast iron wall pipes for sleeves 6 inches and larger in diameter.

3. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position the pipe at center of the sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

N. Underground, Exterior Wall Pipe Penetrations: Install cast iron wall pipes for sleeves. Seal pipe penetrations using mechanical sleeve seals. Select sleeve size to allow for 1 inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

1. Mechanical Sleeve Seal Installation: Select type and number of sealing elements required for pipe material and size. Position the pipe at center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

2. Install ductile iron wall penetration system sleeves according to manufacturer's printed installation instructions.

O. Fire Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with fire-stop materials.

P. Verify final equipment locations for roughing in. Refer to equipment specifications for roughing in requirements.

## 3.02 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to requirements for piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B813, water flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B828 or CDA's Copper Tube Handbook using lead free solder alloy complying with ASTM B 32.

E. Brazed Joints: Construct joints according to AWS's Brazing Handbook, Pipe and Tube chapter, using copper phosphorus brazing filler metal complying with AWS A5.8.

F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.

2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

3. Note internal length of threads in fittings or valve ends, and proximity of internal seat or wall to determine how far pipe should be threaded into joint.

4. Align threads at point of assembly.

5. Tighten joint with wrench. Apply wrench to valve end into which pipe is being threaded.

G. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators.

H. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

I. Piping Connections: Make connections according to requirements:

1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.

2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.

3. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.

4. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

J. Protective Wrapping for Underground Metal Pipe and Fittings: Protected piping with factory applied wrapping.

1. Underground copper pipe, cast iron soil pipe, and ductile iron pipe and fittings factory-encased in 8 mil thick polyethylene conforming to AWWA C105, Class C.

2. Underground steel pipe and fittings factory-coated with standard pipe protection.

## 3.03 EQUIPMENT INSTALLATION COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install plumbing equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

## 3.04 PAINTING

A. Painting of plumbing systems, equipment, and components is specified in Section 09 91 00, Painting.

B. Damage and Touchup: Repair marred and damaged factory painted finishes with materials and procedures to match original factory finish.

## 3.05 CONCRETE BASES

A. Concrete Bases: Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes.

1. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit, and 6 inches height above finish floor.

2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18 inch centers around the full perimeter of the base.

3. Install epoxy coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.

4. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

5. Install anchor bolts to elevations required for proper attachment to supported equipment.

6. Install anchor bolts according to anchor bolt manufacturer's written instructions.

7. Use compressive strength concrete and reinforcement as specified in Section 03 30 00, Cast-in-Place Concrete, and Section 03 20 00, Concrete Reinforcing.

## 3.06 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Section 05 60 00, Miscellaneous Metal Fabrications. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.

B. Field Welding: Comply with AWS D1.1.

## 3.07 GROUTING

A. Mix and install grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors.

1. Clean surfaces that will come into contact with grout.

2. Provide forms as required for placement of grout.

3. Avoid air entrapment during placement of grout.

4. Place grout, completely filling equipment bases.

5. Place grout on concrete bases and provide smooth bearing surface for equipment.

6. Place grout around anchors.

7. Cure placed grout.

## 3.08 CUTTING AND PATCHING

A. Cutting and Patching: Cut, channel, chase, and drill floors, walls, partitions, ceilings, and surfaces, as required, to accommodate the plumbing work. Perform cutting and patching in accordance specified requirements. Obtain written permission from structural engineer prior to cutting into structural members. Restore surfaces to original new condition. Restore fire ratings as applicable.

## 3.09 TRAINING PROGRAM

A. General Requirements: Contractor is responsible for training as outlined in this section.

1. Maintenance management classes shall take place prior to occupancy of the facility, as required and approved by owner.

2. Mechanics' training shall commence only after installation of equipment is complete at the facility.

3. Conduct training at location selected by owner.

4. Hours for training shall be between 7:00 a.m. and 3:00 p.m. unless specifically permitted otherwise.

B. Ensure that training instructors are not only familiar with technical information, but also able to utilize proper methods of instruction, training aids, audiovisuals, etc., to ensure effective presentations.

C. Provide all training aids, audiovisual equipment, and visual aids for the conduct of these courses.

D. Training materials will become property of Owner at conclusion of training.

E. Submission and Approval of Training Plans:

1. Meet with Omnitrans not later than three weeks prior to the start of formal training. At that time, submit lesson plans and an outline of the training program and demonstrate any training aids involved. Also present handouts for approval and provide copies later in a ratio of one per student. Provide a complete set of prints and schematics for each location.

2. Submit written plans for meeting specified training requirements. Omnitrans will approve and then coordinate and schedule all training involved.

F. Outline specific objectives for each of the required courses.

1. The course shall include sessions in safety and machine operation, as well as a comprehensive seminar teaching basic skills and knowledge of each operation. The course shall include both classroom and practical exercise sessions and shall provide the mechanic with the basic knowledge necessary to utilize all training materials. Provide a detailed schedule outlining the length and content of each of these sessions in accordance with the guidelines established.

2. The training program shall include familiarization with equipment operation and performance and detailed instruction in operation, maintenance, and test procedures. Training duration shall be as specified in specification sections.

G. Training related to plumbing systems shall include, but not be limited to, the following:

1. A written test, as well as a hands-on demonstration of competence by the student.

2. Troubleshooting instruction.

3. Troubleshooting guides and protocols.

4. Maintainability demonstration for each system.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. No separate measurement will be made for work of this section.

### 4.02 PAYMENT

B. Payment for work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

## SECTION 22 05 83

## Plumbing Specialties

### PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Backflow preventers.
2. Water regulators.
3. Balancing valves.
4. Strainers.
5. Outlet boxes.
6. Hose stations.
7. Trap seal primer valves.
8. Drain valves.
9. Valve tags and charts.
10. Dielectric fittings.
11. Miscellaneous piping specialties.
12. Sleeve penetration systems.
13. Flashing materials.
14. Cleanouts.
15. Floor drains.
16. Trench drains.
17. Roof drains.
18. Area drains.
19. Accessories required for a complete installation.

B. Related Sections:

Not Used

## 1.02 DEFINITIONS

A. The following are industry abbreviations for plastic piping materials:

1. ABS: Acrylonitrile-butadiene-styrene plastic.

2. PE: Polyethylene plastic.

3. PUR: Polyurethane plastic.

4. PVC: Polyvinyl chloride plastic.

## 1.03 PERFORMANCE REQUIREMENTS

A. Provide components and installation capable of producing piping systems with following minimum working pressure ratings, unless otherwise indicated:

1. Domestic Water Piping: 125 psig.

2. Sanitary Waste and Vent Piping: 10 foot head of water.

3. Storm Drainage Piping: 10 foot head of water.

4. Force Main Piping: 100 psig.

## 1.04 SUBMITTALS

A. Product Data: Include rated capacities and shipping, installed, and operating weights. Indicate materials, finishes, dimensions, required clearances, and methods of assembly of components; and piping and wiring connections for the following:

1. Backflow preventers and water regulators.

2. Balancing valves, water filters, and strainers.

3. Water hammer arresters, air vents, and trap seal primer valves and systems.

4. Drain valves, hose bibbs, hydrants, and hose stations.

5. Outlet boxes and washer supply outlets.

6. Cleanouts, floor drains, open receptors, trench drains, and roof drains.

7. Air admittance valves, vent caps, vent terminals, and roof flashing assemblies.

8. Sleeve penetration systems.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Field test reports.

D. Maintenance Data: For plumbing specialties to include in maintenance manuals. Include the following:

1. Backflow preventers and water regulators.

2. Water filters.

3. Thermostatic water mixing valves and water tempering valves.

4. Trap seal primer valves and systems.

5. Hose stations and hydrants.

## 1.05 QUALITY ASSURANCE

A. Regulatory Requirements:

1. ASME Compliance: Comply with ASME B31.9, Building Services Piping, for piping materials and installation.

2. NSF Compliance:

a. Comply with NSF 14, Plastics Piping Components and Related Materials, for plastic domestic water piping components. Include marking NSF-pw on plastic potable water piping and NSF-dwv on plastic drain, waste, and vent piping.

b. Comply with NSF 61, Drinking Water System Components—Health Effects, Sections 1 through 9, for potable domestic water plumbing specialties.

3. Plumbing Specialties: Provide specialties bearing label, stamp, or other markings of specified testing agency.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

## 1.06 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Operating Key Handles: Equal to 100 percent of amount installed for each key operated hose bibb and hydrant installed.

## PART 2 - PRODUCTS

### 2.01 GENERAL

A. Where products or manufacturers are listed, for proposed comparable products and substitutions, requests must be submitted during the solicitation phase in accordance with Instruction to Bidders, Section F, Request for Clarification / approved Equals / Exceptions.

### 2.02 EQUIPMENT

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or equal approved as a comparable product:

1. Backflow Preventers:
    a. Ames Fire and Waterworks, div. Watts Water Technologies, Inc.
    b. Febco, div. Watts Water Technologies, Inc.
    c. Zurn Plumbing Products, div. Watts Water Technologies, Inc.
2. Water Regulators:
    a. Bermad Control Valves.
    b. Honeywell International, Inc.
    c. Zurn Plumbing Products, div. Watts Water Technologies, Inc.
3. Calibrated Balancing Valves:
    a. S. A. Armstrong Ltd.
    b. Bell & Gossett, div. ITT Corporation.
    c. Watts Water Technologies, Inc.
4. Outlet Boxes:
    a. Acorn Engineering Company.
    b. Guy Gray, div. IPS Corporation.
    c. Zurn Plumbing Products, div. Watts Water Technologies, Inc.
5. Hose Station:
    a. Armstrong International, Inc.
    b. Leonard Valve Company.

c. Penberthy brand, Tyco Valves and Controls, div. Tyco Flow Control

6. Supply Type Trap Seal Primer Valves:

   a. Josam Company.

   b. Mifab Manufacturing, Inc.

   c. Jay R. Smith Mfg. Co., div Smith Industries.

   d. Zurn Plumbing Products, div. Watts Water Technologies, Inc.

7. Trap Seal Primer System:

   a. Precision Plumbing Products, Inc.

8. Water Hammer Arresters:

   a. Josam Company.

   b. Jay R. Smith Mfg. Co., div. Smith Industries.

   c. Zurn Plumbing Products, div. Watts Water Technologies, Inc.; Specification Drainage Operation.

9. Cleanouts:

   a. Josam Co.

   b. Watts Water Technologies, Inc.

   c. Zurn Plumbing Products, div. Watts Water Technologies, Inc.

   d. Zurn Plumbing Products, div. Watts Water Technologies, Inc.; Specification Drainage Operation.

10. Floor Drains:

    a. Basis of Design: Jay R. Smith Mfg. Co., div. Smith Industries; Model 2005 for FD-1; Model 2140 for FD-2; Model 2450 for FD-3; Model 2233 for FD-4; and Model 1450 for DD-1 deck drains.

    b. Subject to compliance with requirements, provide the indicated product, a comparable product by one of the following, or equal approved as a comparable product:

       1) Jay R. Smith Mfg. Co., div Smith Industries.

       2) Josam Company.

       3) Zurn Plumbing Products, div. Watts Water Technologies, Inc.

4) Zurn Plumbing Products, div. Watts Water Technologies, Inc.; Specification Drainage Operation.

11. Trench Drains:

a. Basis of Design: Polycast brand, Hubbell Power Systems; Model 700 Series with hard nosing framing.

b. Subject to compliance with requirements, provide the indicated product, a comparable product by one of the following, or equal approved as a comparable product:

1) Josam Company.

2) Jay R. Smith Mfg. Co., div. Smith Industries.

3) Zurn Plumbing Products, div. Watts Water Technologies, Inc.

12. Roof Drains:

a. Basis of Design: Jay R. Smith Mfg. Co., div. Smith Industries; Model 1310 for roof drains (with 2-inch extension for overflow drain).

b. Subject to compliance with requirements, provide the indicated product, a comparable product by one of the following, or equal approved as a comparable product:

1) Jay R. Smith Mfg. Co., div. Smith Industries.

2) Josam Company.

3) Zurn Industries, Inc., Jonespec Div.

B. Backflow Preventers:

1. ASSE standard, backflow preventers.

a. NPS 2 and Smaller: Bronze body with threaded ends.

b. NPS 2-1/2 and Larger: Bronze, cast iron, steel, or stainless steel body with flanged ends.

1) Interior Lining: AWWA C550 or FDA approved, epoxy coating for backflow preventers having cast iron or steel body.

c. Interior Components: Corrosion resistant materials.

d. Exterior Finish: Polished chrome plate if used in chrome plated piping system.

e. Strainer: On inlet, if indicated.

2. Pipe Applied, Atmospheric Type Vacuum Breakers: ASSE 1001, with floating disc and atmospheric vent.

3. Hose Connection Vacuum Breakers: ASSE 1011, nickel plated, with non-removable and manual drain features, and ASME B1.20.7, garden hose threads on outlet. Units attached to rough bronze finish hose connections may be rough bronze.

4. Intermediate Atmospheric Vent Backflow Preventers: ASSE 1012, suitable for continuous pressure application. Include inlet screen and two independent check valves with intermediate atmospheric vent.

5. Reduced Pressure Principle Backflow Preventers: ASSE 1013, suitable for continuous pressure application. Include outside screw and yoke gate valves on inlet and outlet, and strainer on inlet; test cocks; and pressure differential relief valve with ASME A112.1.2 air gap fitting located between two positive seating check valves.

   Pressure Loss: 12 psig maximum, through middle 1/3 of flow range.

C. Water Regulators: ASSE 1003, water regulators, rated for initial working pressure of 150 psig minimum. Include integral factory installed or separate field installed, Y pattern strainer.

1. NPS 2 and Smaller: Bronze body with threaded ends.

   a. General Duty Service: Single seated, direct operated, unless otherwise indicated.

   b. Booster Heater Water Supply: Single seated, direct operated with integral bypass.

2. NPS 2-1/2 and Larger: Bronze or cast iron body with flanged ends. Include AWWA C550 or FDA approved, interior epoxy coating for regulators with cast iron body.

   a. Type: Single seated, direct operated.

   b. Type: Pilot operated, single or double seated, cast iron body main valve, with bronze body pilot valve.

3. Interior Components: Corrosion resistant materials.

4. Exterior Finish: Polished chrome plate if used in chrome plated piping system.

D. Calibrated Balancing Valves: Adjustable, with two readout ports and memory setting indicator. Include standard hoses, fittings, valves, differential pressure meter, and carrying case.

1. NPS 2 and Smaller: Bronze body with brass ball, adjustment knob, calibrated nameplate, and threaded or solder joint ends.

2. NPS 2 and Smaller: Bronze, Y pattern body with adjustment knob and threaded ends.

3. NPS 2-1/2 and Larger: Cast iron, Y pattern body with bronze disc and flanged or grooved ends.

E. Strainers: Y pattern, unless otherwise indicated, and full size of connecting piping. Include ASTM A 666, Type 304, stainless steel screens with 3/64 inch round perforations, unless otherwise indicated.

1. Pressure Rating: 125 psig minimum steam working pressure, unless otherwise indicated.

2. NPS 2 and Smaller: Bronze body, with female threaded ends.

3. NPS 2-1/2 and Larger: Cast iron body, with interior AWWA C550 or FDA approved, epoxy coating and flanged ends.

4. Y Pattern Strainers: Screwed screen retainer with centered blowdown.

   Drain: Pipe plug, factory or field installed.

5. T Pattern Strainers: Malleable iron or ductile iron body with grooved ends; access end cap with drain plug and access coupling with rubber gasket.

6. Basket Strainers: Bolted flange or clamp cover, and basket with lift out handle.

   a. Type: Simplex with one basket.

   b. Drain: Factory installed, hose end drain valve.

F. Drainage Basket Strainers: Non-pressure rated, cast iron or coated steel body; with bolted flange or clamp cover and drain with plug.

1. Basket: Bronze or stainless steel with 1/8 inch or 3/16 inch diameter holes and lift out handle.

2. Female threaded ends for NPS 2 and smaller, and flanged ends for NPS 2-1/2 and larger.

G. Outlet Boxes:

1. Recessed mounting outlet boxes with supply fittings complying with ASME A112.18.1M. Include box with faceplate, services indicated for equipment connections, and wood-blocking reinforcement.

2. Reinforcement: 2 inch by 4 inch fire retardant treated wood blocking between studs. Fire retardant treated wood blocking is specified in Section 06 10 53, Miscellaneous Rough Carpentry.

H. Hose Station:

1. Assembly with fitting complying with ASME A112.18.1M and hose connection outlet with threads complying with ASME B1.20.7.

2. Single Valve Hose Station: Cold water valve with shutoff valve on inlet, hose with nozzle, and the following:

a. Cabinet: Stainless steel enclosure with exposed valve handles, hose connection, and hose rack. Include thermometer in front.

b. Hose Rack Material: Stainless steel.

c. Body Material: Bronze with stainless steel wetted parts.

d. Body Finish: Rough bronze or chrome plate.

e. Mounting: Wall, including reinforcement; Floor, including stainless steel pedestal.

f. Supply Fitting: NPS 3/4 gate, globe, or ball valve and check valve and NPS 3/4 copper water tubing. Omit check valve if check stop is included with fitting.

g. Hose: Standard hose for service fluid, temperature, and pressure; 50 feet long.

h. Nozzle: With hand squeeze on-off control.

3. Reinforcement: 2 inch by 4 inch fire retardant treated wood blocking between studs. Fire retardant treated wood blocking is specified in Section 06 10 53, Miscellaneous Rough Carpentry.

I. Supply Type Trap Seal Primer Valves: ASSE 1018, water supply fed type, with the following characteristics:

1. 125 psig minimum working pressure.

2. Bronze body with atmospheric vented drain chamber.

3. Inlet and Outlet Connections: NPS 1/2 threaded, union, or solder joint.

4. Gravity Drain Outlet Connection: NPS 1/2 threaded or solder joint.

5. Finish: Chrome plated, or rough bronze for units used with pipe or tube that is not chrome finished.

J. Valve Tag and Charts: 2 inch diameter brass or aluminum tags, plainly lettered on each valve. Attach valves with brass S hook and brass window sash chain.

1. Tag Identification:

a. CW: Cold water valve.

b. HW: Hot water valve.

c. HWC: Hot water circulation valves.

d. G: Gas cocks and gas plugs valves.

e. A: Compressed air valves.

K. Drainage Type Trap Seal Primer Valves: ASSE 1044, fixture trap, waste drainage fed type, with the following characteristics:

1. Chrome plated, cast brass, NPS 1-1/4 minimum, lavatory P trap with NPS 3/8 minimum, trap makeup connection.

2. Manufacturers: Subject to compliance with requirements, provide products by Smith, Jay R. Mfg. Co.

L. Trap Seal Primer System: Factory fabricated, automatic operation assembly for wall mounting with the following:

1. Piping: NPS 3/4, ASTM B88, Type L; copper, water tubing inlet and manifold with number of NPS 1/2 outlets as indicated.

2. Cabinet: Steel box with stainless steel cover.

3. Electric Controls: 24 hour timer, solenoid valve, and manual switch for 120-V ac power.

4. Water Hammer Arrester: ASSE 1010.

5. Vacuum Breaker: ASSE 1001.

M. Hose End Drain Valves: MSS SP-110, NPS 3/4 ball valve, rated for 400 psig minimum CWP. Include two piece, copper alloy body with standard port, chrome plated brass ball, replaceable seats and seals, blowout proof stem, and vinyl covered steel handle.

1. Inlet: Threaded or solder joint.

2. Outlet: Short threaded nipple with ASME B1.20.7 garden hose threads and cap.

N. Hose End Drain Valve: MSS SP-80 gate valve, Class 125, ASTM B 62 bronze body, with NPS 3/4 threaded or solder joint inlet and ASME B1.20.7 garden hose threads on outlet and cap. Hose bibbs are prohibited for this application.

O. Stop and Waste Drain Valves: MSS SP-110 ball valve, rated for 200 psig minimum CWP, or MSS SP-80 Class 125 gate valve; ASTM B62 bronze body, with NPS 1/8 side drain outlet and cap.

## 2.03 MISCELLANEOUS PIPING SPECIALTIES

A. Water Hammer Arresters: ASSE 1010 or PDI-WH 201, metal-bellows type with pressurized metal cushioning chamber. Sizes indicated are based on ASSE 1010 or PDI-WH 201, Sizes A through F.

B. Hose Bibbs: Bronze body with replaceable seat disc complying with ASME A112.18.1M for compression type faucets. Include NPS 1/2 or NPS 3/4 threaded or solder joint inlet, of design suitable for pressure of at least 125 psig; integral non-removable, drainable hose connection vacuum breaker; and garden hose threads complying with ASME B1.20.7 on outlet.

1. Finish for Equipment Rooms: Rough bronze, or chrome or nickel plated.

2. Finish for Service Areas: Chrome or nickel plated.

3. Finish for Finished Rooms: Chrome plated.

4. Include integral wall flange with each chrome or nickel plated hose bibb.

5. Air Vents: Float type for automatic air venting.

6. Bolted Construction: Bronze body with replaceable, corrosion resistant metal float and stainless steel mechanism and seat; threaded NPS 3/8 minimum inlet; 125 psig minimum pressure rating at 140 degrees F; and threaded vent outlet.

7. Welded Construction: Stainless steel body with corrosion resistant metal float, stainless steel mechanism and seat, threaded NPS 3/8 minimum inlet, 150 psig minimum pressure rating, and threaded vent outlet.

C. Air Admittance Valves: Plastic housing with mechanical operation sealing diaphragm, designed to admit air into drainage and vent piping and to prevent transmission of sewer gas into building.

1. Stack Vent Valve: ASSE 1050, designed for installation as terminal on soil, waste, and vent stacks, instead of stack vent extending through roof, in NPS 2 to NPS 4.

2. Fixture Vent Valve: ASSE 1051, designed for installation on waste piping, instead of vent connection, for single fixture, in NPS 1-1/4 to NPS 2.

D. Roof Flashing Assemblies: Manufactured assembly made of 4 lb/sq. ft., 0.0625 inch thick, lead flashing collar and skirt extending at least 10 inches from pipe with galvanized steel boot reinforcement, and counter-flashing fitting.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or equal approved as a comparable product:

a. Elmdor/Stoneman Manufacturing, div. Acorn Engineering Company.

b. Pate Company.

2. Open Top Vent Cap: Without cap.

3. Low Silhouette Vent Cap: With vandal proof vent cap.

4. Extended Vent Cap: With field installed, vandal proof vent cap.

E. Open Drains: Shop or field fabricate from ASTM A74, Service class, hub and spigot, cast iron, soil pipe fittings. Include P trap, hub and spigot riser section; and where required, increaser fitting, joined with ASTM C564 rubber gaskets.

F. Deep Seal Traps: Cast iron or bronze casting, with inlet and outlet matching connected piping and cleanout trap seal primer valve connection.

1. NPS 2: 4 inch minimum water seal.

2. NPS 2-1/2 and Larger: 5 inch minimum water seal.

G. Floor Drain Inlet Fittings: Cast iron, with threaded inlet and threaded or spigot outlet, and trap seal primer valve connection.

H. Fixed Air Gap Fittings: Manufactured cast iron or bronze drainage fitting with semi-open top with threads or device to secure drainage inlet piping in top and bottom spigot or threaded outlet larger than top inlet. Include design complying with ASME A112.1.2 that will provide fixed air gap between installed inlet and outlet piping.

I. Stack Flashing Fittings: Counter-flashing type, cast iron fitting, with bottom recess for terminating roof membrane, and with threaded or hub top for extending vent pipe.

J. Vent Caps: Cast iron body with threaded or hub inlet and vandal proof design. Include vented hood and set screws to secure to vent pipe.

K. Vent Terminals: Commercially manufactured, shop or field fabricated, frost proof assembly constructed of galvanized steel, copper, or lead coated copper. Size to provide 1 inch enclosed air space between outside of pipe and inside of flashing collar extension, with counter-flashing.

L. Fittings in paragraph below are designed for use with roof drains, but may also be used with sanitary drainage and vent systems if required.

M. Expansion Joints: ASME A112.21.2M assembly with cast iron body with bronze sleeve, packing gland, and packing; of size and end types corresponding to connected piping.

N. Downspout Boots: ASTM A48 gray iron casting, with NPS 4 outlet; shop applied bituminous coating; and inlet size to match downspout.

O. Conductor Nozzles: Bronze body with threaded inlet for connected conductor size, and bronze wall flange with mounting holes.

1. Finish: Polished bronze.

P. Sleeve Penetration System: UL 1479 through penetration fire-stop assembly consisting of sleeve and stack fitting with fire-stopping plug. Refer to Section 07 84 00, Fire-stopping.

1. Sleeve: Molded PVC plastic, of length to match slab thickness and with integral nailing flange on one end for installation in cast in place concrete slabs.

2. Stack Fitting: ASTM A48, gray iron, hub-less pattern, wye branch stack fitting with neoprene O ring at base and gray iron plug in thermal release harness in branch. Include PVC protective cap for plug.

a. Special Coating: Include corrosion resistant interior coating on fittings for plastic chemical waste and vent stacks.

3. Manufacturer: Subject to compliance with requirements, provide products of the following, or equal approved as a comparable product:

a. ProSet Systems, Inc.

b. Specified Technologies.

Q. Dielectric Fittings: Dielectric insulating couplings to isolate ferrous piping from nonferrous piping.

## 2.04 MISCELLANEOUS DRAINAGE SPECIALTIES

A. Cleanouts: Comply with ASME A112.3.1.

1. Application: Floor cleanout, wall cleanout, and for installation in exposed piping.

2. Body or Ferrule Material: Cast iron.

3. Clamping Device: Required.

4. Closure: Brass plug with straight threads and gasket.

5. Adjustable Housing Material: Cast iron.

6. Frame and Cover Material and Finish: Nickel bronze.

7. Frame and Cover Shape: Square.

8. Top Loading Classification: Heavy Duty.

9. Type:

a. Slab on Grade: Cleanout with square, heavy duty scoriated polished bronze top, adjustable to finished floor level.

b. Slab Above Grade: Cleanout with square, heavy duty scoriated polished bronze top, adjustable to finished floor level.

c. Tile Floor on Grade: Cleanout with square, heavy duty scoriated polished bronze top, recessed for tile and adjustable to finish floor.

d. Wall Cleanouts: Cleanout tee with cadmium plated cast iron countersunk plug complete with square, smooth nickel bronze wall access cover and frame.

e. Cleanouts in Exposed Piping Runs: Cast iron cleanout tee with cadmium plated cast iron countersunk plug.

B. Floor Drains: Comply with ASME A112.3.1.

1. Application: Deck drain, floor drain.

2. Body Material: Gray iron.

3. Seepage Flange: Required.

4. Clamping Device: Required.

5. Outlet: Bottom.

6. Exposed Surfaces and Interior Lining: Acid resistant enamel.

7. Sediment Bucket: Not required.
8. Top or Strainer Material: Bronze.
9. Top of Body and Strainer Finish: Nickel bronze.
10. Top Shape: Square.
11. Dimensions of Top or Strainer: Heal-proof holes.
12. Top Loading Classification: Heavy Duty.

C. Trench Drains: Comply with ASME A112.6.3 and ASME A112.3.1.

1. Body Material: Pre-shaped polymer concrete.
2. Clamping Device: Required.
3. Outlet: Bottom as indicated on drawings.
4. Grate Material: Ductile iron at catch basin.
5. Grate Finish and Load: Black, high impact; 8000 lb. axle loading for train wash area; forklift loading for maintenance building.
6. Dimensions of Frame and Grate: 12 inches wide in train wash area; elsewhere as shown on drawings.
7. Top Loading Classification: Forklift.
8. Catch Basin: 2 feet long and 2 feet deep polymer concrete with sediment bucket.

D. Roof Drains: Comply with ASME A112. 6.4 and ASME A112.3.1.

1. Application: Scupper drain and deck drain.
2. Body Material: Cast iron.
3. Dimensions of Body: 6 inch overall diameter for scupper drains and 12 inch square for deck drain.
4. Combination Flashing Ring and Gravel Stop: Required.
5. Outlet: Bottom.
6. Dome Material: Bronze.
7. Under-deck Clamp: Required.

E. Area Drains: Comply with ASME A112.6.3.

1. Application: Area drain.

3. Combination Flashing Ring and Gravel Stop: Required.

4. Outlet: Bottom.

5. Under-deck Clamp: Required.

6. AD-1: Traffic-rated floor drain with large capacity sediment bucket; top dimensions 13-1/8 inches by 11-1/8 inches; overall dimensions 17-1/8 inches by 15-1/8 inches by 15-3/8 inches deep; fabricated steel body; ductile iron grate; galvanized sub-coat and duco finish inside and outside; stainless steel solid-bottom ported sediment bucket, 7-3/4 inches deep, with mesh screen and lift bar. Basis of Design: Jay R. Smith Manufacturing Co. Model 2450 with optional ductile iron grate. Provide indicated product or comparable product by manufacturers listed under floor drains.

7. AD-2: Heavy duty floor drain with sediment bucket; top 12 inches in diameter; overall dimensions 15-1/4 inch diameter; cast iron body and flashing collar; traffic-rated ductile iron grate; slotted sediment bucket, 3 inches deep, with lift bar. Basis of Design: Jay R. Smith Manufacturing Co. Model 2233 with optional ductile iron grate. Provide indicated product or comparable product by manufacturers listed under floor drains.

8. AD-3: Medium sized deck drain; top dimensions 11 inches square; overall dimensions 12-inch diameter; cast iron body and flashing clamp with seepage openings; secured square hole light duty cast iron grate. Basis of Design: Jay R. Smith Manufacturing Co. Model 1450. Provide indicated product or comparable product by manufacturers listed under floor drains.

## 2.05 FLASHING MATERIALS

A. Zinc Coated Steel Sheet: ASTM A653, with 0.20 percent copper content and 0.04 inch minimum thickness, unless otherwise indicated. Include G90 hot-dip galvanized, mill phosphatized finish for painting if indicated.

B. Elastic Membrane Sheet: ASTM D4068, flexible, chlorinated polyethylene, 40 mil minimum thickness.

C. Fasteners: Metal compatible with material and substrate being fastened.

D. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.

E. Solder: ASTM B32 lead free alloy.

F. Bituminous Coating: SSPC-Paint 33 cold-applied coal tar mastic.

## PART 3 EXECUTION

### 3.01 INSTALLATION

A. Refer to Section 22 05 00, Common Work Results for Plumbing, for piping joining materials, joint construction, and basic installation requirements.

B. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.

1. Locate backflow preventers in same room as connected equipment or system.

2. Install drain for backflow preventers with atmospheric vent drain connection with air gap fitting, fixed air gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.

3. Do not install bypass piping around backflow preventers.

C. Install pressure regulators with inlet and outlet shutoff valves and balance valve bypass. Install pressure gauges on inlet and outlet.

D. Install strainers on supply side of each control valve, pressure regulator, and solenoid valve.

E. Install trap seal primer valves with outlet piping pitched down toward drain trap minimum of 1 percent and connect to floor-drain body, trap, or inlet fitting. Adjust valve for proper flow.

F. Install expansion joints on vertical risers, stacks, and conductors if indicated.

G. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:

1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger cleanout is indicated.

2. Locate at each change in direction of piping greater than 45 degrees.

3. Locate at minimum intervals of 50 feet for piping NPS 4 and smaller and 100 feet for larger piping.

4. Locate at base of each vertical soil and waste stack.

H. Install cleanout deck plates with top flush with finished floor, for floor cleanouts for piping below floors.

I. Install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall, for cleanouts located in concealed piping.

J. Install valve tags and charts in glazed frame at location and for function of each valve installed regardless if N.O. or N.C. Mount chart where directed by Engineer.

K. Install flashing flange and clamping device with each stack and cleanout passing through floors with waterproof membrane.

L. Install vent flashing sleeves on stacks passing through roof. Secure over stack flashing according to manufacturer's written instructions.

M. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.

1. Position floor drains for easy access and maintenance.

2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:

a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4 inch total depression.

b. Radius, 30 to 60 Inches: Equivalent to 1 percent slope.

c. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.

3. Install floor drain flashing collar or flange so that no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.

4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.

N. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions.

1. Install roof drain flashing collar or flange so that no leakage occurs between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.

2. Position roof drains for easy access and maintenance.

O. Fasten wall hanging plumbing specialties securely to supports attached to building substrate if supports are specified and to building wall construction if no support is indicated.

P. Fasten recessed type plumbing specialties to reinforcement built into walls.

Q. Install individual shutoff valve in each water supply to plumbing specialties. Use ball, gate, or globe valve if specific valve is not indicated. Install shutoff valves in accessible locations.

R. Install air vents at piping high points. Include ball, gate, or globe valve in inlet and drain piping from outlet to floor drain.

S. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.

T. Install escutcheons at wall, floor, and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.

## 3.02 CONNECTIONS

A. Piping installation requirements are specified in other Division 22 sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment to allow service and maintenance.

C. Connect plumbing specialties to piping specified in other Division 22 sections.

D. Ground Equipment: Tighten electrical connectors and terminals according to manufacturer's published torque tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

E. Connect plumbing specialties and devices that require power according to Division 26 sections.

## 3.03 FLASHING INSTALLATION

A. Fabricate flashing from single piece unless large pans, sumps, or other drainage shapes are required. Join flashing according to the following if required:

1. Lead Sheets: Burn joints of lead sheets 6 lb/sq. ft., 0.0938 inch thickness or thicker. Solder joints of lead sheets 4 lb/sq. ft., 0.0625 inch thickness or thinner.

2. Copper Sheets: Solder joints of copper sheets.

3. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with waterproof membrane.

4. Pipe Flashing: Sleeve type, matching pipe size, with minimum length of 10 inches, and skirt or flange extending at least 8 inches around pipe.

5. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches around sleeve.

6. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches around specialty.

B. Set flashing on floors and roofs in solid coating of bituminous cement.

C. Secure flashing into sleeve and specialty clamping ring or device.

D. Extend flashing up vent pipe passing through roofs and turn down into pipe, or secure flashing into cast iron sleeve having caulking recess.

E. Fabricate and install flashing and pans, sumps, and other drainage shapes.

## 3.04 LABELING AND IDENTIFYING

A. Equipment Nameplates and Signs: Install engraved plastic laminate equipment nameplate or sign on or near each thermostatic water mixing valve, water tempering valve, and trap seal primer system.

1. Text: Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit.

2. Refer to Section 22 05 00, Common Work Results for Plumbing.

## 3.05 PROTECTION

A. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

# PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. No separate measurement will be made for work of this section.

## 4.02 PAYMENT

A. Payment for work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

## SECTION 22 05 93

## Testing for Plumbing

### PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Testing of plumbing piping.

2. Accessories and related equipment required for testing, including pumps, gages, instruments, equipment, and test media necessary for conducting prescribed tests.

### 1.02 SUBMITTALS

A. Test Reports: Submit certified test reports signed by Contractor and supervisor who performed testing work.

### 1.03 QUALITY ASSURANCE

A. Perform tests in the presence of the Engineer and authorities having jurisdiction over the work. Provide minimum 72 hours' notice for each test.

1. Perform preliminary tests prior to giving notice of final test to ensure that piping complies with requirements.

### PART 2 - PRODUCTS

Not Used

### PART 3 - EXECUTION

### 3.01 PREPARATION

A. Drainage and Vent System: Clean and flush with potable supply water until free of all foreign matter.

B. Do not conceal piping in walls, in ceilings, with backfill, in foundations, or elsewhere prior to testing.

## 3.02 TEST PROCEDURES

A. Rough Plumbing (Soil, Waste and Vent): Verify piping materials and test upon completion of rough piping installation to ensure watertight system.

B. Water Test: Apply water test to drainage system in its entirety or in sections after rough piping is installed. If applied to the complete system, tightly close each opening in piping, except highest opening, and fill with water to the point of overflow. If the system is tested in sections, tightly plug each opening except the highest opening of the section under test, and fill with water.

1. Do not test a section with less than a 10 foot head of water.

2. In testing successive sections, test at least the upper 10 feet of the following section so that each joint or pipe in the building (except the uppermost 10 feet of the system) is subjected to a test with more than a 10 foot head of water.

3. Keep water in system or in the portion under test for at least 15 minutes prior to inspection; the system shall be tight at each point.

C. Sanitary and Industrial Waste Systems: After plumbing fixtures and floor drains are set and traps filled with water, verify drainage system materials and test. Ensure that system is gas tight by a smoke test or peppermint test.

D. Water Systems: When roughing in is completed and before fixtures are set, test hot water return and cold water piping systems at hydrostatic pressure of 150 psi for at least 4 hours to permit inspection of each joint. Where a portion of water piping system is concealed before completion, test portion separately the same as specified for system.

E. Gas System: Upon completion of a section of a gas system or of the entire gas system, perform test before appliances are connected. Verify that completed section or system materials are as specified and tested. Ensure that system is tight under pressure at 150 psi pressure before pressure regulator or in accordance with local gas utility regulation for a period of at least 4 hours. For testing, fill piping with air or an inert gas. Isolate source of pressure prior to taking pressure readings.

F. Compressed Air System: Test compressed air system at 200 psig. Maintain pressure for 24 hours with no allowance for loss and in presence of the Engineer. Should a pressure drop occur after 24 hours, inspect each joint and test for leakage by use of OXEQUIP-OSY Leak. Repair leaks and retest as specified.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. No separate measurement will be made for work of this section.

### 4.02 PAYMENT

A. Payment for work of this section will be included in lump sum payments(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

## SECTION 22 13 00

## Facility Sanitary Sewerage

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Soil and industrial waste, sanitary drainage, and vent piping inside the building/facility and to locations indicated.

B. Related Sections:

1. Section 22 05 00, Common Work Results for Plumbing.

### 1.02 DEFINITIONS

A. The following are industry abbreviations for plastic and rubber piping materials:

1. ABS: Acrylonitrile-butadiene-styrene plastic.

2. EPDM: Ethylene-propylene-diene terpolymer.

3. NBR: Acrylonitrile-butadiene rubber.

4. PE: Polyethylene plastic.

5. PVC: Polyvinyl chloride plastic.

### 1.03 PERFORMANCE REQUIREMENTS

A. Provide components and installation capable of producing piping systems with the following minimum working pressure ratings, unless otherwise indicated:

1. Soil, Waste, and Vent Piping: 10-foot head of water.

2. Sanitary Sewer, Force Main Piping: 50 psig.

### 1.04 SUBMITTALS

A. Product Data: For pipe, tube, fittings, and couplings.

B. Shop Drawings: For sovent drainage system, include plans, elevations, sections, and details. In accordance with Section 22 05 00 Common Work Results for Plumbing, Part 1.03 B.

C. Coordination Drawings: In accordance with Section 22 05 00 Common Work Results for Plumbing, Part 1.03 C.

D. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

## 1.05 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 14, Plastics Piping Systems Components and Related Materials, for plastic piping components. Include marking with "NSF DWV" for plastic drain, waste, and vent piping; "NSF Drain" for plastic drain piping; "NSF Tubular" for plastic continuous waste piping; and "NSF Sewer" for plastic sewer piping.

# PART 2 - PRODUCTS

## 2.01 GENERAL

A. Where products or manufacturers are listed, for proposed comparable products and substitutions, requests must be submitted during the solicitation phase in accordance with Instruction to Bidders, Section F, Request for Clarification / approved Equals / Exceptions.

## 2.02 PIPING MATERIALS

A. Flexible Transition Couplings for Underground Non-pressure Piping: ASTM C1173 with elastomeric sleeve. Include ends of same sizes as piping to be joined and include corrosion resistant metal band on each end.

B. Transition Couplings for Underground Pressure Piping: AWWA C219 metal, sleeve type coupling or other manufactured fitting same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

## 2.03 CAST IRON SOIL PIPING

A. Hub and Spigot Pipe and Fittings: ASTM A74, Service class.

1. Gaskets: ASTM C564, rubber.

B. Hub-less Pipe and Fittings: ASTM A888 or CISPI 301.

1. Couplings: ASTM C1277 assembly of metal housing, corrosion resistant fasteners, and ASTM C 564 rubber sleeve with integral, center pipe stop.

a. Heavy Duty, Type 304, Stainless Steel Couplings: ASTM A666, Type 304, stainless steel shield; stainless steel bands; and sleeve.

1) NPS 1-1/2 to NPS 4: 3 inch wide shield with 4 bands.

2) NPS 5 to NPS 10: 4 inch wide shield with 6 bands.

2. Sovent Fittings: ASME B16.45 or ASSE 1043, hub-less, aerator and de-aerator.

C. Protective Encasement for Underground Pipe and Fittings: Factory-applied polyethylene in accordance with Section 22 05 00, Common Work Results for Plumbing.

## 2.04 DUCTILE IRON PIPING

A. Mechanical Joint, Ductile Iron Pipe: AWWA C151, with mechanical joint bell and plain spigot end, unless grooved or flanged ends are indicated.

1. Mechanical Joint, Ductile Iron Fittings: AWWA C110, ductile or gray iron standard pattern or AWWA C153, ductile iron compact pattern.

a. Glands, Gaskets, and Bolts: AWWA C111, ductile or gray iron glands, rubber gaskets, and steel bolts.

2. Ductile Iron Piping, Grooved End Fittings: ASTM A47 malleable iron castings or ASTM A536 ductile iron castings with dimensions matching pipe.

a. Ductile Iron Piping, Keyed Couplings: AWWA C606, for ductile iron pipe dimensions. Include ferrous housing sections, gasket suitable for water, and bolts and nuts.

B. Push on Joint, Ductile Iron Pipe: AWWA C151, with push on joint bell and plain spigot end, unless grooved or flanged ends are indicated.

1. Push on Joint, Ductile Iron Fittings: AWWA C110 ductile or gray iron standard pattern or AWWA C153 ductile iron compact pattern.

a. Gaskets: AWWA C111, rubber.

2. Ductile Iron Grooved End Fittings: ASTM A47 malleable iron castings or ASTM A536 ductile iron castings with dimensions matching pipe.

a. Ductile Iron Piping, Keyed Couplings: AWWA C606, for ductile iron pipe dimensions. Include ferrous housing sections, gasket suitable for water, and bolts and nuts.

3. Ductile Iron Flexible Expansion Joints: Compound, ductile iron fitting with combination of flanged and mechanical joint ends complying with AWWA C110 or AWWA C153. Include two gasketed ball joint sections and one or more gasketed sleeve sections. Assemble components for offset and expansion indicated. Include AWWA C111 ductile iron glands, rubber gaskets, and steel bolts.

4. Ductile Iron Deflection Fittings: Compound, ductile iron coupling fitting with sleeve and flexing sections for up to 20 degree deflection, gaskets, and restrained joint ends complying with AWWA C110 or AWWA C153. Include AWWA C111 ductile iron glands, rubber gaskets, and steel bolts.

5. Ductile Iron Expansion Joints: Three piece, ductile iron assembly consisting of telescoping sleeve with gaskets and restrained type, ductile iron, bell and spigot end sections complying with AWWA C110 or AWWA C153. Select and assemble components for expansion indicated. Include AWWA C111 ductile iron glands, rubber gaskets, and steel bolts.

C. Protective Encasement for Underground Pipe and Fittings: Factory-applied polyethylene in accordance with Section 22 05 00, Common Work Results for Plumbing.

## 2.05 COPPER TUBING

A. Copper DWV Tube: ASTM B306 drainage tube, drawn temper.

1. Copper Drainage Fittings: ASME B16.23 cast copper or ASME B16.29 wrought copper, solder joint fittings.

B. Soft Copper Tube: ASTM B88, Type L, water tube, annealed temper.

1. Copper Pressure Fittings: ASME B16.18 cast copper alloy or ASME B16.22 wrought copper, solder joint fittings. Furnish wrought copper fittings if indicated.

2. Bronze Flanges: ASME B16.24, Class 150, with solder joint end.

3. Copper Unions: MSS SP-123 cast copper alloy, hexagonal stock body with ball and socket, metal to metal seating surfaces, and solder joint or threaded ends.

C. Protective Encasement for Underground Pipe and Fittings: Factory-applied polyethylene in accordance with Section 22 05 00, Common Work Results for Plumbing.

## 2.06 SUMP PUMPS

## PART 3 - EXECUTION

## 3.01 EXCAVATION

A. See Section 31 20 00, Earth Moving, for excavating, trenching, and backfilling.

## 3.02 PIPING APPLICATIONS

A. Transition and special fittings with pressure ratings at least equal to piping pressure ratings may be used in applications below, unless otherwise indicated.

B. Flanges may be used on aboveground pressure piping, unless otherwise indicated.

C. Aboveground Soil, Waste, and Vent Piping: Use any of the following piping materials for each size range:

1. Sovent Fittings: NPS 3 to NPS 8.

2. NPS 1-1/4 and NPS 1-1/2: Use NPS 1-1/2 hub-less cast iron soil piping and one of the following:

   a. Couplings: Heavy duty, Type 304, stainless steel.

   b. Couplings: Compact, stainless steel.

3. NPS 1-1/4 and NPS 1-1/2: Copper DWV tube, copper drainage fittings, and soldered joints.

4. NPS 2 to NPS 4: Service class, cast iron soil piping; gaskets; and gasketed joints.

5. NPS 2 to NPS 4: Hub-less, cast iron soil piping and one of the following:

   a. Couplings: Heavy duty, Type 304 stainless steel.

6. NPS 5 and NPS 6: Service class, cast iron soil piping; gaskets; and gasketed joints.

7. NPS 5 and NPS 6: Hub-less, cast iron soil piping.

   a. Couplings: Heavy duty, Type 304 stainless steel.

8. NPS 8: Service class, cast iron soil piping; gaskets; and gasketed joints.

9. NPS 8: Hub-less cast iron soil piping,

    a. Couplings: Heavy duty, Type 304 stainless steel.

D. Underground Soil, Waste, and Vent Piping: Use any of the following piping materials for each size range:

1. NPS 1-1/2: Hub-less cast iron soil piping and one of the following:

    a. Couplings: Heavy duty, Type 304 stainless steel.

2. NPS 2 to NPS 4: Service class, cast iron soil piping; gaskets; and gasketed joints.

3. NPS 2 to NPS 4: Extra Heavy class, cast iron soil piping; gaskets; and gasketed joints.

4. NPS 2 to NPS 4: Hub-less cast iron soil piping.

    a. Couplings: Heavy duty, Type 304 stainless steel.

5. NPS 5 and NPS 6: Service class, cast iron soil piping; gaskets; and gasketed joints.

6. NPS 5 and NPS 6: Hub-less cast iron soil piping.

    a. Couplings: Heavy duty, Type 304 stainless steel.

E. Aboveground Sanitary-Sewage Force Mains: Use any of the following piping materials for each size range:

1. NPS 1-1/2: Hard copper tube, Type L; copper pressure fittings; and soldered joints.

2. NPS 2 to NPS 4: Hard copper tube, Type L; copper pressure fittings; and soldered joints.

F. Underground Sanitary Sewage Force Mains: Use any of the following piping materials for each size range:

1. NPS 2 to NPS 4: Use NPS 3 and NPS 4 mechanical, push on, mechanical or push on joint, ductile iron pipe and fittings.

## 3.03 PIPING INSTALLATION

A. Refer to Section 22 05 00, Common Work Results for Plumbing, for basic piping installation.

B. Install cleanouts at grade and extend to where building sanitary drains connect to building sanitary sewers.

C. Install cleanout fitting with closure plug inside the building in sanitary force main piping.

D. Underground, Ductile Iron, Force Main Piping: Comply with AWWA C600. Install buried piping inside the building between wall and floor penetrations and connection to sanitary sewer piping outside the building with restrained joints. Anchor pipe to wall or floor. Install thrust block supports at vertical and horizontal offsets. Bury underground piping in a 8” to 12” bed of sand.

E. Install cast iron sleeve with water stop and mechanical sleeve seal at each service pipe penetration through foundation wall. Select number of interlocking rubber links required to make installation watertight. Refer to Section 22 05 00, Common Work Results for Plumbing, for sleeves and mechanical sleeve seals.

F. Install wall penetration system at each service pipe penetration through foundation wall. Make installation watertight. Refer to Section 22 05 00, Common Work Results for Plumbing, for wall penetration systems.

G. Install cast-iron soil piping according to CISPI's Cast Iron Soil Pipe and Fittings Handbook, Chapter IV, Installation of Cast Iron Soil Pipe and Fittings.

H. Make changes in direction for soil and waste drainage and vent piping using appropriate branches, bends, and long sweep bends. Sanitary tees and short sweep 1/4 bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Use long turn, double Y branch and 1/8 bend fittings if 2 fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

I. Lay buried building drainage piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab in piping and pull past each joint as completed.

J. Install soil and waste drainage and vent piping at the following minimum slopes, unless otherwise indicated:

1. Building Sanitary Drain: 2 percent downward in direction of flow for piping NPS 3 and smaller; 1 percent downward in direction of flow for piping NPS 4 and larger.

2. Horizontal Sanitary Drainage Piping: 2 percent downward in direction of flow.

3. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

K. Install force mains at elevations indicated.

L. Install engineered soil and waste drainage and vent piping systems in locations indicated and as follows:

1. Combination Waste and Vent: Comply with standards of authorities having jurisdiction.

2. Cast Iron, Sovent, Single Stack: Comply with ASSE 1043 and sovent fitting manufacturer's written installation instructions.

3. Reduced Size Venting: Comply with standards of authorities having jurisdiction.

M. Sleeves are not required for cast-iron soil piping passing through concrete slabs on grade if slab is without membrane waterproofing.

N. Do not enclose, cover, or put piping into operation until it is inspected and approved by authorities having jurisdiction.

## 3.04 JOINT CONSTRUCTION

A. Refer to Section 22 05 00, Common Work Results for Plumbing, for basic piping joint construction.

B. Cast Iron, Soil Piping Joints: Make joints according to CISPI's Cast Iron Soil Pipe and Fittings Handbook, Chapter IV, Installation of Cast Iron Soil Pipe and Fittings.

1. Gasketed Joints: Make with rubber gasket matching class of pipe and fittings.

2. Hub-less Joints: Make with rubber gasket and sleeve or clamp.

C. Soldered Joints: Use ASTM B813, water flushable, lead free flux; ASTM B32, lead free alloy solder; and ASTM B828 procedure, unless otherwise indicated.

D. Grooved Joints: Assemble joint with keyed coupling, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.

E. PVC Non-pressure Piping Joints: Join piping according to ASTM D2855.

## 3.05 VALVE INSTALLATION

A. Shutoff Valves: Install shutoff valve on each sewage pump discharge.

1. Use gate or full port ball valve for piping NPS 2 and smaller.

2. Use gate valve for piping NPS 2-1/2 and larger.

B. Check Valves: Install swing check valve, downstream from shutoff valve, on each sewage pump discharge.

C. Backwater Valves: Install backwater valves in piping subject to sewage backflow.

1. Horizontal Piping: Horizontal backwater valves. Use normally closed type, unless otherwise indicated.

2. Floor Drains: Drain outlet backwater valves, unless drain has integral backwater valve.

3. Install backwater valves in accessible locations.

## 3.06 HANGER AND SUPPORT INSTALLATION

Not Used

## 3.07 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect soil and waste piping to exterior sanitary sewerage piping. Use transition fitting to join dissimilar piping materials.

C. Connect drainage and vent piping to the following:

1. Plumbing Fixtures: Connect drainage piping in sizes indicated, but not smaller than required by plumbing code. Refer to Section 22 42 00, Commercial Plumbing Fixtures.

2. Plumbing Fixtures and Equipment: Connect atmospheric vent piping in sizes indicated, but not smaller than required by authorities having jurisdiction.

3. Plumbing Specialties: Connect drainage and vent piping in sizes indicated, but not smaller than required by plumbing code. Refer to Section 22 42 00, Commercial Plumbing Fixtures.

4. Equipment: Connect drainage piping as indicated. Provide shutoff valve, if indicated, and union for each connection. Use flanges instead of unions for connections NPS 2-1/2 and larger.

D. Connect force-main piping to the following:

1. Sanitary Sewer: To exterior force main or sanitary manhole.

2. Sewage Pumps: To sewage pump discharge.

## 3.08 FIELD QUALITY CONTROL

A. During installation, notify authorities having jurisdiction at least 24 hours before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction.

1. Roughing In Inspection: Arrange for inspection of piping before concealing or closing in after roughing in and before setting fixtures.

2. Final Inspection: Arrange for final inspection by authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.

B. Re-inspection: If authorities having jurisdiction find that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

D. Test sanitary drainage and vent piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.

2. Leave uncovered and unconcealed new, altered, extended, or replaced drainage and vent piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.

3. Roughing in Plumbing Test Procedure: Test drainage and vent piping, except outside leaders, on completion of roughing in. Close openings in piping system and fill with water to point of overflow, but not less than 10 foot head of water. From 15 minutes before inspection starts to completion of inspection, water level must not drop. Inspect joints for leaks.

4. Finished Plumbing Test Procedure: After plumbing fixtures have been set and traps filled with water, test connections and prove they are gastight and watertight. Plug vent stack openings on roof and building drains where they leave building. Introduce air into piping system equal to pressure of 1 inch wg. Use U tube or manometer inserted in trap of water closet to measure this pressure. Air pressure must remain constant without introducing additional air throughout period of inspection. Inspect plumbing fixture connections for gas and water leaks.

5. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.

6. Prepare reports for tests and required corrective action.

E. Test force-main piping according to procedures of authorities having jurisdiction or, in absence of published procedures, as follows:

1. Leave uncovered and unconcealed new, altered, extended, or replaced force-main piping until it has been tested and approved. Expose work that was covered or concealed before it was tested.

2. Cap and subject piping to static-water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.

3. Repair leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.

4. Prepare reports for tests and required corrective action.

## 3.09 CLEANING

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

# PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. No separate measurement will be made for work of this section.

## 4.02 PAYMENT

A. Payment for work of this section will be included in lump sum payment(s) for the applicable building or facility in accordance with the Schedule of Values.

**END OF SECTION**

## Section 22 13 23

## SAND-OIL INTERCEPTOR SYSTEMS

# PART1- GENERAL

## 1.01 SUMMARY

A. Section Includes:

1. Complete waterproof outdoor-modified type industrial sand-oil interceptor system including waste lines, vent stacks, branches, and drains as indicated on Drawings.

B. Related Sections:

| | | |
|---|---|---|
| 1. | 22 05 00 | Common Work Results for Plumbing |
| 2. | 22 13 00 | Facility Sanitary Sewerage |
| 3. | 31 20 00 | Earth Moving |

## 1.02 CONTRACTOR RESPONSIBILITIES

A. Work under this Section shall include but not be limited to the following.

B. Provide all labor, material, tools, equipment and service required to furnish, deliver and install work under this Section as specified herein, except for items that are owner furnished.

C. Obtain all governmental agency approvals and permits for installation for a complete and fully operational sand-oil interceptor system.

D. Schedule and coordinate delivery and installation with manufacturer, all trades, and owner, including applicable warranties and guarantees for field work.

E. Ensure that manufacturer provides on-site storage and supervision of installation.

F. Store, coordinate, and install the sand-oil interceptor system and other necessary accessories and appurtenances for the equipment.

G. Furnish equipment, tools, incidental materials, conduit and wire to power source(s), and other necessary accessories and appurtenances needed for a complete and proper installation. Furnish any other facilities and services necessary to properly execute and complete the installation of the Work.

H. Installation shall be of sufficient durability and workmanship to support a minimum 30-year operating life-span for the equipment.

I. Prosecute the Work as specified and in a timely manner. Submit schedule of installation to Resident Engineer.

J. Document Control: Coordinate receipt and distribution of all documentation required from the manufacturer. Maintain hard copy files on-site of all documentation, and track all applicable documents (including but not limited to Requests for Information, Change Notices, Change Orders, shop drawings, and other submittals) on a computerized database.

K. Field Acceptance Testing of Installed Equipment: Coordinate scheduling of test with manufacturer, owner, and Resident Engineer. Provide qualified operator(s) to operate the equipment during testing.

L. Training: Coordinate with manufacturer to train owner personnel in the use and maintenance of the equipment. Make arrangements with the owner for classroom location. If owner space is not available, provide an alternative location on-site.

## 1.03 QUALIFICATIONS OF INSTALLERS

A. Manufacturer shall provide a field service representative to supervise the Contractor during installation of the equipment, to conduct acceptance testing, and to train personnel in the proper operation and maintenance of the equipment. The field service representative shall be a qualified supervisor employed by the manufacturer, who is thoroughly trained in the installation of equipment being furnished; and who shall be present at the site to direct the installation of the equipment being furnished.

B. Installer shall employ adequate numbers of skilled and qualified personnel who are trained in and completely familiar with the methods, materials and specified requirements necessary for the proper execution of the work under this Section.

## 1.04 CONTRACTOR USE OF WORKSITE

A. Confine Work site operations to areas permitted by law, ordinances, permits, and the Contract Documents.

B. Consider the safety of the Work and that of people and property on and adjacent to the Work site when determining amount, location, movement, and use of materials and equipment on Worksite.

C. Do not load Work site with equipment and products which would interfere with the Work. Only equipment, tools or materials required for this work may be stored at the worksite.

D. Protect products, equipment and materials stored on Work site.

E. Relocate stored products, equipment and materials which interfere with operations of South Bay Bus Maintenance Facility, governmental bodies, public and private utilities, and other contractors.

## 1.05 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Shop Drawings: Submit shop drawings showing equipment and piping layout, and sump pumps, indicating the equipment clearances and pipe sizes, and the performance.

C. Product Data: Submit manufacturer's product data for the specified materials and equipment.

D. Operation and Maintenance Data: Submit operation and maintenance data for the equipment provided in accordance with General Provisions, Section 67, Construction Submittals.

# PART 2- PRODUCTS

## 2.01 GENERAL

A. Where products or manufacturers are listed, for proposed comparable products and substitutions, requests must be submitted during the solicitation phase in accordance with Instruction to Bidders, Section F, Request for Clarification / approved Equals / Exceptions.

## 2.02 SAND-OIL INTERCEPTOR SYSTEM

A. Provide traffic-rated pre-fabricated precast concrete type sand and oil interceptor, complete with sampling box, inlet and outlet connections, traffic-rated access solid covers and other required accessories. Construction – Shall be in accordance with the Standard Approved Plan of the (City of Montclair Municipal Water Department – Environmental Control Section). Capacity, volume and dimensions shall be as indicated on drawings. Unit to be manufactured by Jensen Precast, Pyramid Precast Company, or approved equal.

B. Influent Characteristics:

1. Provide separator designed for intermittent and variable flows of water, oil, or any combination of non-emulsified oil-water mixtures ranging from zero to 100 gal/min.

a. Operating Temperature of Influent Oil-Water Mixture: 40 deg F to 80 deg F.

b. Minimum separator retention time shall be 10 minutes.

c. Specific Gravity at Operating Temperatures:

1) Oils: 0.71 to 0.92.

2) Fresh Water: 1.00 to 1.03.

C. Applicable Standards:

1. American Society of Plumbing Engineers (ASPE).

2. National Precast Concrete Association (NPCA).

3. 2019 California Plumbing Code.

D. Covers and Hatches:

1. Chambers shall be completely covered with traffic-rated gasketed lid sections to allow complete access to the inside of the interceptor.

2. Three (3) 24” diameter manholes, UL approved, complete with required extension, cover, gasket, and bolts. One man-way shall be placed over the inflow chamber, another over the outflow chamber, and one over sampling box.

3. Lifting lugs at balancing points for handling and installation.

4. Identification plates: Plates to be affixed in prominent location and be durable and legible throughout equipment life.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

A. Install all equipment and systems with good workmanship and per manufacturer's written instructions. Install a 24" diameter sample monitoring pit at discharge of the sand-oil interceptor.

B. Contractor shall verify that the equipment furnished will fit in the space allotted with all required clearances.

1. If manufacturer-supplied components do not fit in the space allotted, and the space allotted was constructed in accordance with drawings provided to the manufacturer, then the manufacturer shall provide corrected parts or modify the space at his expense. In such cases, requests for schedule relief will be entertained by owner.

C. It shall be Contractor's responsibility that all information regarding the scheduling, delivery, and preparation necessary for installation of the equipment to be supplied under this specification be verified with the equipment manufacturer and approved by Resident Engineer prior to commencement of the work.

### 3.02 FIELD ACCEPTANCE TEST

A. Following installation, ensure that the equipment manufacturer performs an acceptance test. Prior to the test, the manufacturer shall submit for approval by the Resident Engineer an acceptance testing program. The program shall be designed to show that the equipment meets all requirements of this specification and that the equipment will perform as intended.

B. The manufacturer's representative shall conduct the tests in the presence of the Resident Engineer.

C. Equipment shall be pre-checked, energized and started up by a factory service technician following installation; this technician shall thoroughly test the equipment and provide operating personnel with instruction on its proper operation and maintenance. The manufacturer shall provide three hard copy reports of the field service technician's startup operation.

D. Should the system, or any part thereof, in the determination of the Resident Engineer fail to function properly, make all modifications and adjustments and replace impaired parts as may be required for safe and proper operation, at no additional cost to the owner. Perform such additional tests as may be necessary to verify that the equipment is operating properly and safely.

## 3.03 TRAINING (FOR INFORMATION AND COORDINATION BY INSTALLER)

A. The manufacturer shall:

1. Provide two CD or DVD videos conveying the essential information for training purposes.

## 3.04 SPARE PARTS

A. Furnish to the owner spare parts, as recommended by the manufacturer and approved by the owner.

## 3.05 OPERATION AND MAINTENANCE MANUALS

A. Furnish operation and maintenance manuals as outlined in Section 11 05 00, Common Work Results for Equipment.

## 3.06 WARRANTY

A. The manufacturer shall furnish a written guarantee to the owner covering all equipment, materials, and workmanship. Such guarantee shall contain provisions ensuring complete and satisfactory repair or replacement of all defects in equipment, materials, or workmanship which develop within a period of one year commencing the day the equipment is accepted by the owner.

B. The Contractor for installation shall furnish a written guarantee to the owner covering all Contractor-furnished materials and workmanship. Such guarantee shall contain provisions ensuring complete and satisfactory repair or replacement of all defects in Contractor-furnished materials and workmanship which develop within a period of one year commencing the day the equipment is accepted by the owner.

C. In the case of a dispute as to whether the defect is the result of the manufacturer or of the Contractor, the matter will be resolved in a timely manner by a technical dispute resolution panel consisting of one representative each from the manufacturer, Contractor, Omnitrans, and Resident Engineer.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. Work of this Section will be measured as a completed system meeting the requirements of the Contract Documents.

### 4.02 PAYMENT

A. Payment for the work of this Section will be made under a lump sum in accordance with the Schedule of Values.

**END OF SECTION**

# SECTION 31 20 00

# EARTH MOVING

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes

1. Requirements for earthwork, excavation, placement of backfill, trench excavation and backfill, and sub-grade preparation.

### 1.02 REFERENCES

A. Standard Specifications for Public Works Construction (SSPWC)

B. State of California, Department of Transportation (Caltrans), Standard Specifications (including Amendments to the Standard Specifications)

### 1.03 DEFINITIONS

A. Degree of Compaction: A percentage of the maximum dry density obtained by the test procedure presented in ASTM D 1557, Method C.

B. Satisfactory Materials: Any material classified by ASTM D 2487 as GW, GP, SW, SP, SC, GM, GC and SM.

C. Unsatisfactory Materials: Materials that do not comply with the requirements for satisfactory materials. Unsatisfactory materials include those materials containing roots and other organic matter, trash, debris, stones larger than 3 inches, and materials classified in ASTM D 2487 as PR, OH, OL, CH, CL, MH, and ML. Unsatisfactory material also includes refuse and other material.

D. Unsuitable Material: Material that contains organic matter, soft spongy earth, or other matter of similar nature that compaction to the specified density is unobtainable.

### 1.04 SUBMITALS

A. Submit the following according to General Provisions, Section 67, Construction Submittals.

1. Copies of test reports for material properties and compaction as required in these Specifications.

## 1.05 QUALITY ASSURANCE

A. Inspection and Testing Agency retained for inspection and testing specified herein shall meet the requirements of ASTM D 3740:

# PART 2 - PRODUCTS

## 2.01 MATERIALS

A. Imported fill shall consist of well-graded sand, gravel, crushed gravel, crushed stone or crushed slag composed of hard, tough and durable particles, and shall contain not more than 10 percent by weight of material passing a No. 200 mesh sieve and no less than 95 percent by weight passing the 3/4-inch sieve. The maximum allowable aggregate size shall be one inch. Gradation shall be determined in accordance with ASTM C 136 or D 422, as applicable.

B. Structure Backfill: Comply with Section 300-3.5, "Structure Backfill," of the SSPWC.

C. Pervious Backfill: Comply with Section 300-3.5.2, "Pervious Backfill," of the SSPWC.

D. Trench Bedding Material: Comply with Section 306-1.2.1, "Bedding," of the SSPWC.

E. Slurry Cement Backfill: Comply with Section 19-3.062, "Slurry Cement Backfill," of the Caltrans Standard Specifications.

# PART 3 - EXECUTION

## 3.01 GENERAL

A. Comply with Section 300, "Earthwork," of the SSPWC for excavation and backfill, except as noted below.

B. Remove or abandon in place unclaimed, abandoned utilities as shown on the Plans.

C. Protect exposed graded areas from wind and water erosion until stabilization is achieved.

## 3.02 EXCAVATION

A. Excavate material encountered within the limits of the work, to the lines, grades, and elevations as shown on the Plans and as specified herein.

B. General construction excavation shall not exceed 1 vertical to 1 horizontal slope. If this cannot be accomplished, provide temporary shoring, sheeting and bracing as necessary to retain excavation, maintain banks securely, withstand water pressure, and prevent cave-ins.

C. Perform excavation and placement of fill in a manner and sequence that will provide proper drainage at all times.

D. Surfaces shall be level, or sloped if required, clean, and clear of loose soil. Maintain in good condition until overlying materials are placed.

E. When backfill is placed, remove sheeting and bracing in stages so that the walls are supported by the shoring or newly placed backfill.

## 3.03 BACKFILL (GENERAL)

A. Place backfill in layers not to exceed 8 inches of loose material and compact each layer to at least 95 percent laboratory maximum dry density, in such a manner as to prevent wedging action or eccentric loading.

B. Backfill excavations when installations have been completed, inspected, and approved. Ensure the following conditions are satisfied prior to proceeding with backfill operations:

1. Concrete shall have attained sufficient strength to withstand pressure of earth and compacting operation.

2. Excavations shall be free of forms, debris and other foreign materials.

C. Do not place structure backfill until the structure footings or other portions of the structure or facility to be backfilled have been inspected and approved for backfilling by the Engineer.

D. Do not deposit backfill material against the back of concrete abutments, concrete retaining walls, or the outside walls of cast-in-place concrete box culverts until the concrete has developed a compressive strength of not less than 2500 psi.

## 3.04 TRENCH BEDDING AND BACKFILL

A. Bottom of Trench Compaction: Bottoms of excavations shall be firm, undisturbed earth or cut subgrade, clean and free from loose materials, debris, and foreign matter. When bottoms of excavations or trenches are soft or unstable materials, make bed firm and solid by removing the unstable materials to a sufficient depth and replace with sand or pea gravel, and compact to a minimum of 90 percent relative compaction. If during construction, soft soils are encountered at depths that make removal impractical, notify the Engineer.

B. Backfill and compaction shall be in accordance with Section 306-1.3, "Backfill and Densification," of the SSPWC.

C. Bedding and Backfill Around Pipes:

1. Before the initial layer of bedding is placed, tamp the bottom surface of the trench or compact by plate or other means to provide a base for the bedding.

2. Before the pipe or conduit is laid, place and compact the bedding material in accordance with Section 306-1.2, "Installation of Pipe," of the SSPWC.

D. Backfilling for Underground Utilities:

1. Replace any unsuitable material with approved backfill material and compact as specified herein. Approved backfill materials include satisfactory excavated material and imported backfill.

2. Place and compact initial lifts in 6-inch layers maximum uncompacted thickness until 12 inches over pipe. Subsequent lifts may be up to 12 inches in depth prior to compaction. Bring up uniformly on both sides of pipe.

3. Compact foundations for underground utilities and associated structures to not less than 95 percent of the maximum dry density as determined by ASTM D 1557.

4. Place tracer tape (detection tape) one foot above new and recently exposed buried utilities including conduits, fiber optics, communication and signal cables, gas lines, petroleum lines, water lines and electrical lines. Lay tape flat with 3 feet of overlap at the end of rolls. If tracer tape depth will exceed tape manufacturer's recommendation, obtain additional instructions from the Engineer before proceeding.

E. Backfilling for Culverts: Comply with the requirements in "Backfill (General)" specified herein and the following:

1. When the level of fill reaches the top of the structure, spread and hand compact 2 lifts over the structure without traversing the structure with heavy equipment. Begin no compaction with heavy equipment until a minimum of 2 lifts have been placed, compacted and tested.

2. Compact backfill to the same elevation on both sides of the culvert before proceeding to the next layer.

3. When the height of cover indicated on the approved shop drawings or shown on the Plans is 12 inches or less, backfill structure with slurry cement backfill to the top of the structure.

F. Keep construction equipment away from edges of excavation a distance equal to the depth of the excavation.

G. Do not place stones larger than 3 inches in backfill around pipes.

## 3.05 GRADING

A. Grading shall conform to the Plans and the tolerances specified herein. Transport satisfactory excavated materials to and place in fill or embankment within the limits of the work. Excavate unsatisfactory materials encountered within the limits of the work and replace with satisfactory materials. Remove unsatisfactory or unsuitable materials to designated waste areas on-site or dispose of, as directed by the Engineer.

B. Finish the surface of all excavations, embankments, and subgrades to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown on the Plans. Finish grade to within 1/2-inch of the grades and elevations shown on the Plans. Finish ditches in a manner that will result in effective drainage.

C. Preparation of Subgrade: Shape subgrade to line, grade, and cross section, and compact as specified. Shaping subgrade shall include plowing, disking, scarifying existing subgrade, and moistening or aerating required to obtain specified compaction. Remove soft or otherwise unsatisfactory material and replace with satisfactory excavated material or other approved material as directed by the Engineer. Bring low areas resulting from removal of unsatisfactory material up to required grade with satisfactory materials, shape entire subgrade to line, grade, and cross section, and compact as specified. After rolling, the surface of the subgrade shall not show deviation greater than 1/2-inch when tested with a 10-foot straightedge applied both parallel and at right angles to the centerline of the area.

D. Protection and Maintenance of Subgrade:

1. Maintain ditches and drains along subgrade at all times to as required to effectively drain the subgrade. The finished subgrade shall not be disturbed by traffic or other operations and shall be protected and maintained by the Contractor in a satisfactory condition until subbase, base, or pavement is placed. Do not store or stockpile materials on the finished subgrade.

2. Obtain Engineer's inspection and approval of subgrade prior to laying subbase, base, or pavement. Place no subbase, base, or pavement on a muddy, spongy, or frozen subgrade.

E. Slopes:

1. Finish excavated slopes in conformance with lines and grades shown on the Plans.

2. Excavate slopes so that the average plane of completed slopes conforms to the slopes indicated on the Plans, and no point on the completed slopes varies from the designated plane by more than 6 inches measured at right angles to the slope.

## 3.06 COMPACTION

A. Do not compact fill or backfill until it has attained the required moisture content. Add an accurately determined and measured amount of water to the materials or surfaces that are too dry. Dry material containing an excess of moisture by manipulation, aeration, drainage, or other means before being compacted.

B. When subgrade has been prepared and has reached required grade, proof-roll surfaces to determine if soft spots exist in the material using a 50-ton pneumatic-tired roller or similar approved equipment. If wet or spongy areas are revealed, notify the Engineer so that corrective measures may be determined. Remove soft spots and refill until they meet the required compaction. Proof-roll areas which support paving, utility structures, or other structures in the presence of the Engineer and obtain the Engineer's approval before further earthwork operations are performed.

C. In addition to proof-rolling, perform field density tests as specified under "Field Quality Control" specified herein.

D. Use power-operated or power-driven hand operated equipment wherever possible to compact to requirements specified herein. Do not operate mobile equipment closer to foundation than a horizontal distance equal to the height of backfill above bottom of wall. Accomplish compaction by sheeps foot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibrator compactors, or other approved equipment well suited to the type of material being compacted.

E. If the degree of compaction is unsatisfactory, make necessary adjustments until the Specifications are met. Remove material placed over layers not satisfactorily compacted and re-compact the unsatisfactory areas.

F. Unless otherwise noted, relative compaction of fill materials composing each layer of fill shall not be less than 95 percent as determined by ASTM D 1556.

## 3.07 FIELD QUALITY CONTROL

A. Testing shall be performed by an approved Independent Commercial Testing Laboratory retained by the Contractor.

B. Unless otherwise noted, perform field in-place density tests in accordance with ASTM D 1556. Perform field density tests in accordance with ASTM D 1556 (Sand –Cone Method). Periodically verify density tests by the nuclear probe method in accordance with ASTM D 2922 with density tests from the Sand-Cone Method.

C. Determine the relative compaction of fill materials composing each layer of fill in accordance with ASTM D 1556.

D. Maximum dry density and optimum moisture content of non-granular soils (greater than 12 percent by weight passing through a No. 200 sieve) shall be determined by one of the methods described in ASTM D 1557.

E. Perform field moisture tests in accordance with ASTM D 3017 (Nuclear Probe Method). At the time of compacting, backfill material and the surface on which it is to be placed shall be within plus or minus 2 percent optimum moisture content and meet specified compaction requirements.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. Excavation will be measured by the cubic yard.

B. Backfill will be measured by the cubic yard.

### 4.02 PAYMENT

A. The contract price paid per cubic yard for excavation shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in excavation, complete in place, as shown on the plans, as specified in these Specifications, and as directed by the Engineer.

B. The contract price paid per cubic yard for backfill shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in backfill, complete in place, as shown on the plans, as specified in these Specifications, and as directed by the Engineer.

C. Payment will be made under the following pay items:

| Pay Item | Description | Pay Unit |
|---|---|---|
| 02200.02 | Structure Excavation | CY |
| 02200.03 | Structure Backfill | CY |

**END OF SECTION**

# SECTION 31 22 00

# GRADING

## PART 1 - GENERAL

### 1.1 DESCRIPTION

A. Definitions:

1. Unsuitable material: Debris and/or soil material judged unsuitable by Engineer for support of slabs or other site improvements.

B. Related sections include but are not necessarily limited to:

1. General Provisions

### 1.2 QUALITY ASSURANCE

A. Compaction density test:

1. Modified Proctor, ASTM-D1557.

### 1.3 SUBMITTALS

A. Material Test Reports: From a qualified testing agency to comply with the following requirements:

1. Classify on-site or borrow soil material to be used for fill and backfill in accordance with ASTM D 2487.

2. Compaction curve for each on-site or borrow soil material to be used for fill and backfill in accordance with ASTM D 1557.

### 1.4 JOB CONDITIONS

A. Protect existing facilities, utilities (overhead and underground), sidewalks, and pavement:

1. Repair damaged items.

2. Cost of repair to items not indicated paid by OWNER.

3. Notify OWNER and make emergency repair as directed.

B. Protect graded areas against erosion:

1. Re-establish grade where settlement or washing occurs at no extra cost.

C. Site may have buried potentially hazardous materials:

1. If encountered, contact OWNER and Architect.

2. Contractor is responsible for removal and disposal.

D. Traffic: Minimize obstruction or interference with adjacent roads, streets, walks, and occupied or used facilities during earthwork operations:

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from OWNER.

2. Provide alternate routes around closed or obstructed traffic ways as required by OWNER and regulation agencies.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. Structural Fill:

1. Structural fill shall consist of hard, durable sand and gravel, free of clay, organic matter, surface coatings, and other deleterious materials. Soil finer than the No. 200 sieve (the "fines") shall be nonplastic. Structural fill shall meet the following gradation requirements:

| Sieve Size | Percent Passing By Weight |
|---|---|
| 3 inches | 100 |
| 1/2 inch | 50 – 100 |
| No. 4 | 35 – 100 |
| No. 16 | 20 – 90 |
| No. 50 | 5 – 40 |
| No. 200 (fines) | 0 – 10 |

2. In addition to complying with the above gradation requirements, the structural fill shall be well graded, i.e., there should have sufficient amounts of all particle sizes within the size range of the material.

3. Structural fill shall be used within the building limits and where indicated on the plans (Note: Natural Sand can be considered suitable subgrade for building support.

4. Excavated Natural Sand to be used for fill below foundations will generally be suitable for reuse as structural fill. However, additional gradation tests should be performed on the excavated Sand to determine its suitability as structural fill.

B. Common Fill:

1. Common fill shall consist of hard, durable sand and gravel, free of clay, organic matter, surface coatings, and other deleterious materials. Soil finer than the No. 200 sieve (the "fines") shall be nonplastic. Common fill shall meet the following gradation requirements:

| Sieve Size | Percent Passing By Weight |
|---|---|
| 6 inches | 100 |
| 3 inches | 80 – 100 |
| No. 4 | 20 – 100 |
| No. 200 (fines) | 0 – 20 |

C. Aggregate Subbase:

1. Aggregate subbase shall consist of 3/8 inch minus crushed stone, and shall consist of hard, durable, crushed or broken rock material, free from loam or clay, surface materials, or other deleterious materials. The material shall conform to the following gradation requirements:

| Sieve Size | Percent Passing By Weight |
|---|---|
| 1/2 inch | 100 |
| 3/8 inch | 85 – 100 |
| No. 4 | 10 – 30 |
| No. 8 | 0 – 10 |
| No. 16 | 0 – 5 |

## PART 3 - EXECUTION

### 3.1 PREPARATION

A. Layout units, structures, piping, roads, parking areas and walks and establish their elevations.

B. Perform other layout work required.

C. Replace benchmarks to original location and elevation if displaced or destroyed.

## 3.2 GENERAL

A. Excavate and grade materials to design elevations.

B. Excavate and grade site to subgrades of paved and unpaved areas as indicated.

C. Excavate for miscellaneous footings, slabs, walks and other structures.

D. Cut and fill as required to bring existing grades to subgrades.

E. Furnish and place additional approved material required to bring subgrade to proper line and grade.

F. During construction, shape and drain embankments and excavation.

G. Maintain ditches and drains to provide drainage.

H. Provide pumping if required.

I. Remove unsuitable materials which cannot be compacted as specified and replace with suitable material:

    1. Dispose material off site as directed.

J. Remove materials unsuitable to receive fill and replace with suitable material.

## 3.3 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions:

    1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

## 3.4 LAYOUT FOR ROUGH GRADING

A. Before fill is started, scarify to a minimum depth of 6 IN under new roads, parking lots, or streets or on steep slopes.

B. Construct embankments and fills to lines and grades.

C. Make completed fill correspond to shape of typical cross section or contour indicated regardless of method used to indicate shape, size, and extent of line and grade of work.

D. Ensure that stones larger than 3 IN, are not placed in upper 8 IN of fill or embankment.

E. In areas where existing ground surface is steeper than one vertical to four horizontal, bench and scarify surface in order to spread fill horizontally so that fill material will bond with existing surface.

F. Place and compact fill material in 8 IN thick layers to required elevations.

G. Place soil fill on subgrades free of mud, frost, snow, or ice. Fill materials should not be placed on soils that have been recently subjected to precipitation or saturation. All wet soils should be removed or allowed to dry prior to continuation of fill placement operations. Borrow fill materials, if required, should not contain wet or frozen materials at the time of placement.

## 3.5 SUBGRADE INSPECTION (PROOF ROLLING)

A. Proof-roll subgrade below pavements to identify soft pockets and areas of excess yielding. Do not proof-roll wet or frozen subgrades:

1. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 20 tons.

2. Proof-roll subgrade in two directions perpendicular to each other. Vehicle speed shall not exceed 3 MPH.

3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping and replace with compacted engineered fill.

4. In small areas where proof rolling is not practical, dynamic cone penetration test may be performed.

B. Subgrades damaged by freezing, frost, rain, ponding water, or construction operations shall be reconstructed.

## 3.6 AGGREGATE SUBBASE COURSE

A. Place subbase course on subgrades free of mud, frost, snow, or ice:

1. Shape aggregate subbase course to required crown elevations and cross-slope grades.

2. A layer of aggregate subbase material 6 IN or less can be placed as a single layer and compacted.

3. Aggregate subbase material exceeding 6IN in thickness shall be placed in equal thickness and compacted. No layer shall exceed 6 IN in depth.

4. Compact aggregate subbase course at optimum moisture content at a minimum 95 percent of maximum dry unit weight according to ASTM D 1557.

## 3.7 SOIL MOISTURE CONTROL

A. Each fill or backfill soil layer should be within 2 percent of optimum moisture content before compacting:

1. Subgrade soils exceeding optimum moisture content by 2 percent shall be removed and replaced with satisfactory soil.

## 3.8 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Soil layers compacted by heavy equipment shall not exceed 8 IN in depth.

B. Soil layers to be compacted by hand-operated tampers shall not exceed 4 IN in depth.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Structural fill shall be compacted in maximum 9 inch thick, loose lifts to at least 95 percent of the maximum dry density determined in accordance with ASTM D 1557 (Modified AASHTO Compaction).

2. Common fill shall be compacted in maximum 12 inch thick, loose lifts to at least 92 percent of the maximum dry density determined in accordance with ASTM D 1557 (Modified AASHTO Compaction).

3. Aggregate subbase shall be compacted in maximum 9 inch thick, loose lifts, and compacted with 4 to 6 passes of vibratory compaction equipment.

## 3.9 GRADING

A. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 IN.

2. Walks: Plus or minus 1 IN.

3. Pavements: Plus or minus 1/2 IN.

4. Trail: Plus or minus 0.10 Feet

5. Landscaping (Balance of Site): Plus or minus 0.20 Feet

## 3.10 FIELD QUALITY CONTROL

A. The testing agency will be responsible for inspecting and testing subgrades for each fill or backfill layer accordance with ASTM D 1556, ASTM D 2167, ASTM D 2922, and

B. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

   a. PROTECTION

      i. Protect graded areas from traffic, freezing, and erosion.

      ii. Repair and reestablish grades in areas that have eroded, settled or disturbed by construction operations or weather conditions. Compact areas as specified.

      iii. Remove trash and debris from site.

   b. LAYOUT FOR ROUGH GRADING

      i. ENGINEER to review rough grade.

**END OF SECTION**

# SECTION 31 23 00

# EXCAVATION AND BACKFILL

## PART 1 - GENERAL

### 1.1 WORK INCLUDED

EXCAVATION AND BACKFILL consists of furnishing transportation, labor, materials, and equipment for excavation and backfill operations.

### 1.2 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Special Conditions and these Technical Specifications, apply to this Section.

B. EXCAVATION SUPPORT AND PROTECTION Section 31 50 00

C. EARTH MOVING Section 31 20 00

D. GRADING Section 31 22 00

### 1.3 REFERENCE STANDARDS (RS):

A. Reference Specifications (RS): Standard Specifications for Public Works Construction, 2015 Edition.

B. CALTRANS State of California Department of Transportation Standard Specifications 2015.

C. American Society for Testing and Materials (ASTM): ASTM D1557 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft/lbs/ft3).

### 1.4 QUALITY CONTROL

A. Comply with the requirements specified in General Conditions GC-47 Contractor Quality Control and in Special Conditions SC-33 Quality Assurance and Quality Control and the provisions of this section.

B. The Resident Engineer reserves the right to approve each of the materials to be used in construction. Do not use material which after approval, has in any way become unfit for use.

## 1.5 SUBMITTALS

A. Not Used.

## PART 2 – PRODUCTS

## 2.1 MATERIALS

A. Backfill shall consist of native material placed in accordance with Subsections 306-
1.3.1 and 306-1.3.2 of the RS. Jetting or flooding of backfill will not be permitted.

## PART 3 - EXECUTION

## 3.1 GENERAL

A. Excavation and backfill shall be per Subsections 306-3 and 306-12 of the RS unless otherwise specified or shown on the Drawings.

B. Removal of abandoned substructures shall be per Subsection 02 41 13 SELECTIVE SITE DEMOLITION of the Specifications.

C. Structural Excavation & Backfill shall be per Subsection 31 20 00 Earthwork of the Specifications.

## 3.2 EXCAVATION

A. Excavate to the depths shown on the Drawings or as necessary for the installation. After the excavation is completed, notify the Resident Engineer for approval of excavation.

B. Minimum trench width shall be outside pipe diameter plus twelve (12) inches, while maximum trench width shall be outside pipe diameter plus eighteen (18) inches unless otherwise shown on plans.

C. Pipelines, utilities and substructures are approximately located on the Drawings. Contact owners of lines and structures that may interfere with the work. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult the Resident Engineer for directions. Cooperate with the Resident Engineer and owners in keeping respective services and facilities in operation. Do not interrupt existing substructure service facilities occupied and used by others, except when permitted in writing by the utility owner. Interfering portions of abandoned substructures shall be removed and remaining substructures abandoned in place.

D. Exercise caution when excavating near flammable, high pressure, or high voltage substructures and conduits. Place barricades and install warning lights around excavations. Support poles and guy wires to the parent utility company's satisfaction.

E. Prior to excavating adjacent to and within 5 feet of a subsurface installation, excavate potholes and positively determine the location and elevation of the subsurface installation.

F. Maintain excavations during construction by taking precautions to prevent movement of the sides and by removing material that slides into the excavation.

## 3.3 BACKFILL

A. Each layer of the backfill material shall not exceed the thickness as per Subsection 306-12 of the RS. Compact to 90 percent relative compaction. Compact the top 12 inches to 95 percent relative compaction. Jetting or flooding will not be permitted. Mechanical compaction is required.

## 3.4 SURFACE IMPROVEMENTS

A. Surface improvements removed or damaged as a result of the CONTRACTOR 's operations that are not identified on the Removal Plans, shall be reconstructed at CONTRACTOR 's expense with the same type of materials and to the same dimensions. Pavement thickness shall be one inch greater in thickness than the removed existing pavement.

# PART 4 - MEASUREMENT AND PAYMENT

## 4.1 BASIS OF PAYMENT

A. Unless otherwise noted on Plans or in Specifications, Limits of Excavation and Backfill for Structures shall conform to Caltrans Standard Plan A62B.

B. The contract price paid per cubic yard for UNCLASSIFIED EXCAVATION shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, including excavation, sloping, rounding tops and end of excavations, loading, stockpiling, excavation support systems as required for excavations, and hauling to its final location.

C. The contract price paid per cubic yard for UNCLASSIFIED FILL shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, complete in place including hauling, placement, grading, shaping, compacting or consolidating.

Quantities used in determining payment shall be those of the completed fills within the limits shown on the Contract Drawings.

D. The contract price paid per cubic yard for STRUCTURE EXCAVATION shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in STRUCTURE EXCAVATION, complete in place, including excavation support systems as required for excavation, as specified in the Caltrans Standard Specifications and these Special Provisions, and as directed by the Resident Engineer.

E. Removal of the overexcavation material below the bottom of retaining wall footings will be measured and paid for by the cubic yard as STRUCTURE EXCAVATION, and furnishing, placing, and compacting the replacement material will be measured and paid for by the cubic yard as STRUCTURE BACKFILL.

F. The contract price paid per cubic yard for STRUCTURE BACKFILL shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in STRUCTURE BACKFILL, complete in place, including geocomposite drain, as shown on the drawings, as specified in the Caltrans Standard Specifications and these Special Provisions, and as directed by the Resident Engineer.

G. No separate measurement or payment will be made for Erosion Control. The cost of this item shall be incidental to and included in other items of work.

H. Unclassified excavation pertinent to the pedestrian ramps shall be included in the price of the ramps and no additional payment will be made therefor.

I. Unclassified fill pertinent to the pedestrian ramps shall be included in price of the ramps and no additional payment will be made therefor.

**END OF SECTION 31 23 00**

# SECTION 31 50 00

## Excavation Support and Protection

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. This section specifies procedures, performance criteria, and requirements for Contractor to provide safe and stable excavations throughout the construction. Contractor shall provide temporary sheeting, shoring, and bracing systems as required by the work. Contractor shall meet codes, regulations, and requirements of agencies having jurisdiction over this work.

2. Work under this section includes but is not limited to:

   a. Design of the temporary support systems that are to be employed by the Contractor.

   b. Construction of temporary sheeting, shoring, and bracing systems.

   c. Employing acceptable side slope layback methods for excavations.

   d. Maintenance of bracing systems and removal.

   e. All associated design work.

   f. Obtaining required Federal OSHA, Cal/OSHA, and local jurisdiction permits.

B. Related Sections:

1. Section 02 41 13, Selective Site Demolition.

2. Section 31 20 00, Earth Moving.

3. Section 03 20 00, Concrete Reinforcing.

4. Section 03 30 00, Cast-in-Place Concrete.

## 1.03 REFERENCE STANDARDS

A. SSPWC: Standard Specifications for Public Works Construction.

B. Cal/OSHA: State of California Department of Industrial Relations, Division of Occupational Safety and Health, Construction Safety Orders.

C. CCC: California Civil Code, Section 832.

D. AWS: American Welding Society.

E. OSHA: Occupational Safety and Health Administration.

F. AASHTO: American Association of State Highway and Transportation Officials.

G. CPUC: California Public Utilities Commission – General Orders 26-D and 118.

## 1.04 SUBMITTALS

A. Make submittals under Section 01 33 00, Submittal Procedures.

B. General Excavation Support Procedure: Submit an outline of intended excavation support systems as required for the work. This submittal is for the Engineer's general information and in no way relieves the Contractor of complete responsibility for the successful performance of intended excavation methods.

C. Excavation Drawings: Submit drawings of all proposed excavations.

1. Include plan views indicating the extent of proposed excavations relative to the nearest track centerline.

2. Include cross-sections of proposed excavations.

3. Include cross-sections cut perpendicular to the track; indicate the track location and use equal horizontal and vertical scales.

4. Vertical dimensions shall be relative to top of rail and horizontal elevations shall be relative to the nearest track centerline.

5. Show impacted facilities (e.g., access roads, drainage ditches) and indicate how impacts shall be mitigated during construction.

6. Indicate construction access locations.

7. Conform to the detailed plan described in SSPWC Section 7-10.4.

D. Sheeting and/or Shoring Drawings: Required for sheeting, shoring, and other excavation support systems.

1. Drawings shall be prepared, signed, and sealed by a professional engineer licensed to practice in the state of California.

2. Include plan views indicating the extent of proposed shoring relative to the nearest track centerline.

3. Include cross-sections of proposed shoring.

4. Include cross-sections cut perpendicular to the track; indicate the track location and use equal horizontal and vertical scales.

5. Vertical dimensions shall be relative to top of rail and horizontal elevations shall be relative to the nearest track centerline.

6. Drawings shall also indicate details of structural members, connection details, and embedment depths.

7. Indicate construction access locations.

8. Plan shall conform to the detailed plan requirements described in SSPWC Section 7-10.4.

E. Design Calculations: Required for sheeting, shoring and other excavation support systems; prepared, signed, and sealed by a professional engineer licensed to practice in the state of California.

F. Installation Procedure: Required for sheeting, shoring, and other excavation support systems; prepared, signed, and sealed by a professional engineer licensed to practice in the state of California.

## 1.05 QUALITY CONTROL

A. Protect all utilities, structures, and facilities designated to remain in place from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation and backfill operations.

B. Submitted drawings, design calculations, and installation procedures for excavation support systems shall be prepared, sealed, and signed by a professional engineer licensed to practice in the state of California.

## 1.06 DESIGN CRITERIA

A. Design excavation support in accordance with AASHTO requirements, to support loads including: earth pressures, AASHTO HS20 traffic loading, utility loads, loads from adjacent structures, ground water pressure, and equipment and construction loads. No increases in allowable stresses or reductions of safety factors shall be allowed.

B. The excavation support shall allow safe and expeditious construction of the permanent structure without movement or settlement of adjacent buildings, structures, or utilities.

1. Design the sheeting and bracing support system to support indicated loads to allow the safe and expeditious construction of the permanent structures or demolition of existing appurtenances, utilities, structures, or site utility structures without movement or settlement of the ground, and to prevent damage to, or movement or settlement of, appurtenances, structures, piers, utilities, or site utility structures that are to remain in place.

2. Not used.

C. Provide handrails in accordance with Cal/OSHA.

D. Support systems shall be stable and penetrate to a depth below the bottom of excavation adequate to prevent lateral and vertical earth movement, and to permit lowering of the indicated bottom of excavation at least 2 feet without any change in the support system.

E. Design the bracing system to furnish sufficient reaction against side banks to maintain stability in the banks. Obtain this reaction by timely stressing to predetermined loads until the necessary reaction is produced against the banks, or by other methods necessary to prevent displacement of ground and movement of structures, site utility structures, appurtenances, and utilities.

F. Support end banks so that compressive stresses from end banks are transmitted through diagonal braces and corner members into sidewalks or subgrade, or both.

G. Where physical conditions of design impose insurmountable restrictions requiring the placing of sheeting closer than specified, submit the matter to Engineer for review.

1. Submit alternative methods for review by Engineer.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

A. Materials for excavation support systems shall conform to the submitted and approved plan and shall be new or in good used condition as approved by the Engineer. Steel structural members with existing full-penetration welds are not acceptable.

B. All materials, whether new or used, shall be sound and free of defects that might impair their suitability for the intended use.

C. Structural Steel: ASTM A36.

D. Concrete and Steel Reinforcement: Conform to requirements of Section 03 20 00, Concrete Reinforcing, and Section 03 30 00, Cast-in-Place Concrete.

1. Concrete Compressive Strength: 28 day minimum compressive strength of 3000 psi.

2. Maximum Aggregate Size: 3/4 inch.

E. Steel Sheet Piling: Continuous interlocking type, ASTM A328.

F. Timber Left in Place: Treated in accordance with AWPA standards.

G. Sand: Well graded sand as specified in Section 31 20 00, Earth Moving.

## PART 3 - EXECUTION

### 3.01 CONTRACTOR'S RESPONSIBILITY

A. Assess the extent of excavation support which will be required in the work, including use of side slope layback methods, sheeting, and bracing.

B. Before commencing work, examine the drawings and specifications, inspect the site, consult all available record drawings of existing work and utilities, and note all conditions and limitations which may influence work required by this section.

C. Carry out the work of this section in conformance with applicable laws, codes, ordinances, and regulations of local authorities, including furnishing of any required excavation drawings to those authorities and obtaining of permits.

## 3.02 GENERAL

A. Install and remove excavation support systems in accordance with the accepted working drawings. Install, maintain, and remove excavation support in such a manner as to prevent movement, settlement, or loss of ground, removal of fines from the adjacent ground, or damage to or movement of adjacent structures, appurtenances, site utility structures, and utilities.

B. Advise Engineer of the time schedule for each operation and obtain Engineer's approval for work to be performed adjacent to tracks so that it may be properly supervised by Owner's personnel.

C. Excavation adjacent to bus travel lanes shall be covered, ramped, and protected by handrails, barricades, and warning lights as directed by Engineer.

D. Where cavities adjacent to sheet piling are created by driving of sheet piling, fill with well graded sand; immediately restore and tamp disturbed ballast.

E. Prior to placing and driving steel sheeting, hand-dig exploratory trenches in areas where utility underground installations are known to exist. These trenches are for location purposes only; backfill immediately after exploratory work is finished. Perform this work in presence of Engineer.

1. Make exploratory trenches 3 feet deep and 15 inches wide in the form of an "H" with outside dimensions matching the outside sheeting installations.

2. Incorporate into the work the applicable recommendations of the geotechnical report.

F. Conduct final backfilling of excavation in accordance with Section 31 20 00, Earth Moving.

## 3.03 STABILITY OF EXCAVATIONS

A. Maintain safe and stable excavations at all times during execution of work. Employ side slope layback methods, bracing, and sheeting to maintain the integrity of excavations.

B. Provide sheeting and bracing where side slope layback methods are not possible due to space restrictions or the nature of material excavated.

C. Requirements:

1. Comply with rules, orders, and regulations of the Division of Industrial Safety of the State of California (Cal/OSHA) regarding bracing requirements for excavations.

2. Maintain sides and slopes of excavations in safe condition until backfilling is completed.

3. Where the Contractor elects to slope the sides of excavations, backfill of the over-excavated areas shall be made in the same manner specified for the adjacent excavated area. Additional excavation and backfill required shall be at no additional cost to Owner and shall be placed in accordance with Section 31 20 00, Earth Moving.

4. If ground water is present, maintain ground water level at least five feet below the excavation side slopes, and protect slopes from erosion.

## 3.04 SHEETING AND BRACING

A. Provide sheeting, bracing, and other temporary protective work where necessary for safety, to prevent encroachment on adjoining property, or for the proper execution of the work.

B. Where required for safety, under governing laws, or as directed by the Engineer, temporary sheeting shall be left in place. If so, remove original braces and re-brace sheeting against the structure in a manner approved by the Engineer. Cut off sheeting at elevations directed by the Engineer.

## 3.05 REMOVAL

A. Do not leave in place components of the support system unless otherwise noted or directed.

B. Do not commence removal of temporary support system until temporary protective work is no longer necessary, as determined by Contractor's California licensed engineer.

C. Immediately fill voids created by removal of portions of the excavation support members with concrete or well graded sand.

D. During construction, cut off sheet piling at the elevation of top of adjacent tie. After construction and backfilling has been completed, remove piling except where it is to remain in place.

# PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. Excavation Support and Protection will be measured by the unit furnished in accordance with the contract documents and as measured by the Engineer...

B. Measurements of excavation support and protection indicating quantities in excess of 125 percent of estimated quantities will not be accepted for payment, unless prior notification has been provided to the Engineer and approval for the increased quantity has been provided in writing.

## 4.02 PAYMENT

A. Excavation Support and Protection will be paid by the unit shown on the Schedule of Values. This price shall be full compensation for furnishing all labor, materials, tools, equipment, testing, supplies, supervision, and incidentals necessary for excavation support and protection.

**END OF SECTION**

# SECTION 32 11 23

## Aggregate Base Courses

## PART 1 - GENERAL

### 1.01 SUMMARY

A. Section Includes:

1. Material requirements for aggregate base courses to be furnished and placed to lines, grades, and dimensions in accordance with drawings, specifications, and directions of the Engineer.

A. Related Sections:

1. Section 31 20 00, Earth Moving.

2. Section 32 12 16, Asphalt Concrete Paving.

3. Section 32 13 13, Concrete Paving

### 1.02 REFERENCE STANDARDS

A. AASHTO: American Association of State Highway and Transportation Officials.

B. ASTM: ASTM International.

C. City of Montclair Standards and Specifications.

### 1.03 NOT USED

### 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Compliance: Supplier's certification that material delivered to the site is in compliance with the specifications.

C. Equipment: List of all equipment used for placing and compacting sub-ballast.

## 1.05 QUALITY CONTROL

A. Provide and install materials in compliance with applicable sections of reference standards.

B. Establish and maintain required lines and elevations.

## PART 2 - PRODUCTS

## 2.01 MATERIAL REQUIREMENTS

A. Aggregate base shall conform to the requirements for Class 2 Aggregate Base, 1-1/2 inch. Aggregate shall be of crushed rock with at least 75 percent of the material having at least one fractured face.

## PART 3 - EXECUTION

## 3.01 AGGREGATE BASE

A. Aggregate base and sub-base shall not be spread until the Engineer has approved the earthwork.

B. Spread and compact aggregate base and subbase in conformance with the requirements of City of Montclair. Compaction shall be to a minimum of 95 percent relative density. Maximum lift is 6 inches.

C. Base placement shall conform to Section 301 of the Standard Specifications for Public Works Construction, except that aggregate base shall be compacted to 95% relative compaction per ASTM D 1557.

D. The surface of the sub-base and aggregate base shall be stable to permit follow-on stages of construction without rutting.

E. Aggregate base shall be finished to within 0.05 feet of the lines and grades indicated on drawings and shall be maintained in a condition acceptable to the Engineer until ballast or paving material has been placed and approved.

## PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. Aggregate base will be measured by the measured quantity or percentage of the work installed furnished and placed in accordance with the contract documents and as measured by the Engineer. The quantities as contained

on the approved Schedule of Values as derived from the drawings will be used as the basis for this measurement.

## 4.02 PAYMENT

A. Aggregate base furnished and placed in accordance with the contract documents will be paid for at the contract unit price listed in the approved Schedule of Values. This price shall be full compensation for furnishing all labor, materials, tools, equipment, supplies, supervision, and incidentals necessary for aggregate base and sub-ballast described by the contract documents.

**END OF SECTION**

# SECTION 32 12 16

# ASPHALT CONCRETE PAVING

## PART 1 - GENERAL

### 1.1 WORK INCLUDED

A. ASPHALT CONCRETE PAVING consists of furnishing transportation, labor, materials, and equipment to construct asphalt concrete pavement, tire rubber modified slurry seal, and asphalt concrete cold plane as shown on the Drawings and directed by the Engineer.

### 1.2 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Special Conditions and these Technical Specifications, apply to this Section.

B. EARTH MOVING Section 31 20 00

### 1.3 REFERENCE STANDARDS

A. Reference Specifications (RS): Standard Specifications for Public Works Construction (SSPWC) 2015 Edition, Sections 203 and 302

B. American Society for Testing and Materials (ASTM)

### 1.4 QUALITY ASSURANCE

A. Comply with the requirements specified in General Conditions GC-47 Contractor Quality Control and in Special Conditions SC-33 Quality Assurance and Quality Control and the provisions of this section.

B. The Resident Engineer, inspectors and/or Laboratory Assurance personnel shall be allowed access to the mixing plant for verification of weights or proportions, character of materials used, and determination of temperatures used in the preparation of asphalt concrete mix.

### 1.5 SUBMITTALS

A. Submit the following information:

B. A copy of the asphalt mix design shall be submitted for the Engineer's

approval.

C. A list of equipment to be used for placing asphalt concrete shall be submitted to the Engineer prior to usage on the job.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

A. Asphalt concrete shall conform to Subsection 203-6 of the Reference Specification except crushed slag aggregates will not be allowed.

B. Asphalt shall be in accordance with Subsection 203-1 of the Reference Specification.

C. The asphalt concrete base course pavement shall be B-PG 64-10 or equivalent.

D. The asphalt concrete wearing surface course pavement shall be C2-PG 64-10. The surface course shall have a minimum thickness of twice the maximum aggregate size.

E. Tack coat shall be SS-1h, applied at a rate of 0.08 gallons per square yard and placed at all feather edge joints as directed by the Engineer, and payment for this work shall be included in the bid price for asphalt concrete in the Bidder's Proposal.

F. Temporary surfacing shall be placed only when directed by the Resident Engineer, to safeguard the public. Payment for temporary surfacing will be incidental to the bid price for permanent asphalt concrete, unless otherwise specified in these specifications.

## PART 3 - EXECUTION

### 3.1 SUBGRADE PREPARATION

A. Subgrade shall be prepared in conformance with the Section 31 20 00 EARTH MOVING.

### 3.2 CONSTRUCTION

A. No paving shall be placed until the subgrade, installation of substructures and base material has been approved by the Engineer.

B. Placing of asphalt concrete shall conform to the Drawings and

Subsection 302-5 of the Reference Specification.

C. Whenever asphalt concrete pavement does not terminate against a curb, gutter or another pavement, provide and install redwood header at the line of termination in conformance with RS Subsection 302-5.5.

D The self-propelled mechanical spreading and finishing machine shall be equipped with a 20-foot ski for placement of the finish course (wearing surface) of asphalt.

E. Following placement of the base course, cold mix asphalt shall be installed as a temporary ramp along the edge of gutters and existing pavement. Width of these ramps shall be three feet. Ramps shall remain in place until the surface course of asphalt is being installed.

F. The field density of compacted asphalt concrete shall be per RS Subsection 302-
5.6.2 except that density testing per ASTM D2726 is also an acceptable method of testing. In case of dispute, the ASTM D1188 method will be used.

G. Prime Coat grade and application shall conform to the Drawings and Subsection 302-5.3, Prime Coat of the Reference Specification.

H. Asphalt Curbs, shall be constructed in accordance with the Standard Plan or Detail identified on the Contract Drawings.

I. Asphalt Concrete Coldplane shall conform to Reference Specification Subsection 302-1

Tire rubber modified slurry seal (TRMSS) mixing shall be performed by a continuous-flow mixer. All aggregate particles will be uniformly saturated and coated with asphalt. TRMSS shall be applied at and application rate between 12 lbs/yd$^2$ and 15 lbs/yd$^2$ and shall cover an area between 1200 ft$^2$/ELT and 1500 ft$^2$/ELT.

When the Engineer determined that the application rate does not conform to the requirements, the Contractor shall take immediate corrective action. When the rate is less than the minimum amount required, the Contractor shall reapply additional slurry seal to the nonconforming area to meet the requirements.

Slurry shall not be applied when the atmospheric temperature is less than 10°C (50°F). The maximum speed of the slurry machine shall not

exceed 80 meters per minute (270 feet per minute). Prior to applying slurry, the surface to be sealed shall be cleaned by the Contractor unless otherwise specified. Immediately ahead of the mixer, the pavement shall be prewetted by a pressure water distribution system equipped with a fog-type spray bar which will completely fog the surface of the pavement. The need for application and the rate of application will be determined by the Engineer. Slurry shall be applied in such a manner that no ridges shall remain.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.1 BASIS OF PAYMENT

A. The contract price paid per ton for ASPHALT CONCRETE shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, complete in place, as shown on the drawings, as specified in the Reference Specifications and these special provisions, and as directed by the Engineer. Quantity includes tonnage for asphalt curb and ramp construction.

D. The contract price paid per square foot for ASPHALT CONCRETE COLDPLANE shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, complete in place, as shown on the drawings, as specified in the Reference Specifications and these special provisions, and as directed by the Engineer.

E. The contract price paid per square foot for SLURRY SEAL shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, complete in place, as shown on the drawings, as specified in the Reference Specifications and these special provisions, and as directed by the Engineer.

F. Payment will be made under:

| Item No. | Description | Pay Unit |
|---|---|---|
| 32 12 16.01 | ASPHALT CONCRETE | TON |
| 32 12 16.02 | ASPHALT CONCRETE COLD PLANE | SF |
| 32 12 16.03 | SLURRY SEAL | SF |

**END OF SECTION**

## SECTION 32 13 13

## CONCRETE PAVEMENT AND MINOR CONCRETE

### PART 1 - GENERAL

### 1.1 WORK INCLUDED

A. CONCRETE PAVEMENT AND MINOR CONCRETE consists of furnishing transportation, labor, materials, and equipment to provide cast-in-place concrete for curb, gutter, sidewalk, stamped concrete, ramps, driveways, concrete pavement, sidewalk, integral color concrete, culverts, and other concrete work, including forms, finishing, curing, and other appurtenant work.

### 1.2 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Special Conditions and these Technical Specifications, apply to this Section.

B. REINFORCEMENT STEEL Section 03 20 00

C. CAST-IN-PLACE CONCRETE Section 03 30 00

D. EARTH MOVING Section 31 20 00

### 1.3 REFERENCE STANDARDS

A. Reference Specifications (RS): Standard Specifications for Public Works Construction, 2015 Edition, Subsections 200, 201, 302-6, 303

### 1.4 SPECIFICATIONS

A. Concrete pavement shall be 4000 PSI and shall conform to Caltrans Specs 40, with a minimum modulus of rupture of 570 psi at 28 days.

B. Base placement shall conform to Section 301 of the Standard Specifications for Public Works Construction, except that aggregate base shall be compacted to 95% relative compaction per ASTM D 1557.

C. Concrete shall be placed in accordance with Section 303 of the SSPWC, and the installation shall be per Standard Plans for Public Works Construction Standard Drawing No. 134-1 and as shown on the plans.

## 1.5 SUBMITTALS

A. Submit the following information:

**1.** Product Data: For each manufactured material and product indicated.

**2.** Design Mixes: For each concrete mix indicated.

**3.** Material certificates.

**4.** Weakened plane joint layout plan for concrete paving.

## 1.6 QUALITY ASSURANCE

A. Do not commence placement of concrete until mix designs have been reviewed by the Engineer and all governmental agencies having jurisdiction, laboratory testing of mix design samples has been performed, and the proposed mix design has been approved by the Engineer.

B. Notify the Engineer at least 24 hours in advance of the times and places at which the CONTRACTOR intends to place concrete.

C. Repair of surface defects shall be in accordance with ACI 301.

# PART 2 – PRODUCTS

## 2.1 Concrete Materials

A. Portland Cement: Cement shall be Type II, low-alkali conforming to Reference Specification Subsection 201-1.2.1.

B. Aggregates: Conform to Reference Specification Subsection 201-1.2.2.

C. Fine Aggregate: Conform to Reference Specification Subsection 200-1.5 “Sand.”

D. Coarse Aggregate: Conform to Reference Specification Subsection 200-1.4 “Coarse Aggregate for Portland Cement Concrete.”

E. Water: Conform to Reference Specification Subsection 201-1.2.3

F. Admixtures: No admixture of any type shall be used without the written approval of the Engineer.

## 2.2 REINFORCEMENT STEEL

Not Used

## 2.3 JOINT FILLER

A. Premolded joint fillers shall conform to SSPWC Section 201-3.2.

# PART 3 - EXECUTION

## 3.1 GENERAL

A. Concrete shall be furnished, mixed, placed, tested, and cured in accordance with the requirements of the Reference Specifications Section 201 and these Specifications.

B. Concrete not conforming to these requirements will be rejected whether in place or not.

C. New concrete shall not be placed adjoining concrete which has been rejected without the approval of the Engineer.

D. The Engineer will have the authority to cause the removal, replacement or correction of non-conforming concrete.

E. Should concrete used in the work fail to conform to the requirements of these Specifications, the CONTRACTOR shall make corrective changes at no additional expense to the AUTHORITY, subject to written approval of the Engineer, in the materials, mix proportions, or in the concrete fabrication procedures, before placing additional concrete.

F. The consistency of concrete shall be suitable for the placement conditions. Aggregates shall float uniformly throughout the mass and the concrete shall flow sluggishly when vibrated or spaced. The slump shall be kept uniform.

G. Establish and maintain required lines and elevations. Make gradual and smooth transitions to pavements.

## 3.2 DESIGNS OF CONCRETE MIX:

A. Before beginning any concrete work, the CONTRACTOR shall have the concrete mix designed and the ingredients selected and proportioned by an approved independent testing laboratory meeting the

requirements of ASTM E-329 and signed by a California registered civil engineer. Certified copies of all supporting laboratory trial mix reports shall be sent to the Engineer from the testing laboratory. Do not place concrete prior to the Engineer's review and acceptance in writing. Unless the requirement is waived by the Engineer, trial batch testing shall be provided in accordance with Reference Specification Subsection 201-1.1.5.

## 3.3 CONCRETE PAVEMENT

A. Conform to Reference Specification Subsection 302-6 for concrete pavement.

B. Concrete for pavement shall be Class 520-A-2500 in accordance with Reference Specification Section 201-1.1.2.

C. Metal forms shall be used for construction. No wood forms shall be used.

D. Joints shall conform to the requirements of RS Subsection 302-6.5.

1. Longitudinal weakened plane joints shall be constructed at traffic lane lines by the sawing method.

2. There shall be 4 transverse weakened plane joints in each 50 lineal feet of pavement placed, exclusive of pressure relief joints and end anchors. Spacing tolerance of plus or minus 12-inches shall be provided. Transverse weakened plane joints shall be constructed by the sawing method.

3. No weakened plane joint shall be constructed within 5 feet of another transverse joint under any circumstance.

4. CONTRACTOR shall submit for review and approval the proposed layout of weakened plane joints.

E. The CONTRACTOR shall be responsible for grinding and/or removal and reconstruction of any areas that do not meet the specified tolerances set forth in Reference Specification Section 302-6.4.1, and shall receive no additional compensation thereof.

F. Finishing shall be in accordance with Section 302-6.4 of the Reference Specifications except that the CONTRACTOR shall profile the surface using a California Profilograph or equivalent in accordance with California Test 526. Profiles shall be made 3 feet from and parallel with each edge of pavement and at the approximate location of each longitudinal joint for all pavement areas.

## 3.4 CONCRETE SIDEWALKS, CURBS, CURB & GUTTERS, GUTTERS, AND DRIVEWAYS.

A. Conform to Reference Specification Subsection 303-5 for sidewalk, curb and gutter, curb, gutters, and driveways, except for modifications shown on the Contract Drawings or specified.

B. Concrete for sidewalk, curb and gutter, curb, gutters, and driveways shall be Class 520-C-3250 in accordance with Reference Specification Section 201-1.1.2. Curing compound shall be Type 1-D.

C. Joints shall conform to the requirements of RS Subsections 303-5.4. Construction joints shall not be made at other locations without the approval of the Engineer.

D. High pressure water wash all construction joints, while concrete is fresh to clean and roughen the surface of the joint, exposing clean coarse aggregate solidly embedded in mortar matrix. Clean forms and reinforcing by means of compressed air.

E. Zero Face Curbs.

1. Curb face shall be tapered to zero height where noted on the plans

F. Extruded Portland Cement Concrete Curbs

1. Concrete curbs and gutters shall be constructed of Portland cement concrete of the class and other requirements specified in Section 303-5 of the SSPWC.

2. Space joints in extruded curbs to match joints in adjacent paving. When the adjacent paving is not jointed, locate joints at angles, corners, points of curvature, and points of tangency at intervals of not more than 15 foot.

3. Joints shall be 1/8 inches minimum thickness and constructed to a minimum depth of 1 inches by scoring with a tool which will leave the corners rounded and destroy aggregate interlock to a depth of 1 inch.

4. Place expansion joints filler to full cross-section with 1/4 inch thick filler in the curb at abutting structures and at 100 foot intervals.

### 3.5 PROTECTION

A. Finished concrete surfaces shall be protected from stains, abrasions, and other damage.

B. Existing finished concrete surfaces shall be protected during placement of concrete adjacent to or above such surfaces.

### 3.6 METHODS OF CURING

A. Except as otherwise or additionally specified herein, concrete shall be cured per Reference Subsection 303-1.10. Soil or sand cover up curing methods shall not be used on concrete surfaces that will remain exposed to the public upon completion of the project.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.1 BASIS OF PAYMENT

A. The contract unit price paid per cubic yard for PCC PAVEMENT shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved complete in place as shown on the drawings, as specified.

B. The contract unit price paid per linear foot for various types of CURBS, CURB AND GUTTERS, and CONCRETE GUTTERS type as described in the bid schedule, shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved complete in place as shown on the drawings, as specified.

C. The contract unit price paid per square foot for SIDEWALK, as described in the bid schedule, shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved complete in place as shown on the drawings, as specified.

D. The contract unit price paid Each for DRIVEWAYS, as described in the bid schedule, shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved complete in place as shown on the drawings, as specified.

**END OF SECTION 32 13 13**

## SECTION 32 17 24

## Pavement Markings and Signs for Parking Areas

# PART 1 - GENERAL

## 1.01 SUMMARY

A. Section Includes:

1. Traffic stripes, painted curbs, and pavement markings for parking areas.

2. Accessories required for a complete installation.

B. Related Sections:

Not Used

## 1.02 REFERENCE STANDARDS

A. ASTM International:

1. ASTM A53 – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

2. ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

3. ASTM C94 – Standard Specification for Ready-Mixed Concrete.

B. Standard Specifications for Public Works Construction.

C. Caltrans Standard Specifications.

D. City of Montclair Standard Plans and Specifications.

## 1.03 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with Caltrans Standard Specifications:

a. Section 59, Painting.

b. Section 82, Markers and Delineators.

c. Section 84, Traffic Stripes and Pavement Markings.

d. Section 85, Pavement Markers.

2. Comply with local laws, rules, and regulations of governmental authorities having jurisdiction over such work. Off-Site Improvements shall comply with City of Montclair Standard Plans and Specifications.

3. Comply with AQMD regulations for volatile organic compounds (VOCs).

4. Accessibility Regulations:

a. California Building Code.

b. ADA Standards for Accessible Design, 28 CFR Part 36, Appendix A.

c. Accessibility Symbol: Comply with Federal standards and California Building Code.

B. Applicator Qualifications: Applicator having minimum 3 years' documented experience in application of pavement markings.

C. Single Source Responsibility: Obtain materials from the same source throughout the work.

D. At no additional cost to Owner, repair or replace pavement markings which fail to present a uniform appearance and those which are marred and damaged by traffic or by other causes.

E. Until acceptance by Engineer, Contractor shall be responsible for maintenance of pavement stripings and markings until the parking is open to use by facility-related vehicles.

## 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Product Data: Technical data for each type of pavement marking materials. Provide manufacturer's recommendations for application, including limitations, safety, and environmental requirements, application rates, dry film thickness (DFT), and equipment required for application.

C. Shop Drawings:

1. Pavement marking plan indicating lane separations, directional markings, and defined parking spaces. Note dedicated accessible spaces with international graphics symbol. Note dedicated low-emission/fuel-efficient vehicle spaces.

2. Site plan with location of directional, parking, and accessible, low-emission/fuel-efficient vehicle, and carpool/vanpool parking signs.

3. Sign layout including complete text and type style.

D. Test Reports and Certifications: Manufacturer's certification that products used comply with AQMD regulations for VOC content.

## 1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver paint materials to site in manufacturer's original, unopened, and labeled containers. Keep containers in clean condition, free of foreign materials, and paint residue. Protect from freezing. Remove paints exposed to freezing conditions and replace at no expense to Owner.

## 1.06 PROJECT CONDITIONS

A. Striping and Marking: Apply traffic paints when temperature surfaces and surrounding air temperatures are between 50 deg F and 90 deg F and weather is not windy or humid, unless otherwise permitted in writing by paint manufacturer.

1. Do not apply paints to wet or damp surfaces.

2. Do not apply paints to asphalt or asphalt sealers which have not thoroughly cured and dried.

B. Take precautions to avoid effects of wind drift during the application of liquid materials.

# PART 2 - PRODUCTS

## 2.01 MATERIALS

A. Paint for Traffic Stripes and Pavement Markings: Sections 84-1, General, and 84-3, Painted Traffic Stripes and Pavement Markings, of the Caltrans Standard Specifications, details shown on the drawings, Caltrans Standard Plans, and technical specifications.

1. Red: Safety and restricted marking (fire lanes and curb markings).

2. Yellow: Traffic and safety markings (directional markings and graphics, lane and curb markings).

3. Blue: Accessible parking stalls and graphics and disability markings.

4. White: Low-emission/fuel-efficient vehicle parking stalls.

5 White: Carpool/vanpool parking stalls.

6 White: Traffic lanes, parking stalls, and elsewhere.

B. Wheel Stops: 3500 psi compressive strength at 28 days, precast, smooth and free of pits.

1. Size: Approximately 5-1/2 inches high, 7-1/2 inches wide, and 6 feet long.

2. Provide chamfered corners and drainage slots on underside.

3. Concrete: ASTM C94.

4. Reinforcing: ASTM A615; Minimum two No. 5 reinforcing bars, full length of stop.

5. Anchors: Minimum 2 galvanized pins, 1/2 inch diameter.

6. Adhesive: Epoxy adhesive.

7. Dowels: Galvanized steel, diameter 3/4 inch, minimum length 10 inches.

C. Accessible Parking Signs:

1. Parking Stalls: Minimum 0.067 inch (aka 14 gauge) sheet steel with reflectorized porcelain white beaded lettering and symbol on blue background, minimum 80 square inches. Symbol: International Symbol of Accessibility.

a. Mounting Posts: 2 by 2 by 1/8 inch galvanized steel pipe complying with ASTM A53; theft proof fasteners; set in concrete footing.

b. Wall Mounted: Theft proof fasteners.

2. Additional Signs: Minimum 17 by 22 inch with lettering of not less than 1 inch in height.

a. Text: Unauthorized vehicles parked in designated accessible spaces not displaying distinguished placards or license plates issued for persons with disabilities may be towed at owner's expense. Towed vehicles may be reclaimed at (to be determined) or by telephoning (to be determined).

D. Low-Emission/Fuel-Efficient Vehicle Parking Signs:

1. Parking Stalls: Minimum 0.067 inch (aka 14 gauge) sheet steel with reflectorized porcelain white beaded lettering on green background, minimum 80 square inches.

a. Mounting Posts: 2 by 2 by 1/8 inch galvanized steel pipe complying with ASTM A53; theft proof fasteners; set in concrete footing.

b. Wall Mounted: Theft proof fasteners.

E. Carpool/Vanpool Parking Signs:

1. Parking Stalls: Minimum 0.067 inch (aka 14 gauge) sheet steel with reflectorized porcelain white beaded lettering on green background, minimum 80 square inches.

a. Mounting Posts: 2 by 2 by 1/8 inch galvanized steel pipe complying with ASTM A53; theft proof fasteners; set in concrete footing.

b. Wall Mounted: Theft proof fasteners.

E. Mounting: Galvanized tube steel, ASTM A53, seamless, 2 by 2 by 1/8 inch. Locate as indicated on drawings. Set at height required by governing authority for intended application.

F. Equipment: Pressurized paint machine capable of applying straight line from 2 inches to 6 inches wide with consistent coverage at 150 square feet per gallon.

## PART 3 - EXECUTION

### 3.01 PREPARATION

A. Layout chalk markings at locations and to dimensions indicated on approved shop drawings. Use stencils, templates, forms, and guidelines for word markings, letters, numerals, and symbols.

B. Verify that pavement surface is dry, free of dirt, grease, oil, acids, laitance, curing compounds, or foreign matter that will reduce the bond between the paint and pavement.

1. Clean contaminated areas with solution of trisodium phosphate (10 percent $Na_3PO_4$ by weight) or other approved cleaning solution. Rinse with clean water and dry prior to application of paint.

## 3.02 APPLICATION

A. Paint traffic stripes (traffic lines) and pavement markings in accordance with the provisions in Sections 84-1, General, and 84-3, Painted Traffic Stripes and Pavement Markings, of the Caltrans Standard Specifications, details shown on drawings, the Caltrans Standard Plans, and specifications. Off-Site Improvements shall comply with City of Montclair Standard Plans and Specifications.

B. Paint: Mix paint in accordance with manufacturer's instructions. Apply at recommended application rate and surface temperature. Addition of thinner is not permitted.

1. Bituminous Surface: Allow bituminous pavement minimum 30 days to cure prior to application of paint. If paint curls or discolors, removed paint, prepare surface, and recoat.

2. Portland Cement Concrete Surface: Allow portland cement concrete to cure for a minimum of 28 days. Test for moisture prior to application of paint.

3. Machine paint lines at rate to cover not more than 150 square feet per gallon or as required to be completely opaque.

a. Dry Film Thickness: Comply with Caltrans Standard Specifications, but not less than 15 mils.

4. Striping: Provide straight edged uniform line width of 4 inches. Provide hairpin stripe hatching between accessible parking stalls.

a. Stall Divisions: Provide standard and compact size parking stalls, white for standard stalls; blue for accessible stalls.

b. Arrows and Pavement Signs: Paint directional arrows and markings with stencils. At islands and no parking areas, stripe areas with 4 inch wide stripes.

5. Fire Lane Markings: Comply with City of Montclair Fire Department requirements. Use approved stencils for lettering and graphics.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings of dimensions indicated with uniform, straight edges. Apply at manufacturer's recommended rates to provide minimum wet film thickness of 15 mils.

E. Broadcast glass spheres uniformly into wet pavement markings at a rate of 6 lb/gal.

F. Signs: Install in compliance with California Building Code 1109A.8.8.

1. Post Mounted Signs: Center sign at interior end of parking space with bottom edge of sign minimum 80 inches above finished grade. Set at each stall where wall mounted sign is not appropriate.

2. Wall Mounted Signs: Center sign at interior end of parking space with bottom edge of sign minimum 42 inches above finished grade. Set at each parking stall where post mounted sign is not practical.

3. Accessible Pavement Signs: Apply accessible symbol at each accessible parking stall. Center 3 by 3 feet square International Accessible Symbol (white reflectorized symbol on blue background) at exterior end of each accessible stall. On bituminous surfaces, paint additional white border around blue background square.

G. Parking Bumpers/Wheel Stops: Set in locations indicated on drawings.

1. Concrete Pavement: Apply full coverage of epoxy adhesive to bottom of bumper. Press bumper to concrete to join surfaces.

2. Bituminous Surface: Anchor bumpers into pavement using pins set through pavement minimum 2 feet.

## 3.03 TOLERANCES

A. Width of Stripe: Maximum variance of 1/4 inch.

B. Alignment of Stripe: Maximum deviation 1/2 inch in 50 feet.

## 3.04 CLEANUP

A. Remove overspray, drips, and splattered paint from adjacent surfaces as soon as possible before curing.

B. Remove excess materials and debris from site and legally dispose.

## PART 4 - MEASUREMENT AND PAYMENT

### 4.01 MEASUREMENT

A. Work of this section will be measured in units of completed work in accordance with the Schedule of Values.

### 4.02 PAYMENT

A. Payment for work of this section will be made on the basis of unit prices in accordance with the Schedule of Values.

**END OF SECTION**

# SECTION 32 17 26

# TACTILE WARNING SURFACES

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. This Section includes Specifications for furnishing and installing Cast In Place Replaceable Tactile Warning Surface Tiles (REP) with an in-line truncated dome pattern, embedded in all curb ramps and walking surfaces at the locations and to the dimensions shown on the Drawings, in accordance with the Contract Documents and as directed by the Engineer.

### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and Division 1 Specifications, apply to this Section.

B. Americans with Disabilities Act (ADA) Title 49 CFR Transportation, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, Section 4.29.2 Detectable Warnings on Walking Surfaces. FHA Memo (5-06-02) titled Truncated Domes. Federal Register Volume 71, No. 209, 49 CFR Part 37 (10-30-06), ADA Standards for Transportation Facilities (11-29-06, DOT): Sections 406, 705, and 810. ADA Standards for Accessible Design – 2010 (9/05/11, DOJ), ADAAG: Sections 705 and 810. Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Rights of Way (7/23/11, Access Board), PROWAG: Sections R208, R304, R305, R308, and R309.

C. American Society for Testing and Materials (ASTM) Test Methods B117, C501, C1028, D543, D570, D638, D695, D790, G151, G155, and E84.

D. American Association of State Highway and Transportation Officials (AASHTO): Test Method AASHTO-H20.

E. California Code of Regulations (CCR 2019) Title 24 Part 1 Articles 2, 3 and 4, and Part 2 Section 205 definition of “Detectable Warning”, Section 1127B.5 for “Curb Ramps”, and Section 1133B.8.5 for “Detectable Warnings at Hazardous Vehicle Areas”. California Department of Transportation Detectable Warning Surface Authorized Material List. Division of the State Architect IR 11B-3 (1/26/05) and IR 11B-4 (1/01/11). IR 11B-4 (1/01/11) removed the requirement for a “staggered” pattern and now calls for the “square grid” (in-line) pattern.

## 1.03 SUBMITTALS

A. Product Data: Submit manufacturer's literature describing products, installation procedures and maintenance instructions.

B. Samples for Verification Purposes: Submit two (2) Tactile Warning Surface samples minimum 8" x 8" of the kind proposed for use. Samples shall be properly labeled and shall contain the following information: Name of Project, Submitted by, Date of Submittal, Manufacturer's Name, and Catalog Number.

C. Shop Drawings: Submit Standard Manufacturer Shop Drawings showing all pertinent characteristics of the composite Cast In Place Replaceable Tactile Warning Surface Tile (REP), including profile, sound on cane contact amplification feature and installation methods.

D. Material Test Reports: Submit current test reports from qualified, accredited independent testing laboratory in accordance with ASTM guidelines and indicating that materials proposed for use are in compliance with specification requirements and meet the properties indicated. All test reports submitted shall be representative of the Cast In Place Replaceable Tactile Warning Surface Tile (REP) delivered to the Project.

E. Maintenance Instructions: Submit copies of manufacturer's specified maintenance practices for each type of Tactile Warning Surface Tile and accessory.

## 1.04 QUALITY ASSURANCE

A. Provide composite Cast In Place Replaceable Tactile Warning Surface Tiles (REP) as produced by a single manufacturer with a minimum of five years experience in manufacturing Cast In Place Replaceable Tactile Warning Surface Tiles (REP).

B. Installer's Qualifications: Engage an experienced installer certified in writing by the Tactile Warning Surface manufacturer, who has successfully completed Tactile Warning Surface installations similar in material, design, and extent to that indicated for the Contract.

C. Cast In Place Replaceable Tactile Warning Surface Tiles (REP) must be compliant with ADAAG, PROWAG, and CA Title 24 requirements. Division of the State Architect IR 11B-3 (1/26/05) and IR 11B-4 (1/01/11). IR 11B-4 (1/01/11) removed the requirement for a "staggered" pattern and now calls for the "square grid" (in-line) pattern.

D. Cast In Place Replaceable Tactile Warning Surface Tiles (REP) shall meet or exceed the following test criteria using the most current test methods:

1. Compressive Strength: 28,900 psi minimum, when tested in accordance with ASTM D695.

2. Flexural Strength: 29,300 psi minimum, when tested in accordance with ASTM D790.

3. Water Absorption: Not to exceed 0.10%, when tested in accordance with ASTM-D570.

4. Slip Resistance: 1.05 minimum wet and 1.18 dry static coefficient of friction when tested in accordance with ASTM C1028.

5. Flame Spread: 25 maximum, when tested in accordance with ASTM E84.

6. Salt and Spray Performance of Tactile Warning Surface: No deterioration or other defects after 200 hours of exposure, when tested in accordance with ASTM-B117.

7. Chemical Stain Resistance: No reaction to 1% hydrochloric acid, motor oil, calcium chloride, gum, soap solution, bleach, and antifreeze, when tested in accordance with ASTM D543.

8. Abrasion Resistance: 500 minimum, when tested in accordance with ASTM C501.

9. Accelerated Weathering of Tactile Warning Surface when tested by ASTM-G155 or ASTM G151 shall exhibit the following result: $\Delta E<5.0$ at 2,000 hours minimum exposure.

10. Tensile Strength: 11,000 psi minimum, when tested in accordance with ASTM D638.

11. AASHTO-H20 Load Bearing Test: No Damage at 16,000# loading.

12. Freeze/Thaw/Heat: No deterioration when tested in accordance with ASTM C 1026.

## 1.05 DELIVERY, STORAGE AND HANDLING

A. Cast In Place Replaceable Tactile Warning Surface Tiles (REP) shall be suitably packaged or crated to prevent damage in shipment or handling. Finished surfaces shall be protected by sturdy wrappings.

B. Storage Facility
   1. Store REP Tiles in an area that is within an acceptable temperature range (40-90 degrees). In particular, protect sealants from freezing.
   2. Maintain Storage Facility in a clean dry condition to prevent contamination or damage to REP Tiles and incidentals.

## 1.06 GUARANTEE

A. REP Tiles shall be guaranteed in writing for a period of five (5) years from date of Contract's final completion. The guarantee includes manufacturing defects, breakage, and deformation.

## PART 2 – PRODUCTS

## 2.01 MATERIALS

A. Composition: REP Tiles shall be manufactured using a matte finish exterior grade homogeneous (uniform color throughout thickness of product) glass and carbon reinforced polyester based Sheet Molding Compound (SMC) composite material. Truncated domes must contain fiberglass reinforcement within the truncated dome for superior structural integrity and impact resistance. A matte finish will be required on the Tactile Warning Surface for superior slip resistance performance superior to that offered by a gloss finish. Use of Tactile Warning Surface Products employing coatings or featuring layers of material with differing composition, performance, or color properties is expressly prohibited under this Section.

B. Color: Color shall be homogeneous throughout REP Tile.

   1. Federal Yellow (Y) per Federal Standard 595B Table IV, Color No. 33538.

   2. Brick Red (R) per Federal Standard 595B Table IV, Color No. 20109.

   3. Clay Red (CR) per Federal Standard 595B Table IV, Color No. 22144.

   4. Safety Red (SR) per Federal Standard 595B, Table IV, Color No. 31350.

   5. Black (B) per Federal Standard 595B Table IV, Color No. 37038.

   6. Dark Gray (G) per Federal Standard 595B Table IV, Color No. 36118.

7. Safety Blue (B) per Federal Standard 595B Table IV, Color No. 15187.

8. White (W) per Federal Standard 595B Table IV, Color No 37925.

9. Seattle Yellow (SY) per Federal Standard 595B Table IV, Color No. 23594.

10. Houston Beige (Pantone #7529C).

C. Domes: Square grid pattern of raised truncated domes of 0.2”nominal height, base diameter of 0.9” and top diameter of 0.45”. The Federal Code of Regulations permits a truncated dome spacing range of 1.6”-2.4.” For superior wheelchair, walker and shopping cart mobility, the preferred truncated dome spacing shall have a center-to-center (horizontally and vertically) spacing of 2.35”, measured between the most adjacent domes on square grid.

D. Configuration: REP Tile sizes shall be as indicated on the Contract Drawings. The REP Tiles shall feature a minimum of eight (8) embedded corrosion resistant 1 ½” corrosion resistant concrete inserts with ½” x 1 ½” heavy duty steel bolts and washers. Bolts must be covered with a structural water tight cap. Bolts must be located BETWEEN the truncated domes (in the field) for maximum protection of the Bolt integrity. Bolts are NOT to be located in the truncated dome.

1. The field area shall consist of a non-slip textured surface with a minimum static coefficient of friction of 0.80, wet and dry.

2. At a minimum, REP Tile thickness shall measure ¼” nominal exclusive of the perimeter minimum 3/8” thick (nominal) by 1” wide flange. The body of the Tactile Warning Surface Tile must consist of a SOLID body for maximum strength and to eliminate the possibility of air entrapment and cracking.

E. <u>Radius REP Tile:</u>

1. Radius REP Tile measures 24”x 33.25” and features reverse score lines on each 24” dimension for a 10’, 15’, and 20’ radius condition. The Radius REP Tile out of the box measures 11’ - 6” radius.

2. Truncated domes feature proper dome alignment for a radius application. Radius REP Tile shall be cut to the appropriate configuration using the reverse score lines as a guide.

F. Truncated Dome Surface of REP Tile shall be protected with factory installed plastic sheeting for cleanliness during the installation process. Basic Installation Guidelines shall be printed on the plastic sheeting in both English and Spanish for customer convenience.

G. Dimensions: REP Tiles shall be held within the following dimensions and tolerances as noted on the drawings.

H. Cleaning materials used on site shall have code acceptable low VOC solvent content and low flammability.

I. The Specifications of the concrete, sealants and related materials shall be in accordance with the Contract Documents and the guidelines set by their respective manufacturers.

## 2.02 MANUFACTURERS

A. Available manufacturers, subject to compliance with these Specifications include, but are not limited to, the following:

1. ADA Solutions Inc. of Chelmsford, MA (Phone: 800-372-0519, Fax: 978-262-9125, Web Site: www.adatile.com , E: info@adatile.com ).

2. ADA Armor-Tile Engineered Plastics Inc of Williamsville, NY (Phone: 800-682-2525, Fax: 800-769-4463, Web Site: www.armor-tile.com , E: info@engplastics.com ).

3. Approved Equal: Requests for Approved Equal Status must be submitted and approved by the Owner during the Bid Phase of the Project.

## 2.03 EQUIPMENT

A. Contractor shall provide all tools, equipment and services required for satisfactory installation per manufacturer's instruction as Incidental Work. Equipment, which may be required include typical mason's tools, a 2-foot long level with electronic slope readout, (2) 25-pound weights, and a rubber mallet with a piece of wood for tamping down the Tactile Warning Unit(s).

# PART 3 – EXECUTION

## 3.01 PREPARATION

A. During all concrete pouring and REP Tile Installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.

B. The physical characteristics of the concrete shall be consistent with the Contract Specifications while maintaining a slump range of 4 - 7 to permit solid placement of the REP Tile. An overly wet mix will cause the REP Tile to float. Under these conditions suitable weights such as 2 concrete blocks or sandbags (25 pounds) shall be placed on each REP Tile.

C. The concrete shall be poured and finished, true and smooth to the required dimensions and slope prior to REP Tile placement.

## 3.02 INSTALLATION

A. Contractor will not be allowed to install Tactile Warning Surface Tiles until all submittals have been reviewed and approved by the Engineer.

B. REP Tile shall be installed per manufacturer's instructions.

C. To the maximum extent possible, the REP Tiles shall be oriented such that the rows of in-line truncated domes are parallel with the direction of the ramp. When multiple REP Tiles regardless of size are used, the truncated domes shall be aligned between the tactile warning surface tiles and throughout the entire tactile warning surface installation.

D. In accordance with the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Rights of Way (7/23/11, Access Board): Sections 304 + 305), Tactile Warning Surface Tile shall be located relative to the curb line as shown within Sections 304+305 of the Guidelines.

E. The REP Tiles shall be tamped or vibrated into the fresh concrete to ensure that there are no voids or air pockets, and the field level of the Tactile Warning Surface Tile is flush to the adjacent concrete surface or as the Drawings indicate to permit proper water drainage and eliminate tripping hazards between adjacent finishes.

F. On Continuous Runs: The Installer shall leave a 1/8" nominal gap between successive Tactile Warning Surface Tiles. As part of the concrete finishing operation, the Installer shall apply ¼" edge treatment around the perimeter of the Tactile Warning Surface Tiles to facilitate future replacement of the Tactile Warning Surface Tile. A Urethane Sealant such as Sikaflex 1a or BASF NP1 shall be applied to the edge treatment for a watertight Tactile Warning Surface Tile installation.

## 3.03 CLEANING AND PROTECTING

A. Protect REP Tiles against damage during construction period to comply with REP Tiles manufacturer's Specifications.

B. During and after the REP Tile installation and the concrete curing stage, it is imperative that there are no walking, leaning or external forces placed on the REP Tile to rock the REP Tile, causing a void between the underside of the REP Tile and the concrete substrate.

C. Remove Protective Plastic Sheeting from REP Tile within 24 hours of installation of the REP Tile. Particularly under hot weather conditions (80 degrees or higher), plastic sheeting will adhere strongly (resulting in difficult removal of same) to Tactile Warning Surface Tile when not removed quickly.

D. If requested by the Project Manager, clean REP Tiles not more than four (4) days prior to date scheduled for inspection intended to establish date of substantial completion in each area of project. Clean REP Tile by method specified by Tactile Warning Surface Products manufacturer.

**END OF SECTION**

# SECTION 32 80 13

## Irrigation Automatic Controller

## PART 1 - GENERAL

### 1.01 SUMMARY

A. The controller shall be a fully automatic, modular design, full-featured commercial-industrial product with the purpose of irrigation operation, management, and monitoring of control valves and sensors.

### 1.02 NOT USED

### 1.03 NOT USED

### 1.04 SUBMITTALS

A. Submit according to General Provisions, Section 67, Construction Submittals.

B. Product Data: Submit manufacturer's data sheets on each product to be used, including:

1. Owner’s Manual.

2. Installation instructions.

3. Programming Instructions.

### 1.05 WARRANTY

A. The controller shall be installed in accordance with the manufacturer’s published instructions. The controller shall carry a conditional five-year exchange warranty.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

A. Controller Hardware:

1. Basis of Design: Model I-Core, by Hunter Industries, or approved equal.

2. Features:

   a. 6-station modules that enable the controller to be customized from 6 stations up to 30 stations. The removable station modules shall allow servicing of, and removing of the module(s) without removing field wires from the controller.

   b. The controller shall be equipped with a rain sensor on-off switch that allows the user to override a sensor that has suspended watering. The controller shall have a programmable rain delay that turns off the controller for a predetermined period of time, from 1 to 180 days. The controller shall have a cycle and soak scheduling capability by station that allows a cycle to be programmed for up to 60 minutes and a soak period to be programmed for up to 120 minutes. There shall be 6-station modules that enable the controller to be customized from 6 stations up to 30 stations. The removable station modules shall allow servicing of, and removing of the module(s) without removing field wires from the controllers.

   c. When the learned flow is exceeded during normal operations, the controller shall record a flow alarm event, cease irrigating the corresponding station or stations, and resume irrigation with all other properly-operating stations.

   d. The controller shall have four independent programs (A, B, C, and D) with 8 start times per program for programs A, B, and C; and 16 start times for program D for a total of 40 daily start times. Any two programs shall have the capability of running concurrently. Watering times shall be available from 1 minute to 12 hours in 1-minute increments per station. There shall be a programmable delay between stations available of up to 9 hours. The controller shall have 4 weekly schedule options: 7-day, 31-day, odd-day, and even-day programming. It shall also have a 365-day calendar clock to accommodate true odd-even watering. Operation shall be available in automatic, semi-automatic, and manual modes. The front panel of the controller shall be removable and capable of being programmed when not attached to the controller cabinet.

e. The controller shall have a seasonal adjustment feature with 3 different modes that allows station to run times to be altered from 0% to 300% by program to compensate for weather changes.

f. The controller shall have remote control capability.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

A. Installation shall be per the manufacturer's written recommendations.

B. New controller shall be installed in the existing metal controller enclosure.

1. Verify existing enclosure is NEMA 3R and IP44 rated.

2. Evaluate the existing condition of the enclosure and make necessary repairs if it is determined that the enclosure is not providing protection from weather to equipment within.

3. Ensure means for grounding are present.

4. Verify enclosure's lock is properly functioning, and that Omnitrans has a key. A new lock and key shall be provided if necessary.

### 3.02 PROGRAMMING

A. The controller shall be set to English language display.

B. The correct date, time, and units of measurement shall be set for the controller's location.

C. Coordinate with Omnitrans to establish desired program zones, times, and days.

### 3.03 TESTING

A. Contractor shall inspect, test, and certify all low voltage control wire splices and ground rod installations as applicable. Any repairs as necessary to provide properly operating wiring are to be made by Contractor at no additional cost to City. After repairs are satisfactorily completed, Contractor shall connect the ground wires to the ground rods and the controller(s).

B. Irrigation control shall be performed, and shown to be operating properly before any planting operations commence.

## 3.04 CLEANUP

A. Upon completion of the Work, Contractor shall smooth all ground surfaces, remove excess materials, rubbish, debris, etc., sweep adjacent walkways , and remove construction equipment from the premises.

# PART 4 - MEASUREMENT AND PAYMENT

## 4.01 MEASUREMENT

A. No separate measurement will be made for the work of this section.

## 4.02 PAYMENT

A. Payment for the work of this section will be included in lump sum payment(s) for the irrigation system design in accordance with the Schedule of Values.

**END OF SECTION**

# WEST VALLEY VEHICLE MAINTENANCE FACILITY
# CONCRETE REPAIRS

MONTCLAIR, CA

## SHEET LIST


**GENERAL**

| | | |
|---|---|---|
| G-000 | 1 | COVER SHEET & DRAWING INDEX |

**CIVIL**

| | | |
|---|---|---|
| C-001 | 2 | THE CITY OF MONTCLAIR - GENERAL PERMIT CONDITIONS |
| C-100 | 3 | SITE PLAN |
| C-110 | 4 | DEMO PLAN - EXTERIOR IMPROVEMENTS AT OPERATIONS BUILDING |
| C-111 | 5 | DEVELOPMENT PLAN - EXTERIOR IMPROVEMENTS AT OPERATIONS BUILDING |
| C-112 | 6 | DETAILS - PAVEMENT REPLACEMENT AT OPERATIONS BUILDING |
| C-113 | 7 | TYPICAL ACCESSIBILITY DETAILS |
| C-114 | 8 | DETAILS - CONCRETE SIDEWALK AND STAIRS |
| C-115 | 9 | STAIR AND SLOPED WALKWAY- PLAN AND SECTIONS |
| C-120 | 10 | ACCESSIBLE PARKING STALLS - ACCESSIBILITY IMPROVEMENTS |
| C-130 | 11 | RIGHT OF WAY - IMPROVEMENTS |
| C-140 | 12 | DEMO PLAN - PAVEMENT REPLACEMENT AT FUEL / SERVICE ISLAND |
| C-141 | 13 | DEVELOPMENT PLAN - PAVEMENT REPLACEMENT AT FUEL / SERVICE ISLAND |
| C-142 | 14 | DETAILS - PAVEMENT REPLACEMENT AT FUEL / SERVICE ISLAND |
| C-143 | 14A | DETAILS - PAVEMENT REPLACEMENT AT FUEL / SERVICE ISLAND |
| C-144 | 14B | DETAIL - SERVICE ISLAND MODIFICATIONS |
| C-150 | 15 | DEMO PLAN - PAVEMENT REPLACEMENT AT WASH / CLEAN BUILDING |
| C-151 | 16 | DEVELOPMENT PLAN - PAVEMENT REPLACEMENT AT WASH / CLEAN BUILDING |
| C-160 | 17 | DEMO PLAN - PAVEMENT REPLACEMENT AT PARKING STALLS |
| C-161 | 18 | DEVELOPMENT PLAN - PAVEMENT REPLACEMENT AT PARKING STALLS |
| C-170 | 19 | DETAILS - CLARIFIER TANK & SAMPLE BOX |

**LANDSCAPE**

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|---|---|---|
| L-100 | 20 | LANDSCAPE - DEMOLITION PLAN |
| L-101 | 21 | LANDSCAPE - HARDSCAPE AND LAYOUT PLAN |
| L-102 | 22 | LANDSCAPE - PLANTING PLAN |
| L-501 | 23 | LANDSCAPE - PLANTING DETAILS |
| L-502 | 24 | LANDSCAPE - PLANTING NOTES |
| L-503 | 25 | LANDSCAPE - PLANT AND HARDSCAPE SCHEDULES |

**PLUMBING**

| | | |
|---|---|---|
| P-001 | 26 | PLUMBING LEGEND, NOTES, AND SCHEDULES |
| P-100 | 27 | PLUMBING SITE PLAN |
| P-140 | 28 | PLUMBING PLANS - FUEL/SERVICE ISLAND |
| P-150 | 29 | PLUMBING PLANS - WASH/CLEAN BUILDING |
| P-160 | 30 | PLUMBING PLANS - CLARIFIER REPLACEMENT AT PARKING STALLS |


## ABBREVIATIONS

| | | | |
|---|---|---|---|
| AC | ASPHALT CONCRETE | MAX | MAXIMUM |
| AFF | ABOVE FINISH FLOOR | MECH | MECHANICAL |
| ALUM | ALUMINUM | MTL | METAL |
| BCR | BEGINNING CURVE RADIUS | MFR | MANUFACTURER |
| BOT | BOTTOM | MIN | MINIMUM |
| B.O | BOTTOM OF | (N) | NEW |
| CF | CURVE FACE | NOM | NOMINAL |
| ℄ | CENTER LINE | N.T.S. | NOT TO SCALE |
| CONC | CONCRETE | OC | ON CENTER |
| CONT | CONTINUOUS | OD | OUTSIDE DIAMETER |
| CTR | CENTER | PCC | PORTLAND CEMENT CONCRETE |
| CJ | CONTROL JOINT | PMF | PRE-MOLDED FILLER |
| CLR | CLEAR | PLUMB | PLUMBING |
| CMU | CONCRETE MASONRY UNIT | PSI | POUNDS PER SQUARE INCH |
| DEMO | DEMOLITION | R | RADIUS |
| DIA | DIAMETER | REF | REFERENCE |
| DN | DOWN | REINF | REINFORCED |
| DWG(S) | DRAWING(S) | REQS | REQUIREMENTS |
| (E) | EXISTING | RM | ROOM |
| EA | EACH | ROW | RIGHT OF WAY |
| ECR | END CURVE RADIUS | SIM | SIMILAR |
| ELEC | ELECTRICAL | SOV | SHUT OFF VALVE |
| EL | ELEVATION | SPEC | SPECIFICATIONS |
| EQ | EQUAL | STA | STATION |
| EXT | EXTERIOR | STD | STANDARD |
| FIN | FINISH | STRUCT | STRUCTURAL |
| F.O.C | FACE OF CURB | S/W | SIDEWALK |
| FL | FLOW LINE | TC | TOP OF CURVE |
| FLR | FLOOR | T.O.C | TOP OF CONCRETE |
| FS | FINISHED SURFACE | TYP | TYPICAL |
| FTG | FOOTING | UTIL | UTILITIES |
| GALV | GALVANIZED | VIF | VERIFY IN FIELD |
| HORIZ | HORIZONTAL | W/O | WITHOUT |
| HT | HEIGHT | WWR | WELDED WIRE REINFORCEMENT |
| IW | INDUSTRIAL WASTE | Ø | DIAMETER |
| JT | JOINT | Δ | ARC LENGTH |
| MAINT | MAINTENANCE | | |

## CODE COMPLIANCE

PROJECT MUST COMPLY WITH THE CURRENT 2019 CBSC (TITLE 24):
CALIFORNIA BUILDING CODE - 2019
CALIFORNIA ELECTRICAL CODE - 2019
CALIFORNIA PLUMBING CODE - 2019
CALIFORNIA ENERGY CODE - 2019
CALIFORNIA FIRE CODE - 2019
CALIFORNIA GREEN BUILDING STANDARDS CODE - 2019

## SYMBOLS

4 — KEYNOTE

4 — EQUIPMENT NOTE

ROOM NAME / 100 — ROOM NAME & ROOM NUMBER

1 / A–100 — DETAIL NUMBER & SHEET NUMBER

## CONTAMINATED SOIL

OLD EXISTING INTERCEPTORS, TRENCH DRAINS, AND WASTE LINES ARE BEING UNEARTHED AND REMOVED AS PART OF THIS PROJECT. AS SUCH THERE IS THE CHANCE HYDROCARBONS MAY HAVE SEEPED OUT AND INTO THE ADJACENT SOILS.

ONCE CONDITIONS ARE REVEALED, CONTACT THE MONTCLAIR CITY INSPECTOR TO INFORM THEM OF THE SOIL CONDITIONS:

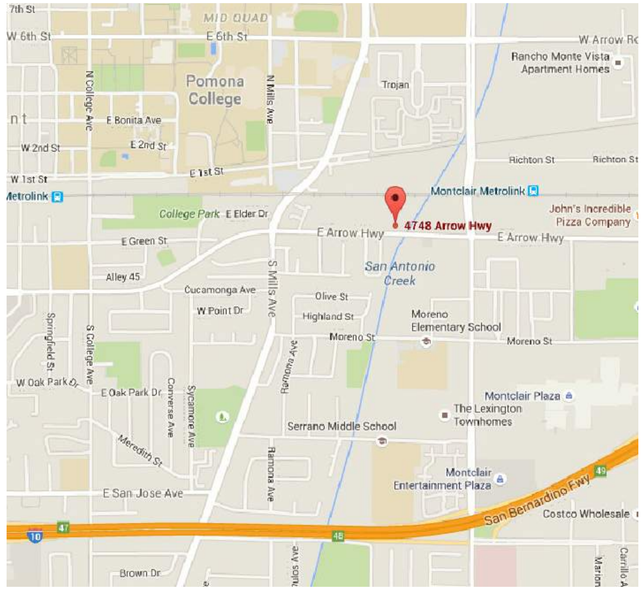
MICHAEL DORSEY (CITY OF MONTCLAIR) : 909-625-9438

IF CONTAMINATED SOIL IS ENCOUNTERED, SEE SPECIFICATIONS FOR THE PROCEDURES TO FOLLOW, AND ALSO CONTACT:

<NAME> (OMNITRANS) : <PHONE NUMBER>

CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING A HAZARDOUS WASTE ID NUMBER IS OBTAINED BEFORE SHIPPING WASTE TO A RECYCLING CENTER. ADDITIONALLY, CONTRACTOR SHALL KEEP ALL HAZARDOUS WASTE MATERIAL AND RECORDS, AND MAKE THEM AVAILABLE FOR REVIEW.

## VICINITY MAP




1,000' 0 1,000' 2,000'

1"=1,000'

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

LICENSED ARCHITECT — JASON D. YEAGER — NO. C 35458 — REN. FEB 28, 2021 — ARCHITECTURAL — STATE OF CALIFORNIA


STV Incorporated
ENGINEERS/ARCHITECTS/PLANNERS/CONSTRUCTION MANAGERS
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OmniTrans

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PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
COVER SHEET &
DRAWING INDEX

PROJECT NO 4017599
SCALE 1"=1,000'
DRAWING NO G-000
SHEET NO 1 OF 30

CITY OF MONTCLAIR - GENERAL PERMIT CONDITIONS

**1.0 GENERAL**

1.1 THE WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT CITY OF MONTCLAIR STANDARDS AND SPECIFICATIONS AND THESE CONDITIONS AND SPECIFICATIONS. ANY DEVIATION SHALL BE APPROVED IN WRITING BY THE CITY ENGINEER.

1.2 CHANGES OR ADDITIONS TO PERMIT -- THE PUBLIC WORKS DEPARTMENT RESERVES THE RIGHT TO MAKE ANY CHANGES OR ADDITIONS TO A PERMIT AFTER ISSUANCE IF SUCH CHANGES OR ADDITIONS ARE BELIEVED NECESSARY FOR THE PROTECTION OF THE CITY STREETS OR FOR THE HEALTH AND SAFETY OF THE PUBLIC.

1.3 RELOCATION --IF ANY PART OF AN INSTALLATION INTERFERES WITH THE PRESENT USE OF STREETS BY THE GENERAL PUBLIC OR IS IN CONFLICT WITH FUTURE OR CURRENT CITY IMPROVEMENT PROJECTS, IT SHALL BE REMOVED OR RELOCATED AS DIRECTED BY THE PUBLIC WORKS DEPARTMENT AT THE EXPENSE OF THE PERMITTEE OR HIS SUCCESSOR IN INTEREST. THERE SHALL BE NO VALVES OR MANHOLES INSTALLED WITHIN SPANDRELS, CROSS GUTTERS OR CURB GUTTERS.

1.4 UTILITY CONSTRUCTION -- PERMITS FOR UTILITY DRENCHING, INCLUDING UTILITY SERVICE TRENCHING, WITHIN CITY RIGHT-OF-WAY, SHALL BE ISSUED TO THE RESPECTIVE UTILITY PURVEYOR OR A CALIFORNIA LICENSED CONTRACTOR. THE PERMITTEE SHALL WARRANTY THE TRENCH REPAIR FOR ONE YEAR FROM THE TRANSPORTATION DEPARTMENT APPROVAL DATE. FOLLOWING THE PERMITTEE WARRANTY PERIOD, THE RESPECTIVE UTILITY PURVEYOR SHALL BE RESPONSIBLE FOR THE TRENCH REPAIR.

1.5 LICENSED CONTRACTOR -- ALL EXCAVATION, REPAIR AND RESTORATION IN CITY STREET RIGHT-OF-WAY SHALL BE PERFORMED BY A CONTRACTOR WITH THE APPROPRIATE LICENSE ISSUED BY THE STATE OF CALIFORNIA CONTRACTORS LICENSE BOARD OR BY UTILITY PURVEYOR'S REGULAR EMPLOYEES.

1.6 PERMIT POSSESSION -- OTHER THAN EMERGENCY REPAIRS, THERE SHALL BE NO WORK PERFORMED IN CITY STREET RIGHT-OF-WAY UNTIL A PERMIT IS ISSUED. A COPY OF THIS PERMIT, A SET OF APPROVED PLANS AND PERMITS REQUIRED BY ANY OTHER LEGALLY CONSTITUTED AUTHORITY SHALL BE ON SITE AT ALL TIMES CONSTRUCTION IS IN PROGRESS. PERMITS THAT REQUIRE EXCAVATION SHALL BE VALID ONLY AFTER AN UNDERGROUND SERVICE ALERT INQUIRY IDENTIFICATION NUMBER IS ISSUED.

1.7 SANITARY FACILITIES -- THE PERMITTEE SHALL PROVIDE AND MAINTAIN ENCLOSED TOILETS FOR THE USE OF EMPLOYEES AT ALL TIMES WHILE WORK IS IN PROGRESS.

1.8 PERMITTEE RESPONSIBILITY -- IN ADDITION TO ALL CONDITIONS HEREIN, THE PERMITTEE IS RESPONSIBILITY FOR SAFETY AND CONSTRUCTION REQUIREMENTS WITHIN THE LIMITS OF THE PROJECT. THE PERMITTEE OR HIS EMPLOYEES SHALL ABIDE BY ALL THE REGULATIONS OF ANY LEGALLY CONSTITUTED AUTHORITY.

1.9 HOLD HARMLESS -- THE PERMITTEE SHALL PRESERVE AND SAVE HARMLESS THE CITY AND EACH OFFICER AND EMPLOYEE THEREOF, FROM ANY LIABILITY OR RESPONSIBILITY FOR ANY ACCIDENT, LOSS OF DAMAGE TO PERSONS OR PROPERTY HAPPENING OR OCCURRING AS A PROXIMATE RESULT OF PERMITTEE'S NEGLIGENCE OR THE NEGLIGENCE OF PERMITTEE'S AGENTS, SERVANTS, EMPLOYEES OR CONTRACTORS IN THE DESIGN OR PERFORMANCE OF ANY WORK UNDERTAKEN UNDER ANY PERMIT GRANTED TO PERMITTEE.

1.10 NOTIFICATION -- EXCEPT IN EMERGENCIES, THE PERMITTEE SHALL NOTIFY THE ASSIGNED CITY INSPECTOR ONE WORKING DAY, EXCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO STARTING A PROJECT AND BEFORE BEGINNING EACH PHASE OF CONSTRUCTION. IN ADDITION, THE PERMITTEE SHALL NOTIFY USA 48 HOURS PRIOR TO ANY EXCAVATION.

1.11 INSPECTION -- ALL CONSTRUCTION PERFORMED IN RELATION TO A PERMIT SHALL BE INSPECTED PRIOR TO AND DURING INSTALLATION BY CITY PERSONNEL. CONSTRUCTION PERFORMED WITHOUT INSPECTION MAY BE SUBJECT TO REMOVAL AND REPLACEMENT. THE ENTIRE COST OF REMOVAL AND REPLACEMENT SHALL BE BORNE BY THE PERMITTEE, REGARDLESS OF WHETHER THE INSTALLATION REMOVED WAS FOUND TO BE DEFECTIVE.

1.12 FAILURE TO COMPLY -- SHOULD A PERMITTEE FAIL TO COMPLY WITH THE PROVISIONS OF THE PERMIT OR THE REQUIREMENTS OF ANY LEGALLY CONSTITUTED AUTHORITY, THE PUBLIC WORKS DEPARTMENT MAY ORDER THE PERMITTEE TO STOP WORK, WHOLLY OR IN PART, UNTIL THE DISCREPANCIES HAVE BEEN RESOLVED TO THE DEPARTMENT'S SATISFACTION. UPON SATISFACTORY COMPLETION OF CORRECTION, WRITTEN APPROVAL FROM THE DEPARTMENT SHALL BE REQUIRED BEFORE WORK RESUMES. FAILURE TO COMPLY SHALL RESULT IN REVOCATION OF PERMITS. THE DEPARTMENT MAY PERFORM THE WORK REQUIRED OR ARRANGE FOR THE WORK TO BE DONE AND THE ENTIRE COST OF THE REQUIRED WORK SHALL BE BORNE BY THE PERMITTEE.

**2 PUBLIC CONVENIENCE AND SAFETY**

2.1 TRAFFIC AND ACCESS -- THE PERMITTEE'S OPERATION SHALL CAUSE NO UNNECESSARY INCONVENIENCE TO THE PUBLIC. THE ACCESS RIGHTS OF THE PUBLIC SHALL BE CONSIDERED AT ALL TIMES AND UNLESS OTHERWISE AUTHORIZED, TRAFFIC SHALL BE PERMITTED TO PASS THROUGH THE WORK AREA AT ALL TIMES. SAFE AND ADEQUATE PEDESTRIAN AND VEHICULAR ACCESS SHALL BE PROVIDED AND MAINTAINED TO FIRE HYDRANTS, RESIDENCES, COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS, CHURCHES, SCHOOLS, PARKING LOTS, SERVICE STATIONS, MOTELS, FIRE AND POLICE STATIONS, HOSPITALS, AND ESTABLISHMENTS OF SIMILAR NATURE. ACCESS TO THESE FACILITIES SHALL BE CONTINUOUS AND UNOBSTRUCTED UNLESS OTHERWISE APPROVED BY THE DEPARTMENT'S CITY ENGINEER.

2.2 TRAFFIC CONTROL -- TRAFFIC CONTROL SHALL CONFORM TO THE CURRENT CALTRANS MANUAL OF TRAFFIC CONTROLS. THE HANDBOOKS PUBLISHED BY AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION GUIDE AND THE WORK AREA TRAFFIC CONTROL HANDBOOK OR OTHER TRAFFIC CONTROL MANUALS MAY BE USED WITH APPROVAL OF THE DEPARTMENT'S CITY ENGINEER.

2.3 WORKING HOURS -- EXCEPT FOR EMERGENCY REPAIRS, NO WORK SHALL BE PERFORMED WITHIN CITY STREET RIGHT-OF-WAY ON WEEKENDS, HOLIDAYS, BEFORE 7 AM OR AFTER 4:30 PM UNLESS AUTHORIZED BY THE CITY ENGINEER.

2.4 DEWATER OPERATIONS -- RELEASE OF, OR THE DIRECTING OF WATER ONTO CITY STREETS SHALL BE AUTHORIZED ONLY THE PUBLIC WORKS DEPARTMENT AND SHALL INCLUDE TRAFFIC CONTROL PER SECTION 2.2, CLEAN-UP PER SECTION 4.1 AND EROSION CONTROL. IF EROSION OCCURS, GRADING SHALL BE AS REQUIRED IN SECTION 5.4. DISCHARGES SHALL COMPLY WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND WITH FEDERAL LAW, STATE LAW AND LOCAL ORDINANCE.

2.5 CLOSING STREET -- NO STREET SHALL BE CLOSED WITHOUT AUTHORIZATION FROM THE PUBLIC WORKS DEPARTMENT EXCEPT IN THE CASE OF AN EMERGENCY UNDER THE DIRECTION OF AN AUTHORIZED AGENCY. AN AUTHORIZED STREET CLOSURE WILL ALLOW THE DETOUR OF THROUGH TRAFFIC ONLY. THE PERMITTEE SHALL PROVIDE A SMOOTH DUST CONTROLLED ROUTE THAT ALLOWS UNIMPEDED ACCESS FOR EMERGENCY VEHICLES AND RESIDENTS AT ALL TIMES. A MINIMUM OF TEN (10) WORKING DAYS ARE REQUIRED TO PROCESS THE APPLICATION.

TO APPLY FOR A STREET CLOSURE AUTHORIZATION, SUBMIT THE FOLLOWING TO THE PUBLIC WORKS DEPARTMENT. WRITTEN REQUEST FOR THE CLOSURE WITH THE TIME SCHEDULE INCLUDED. DETOUR ROUTE AND SIGN LOCATIONS, A DETOUR PLAN DESIGNED BY REGISTERED CIVIL OR TRAFFIC ENGINEER, IF REQUIRED BY THE DEPARTMENT.

**3 PRESERVATION OF PROPERTY**

3.1 PROTECTION OF PROPERTY -- THE PERMITTEE SHALL BE RESPONSIBLE FOR THE PROTECTION OF PUBLIC AND PRIVATE PROPERTY ADJACENT TO THE WORK AND SHALL EXERCISE DUE CAUTION TO AVOID DAMAGE TO SUCH PROPERTY.

THE PERMITTEE SHALL REPAIR OR REPLACE ALL EXISTING IMPROVEMENTS DAMAGED WITHIN THE RIGHT- OF-WAY WHICH ARE NOT DESIGNATED FOR REMOVAL ON THE APPROVED PLANS TO MATCH THE ORIGINAL IN FINISH AND DIMENSION. TREES, LAWNS AND SHRUBBERY THAT ARE NOT DESIGNATED FOR REMOVAL ON THE PLANS SHALL BE PROTECTED FROM DAMAGE OR INJURY. IF DAMAGED OR REMOVED BECAUSE OF THE PERMITTEE OPERATIONS, THEY SHALL BE RESTORED OR REPLACED IN AS NEARLY THE ORIGINAL CONDITION AND LOCATION AS IS REASONABLY POSSIBLE AS APPROVED BY DEPARTMENT PERSONNEL. THE PERMITTEE SHALL GIVE SEVEN (7) DAYS NOTICE TO OCCUPANTS OR OWNERS OF ADJACENT PROPERTY TO ALLOW THEM TO SALVAGE OR RELOCATE PLANTS, TREES, FENCES, SPRINKLERS AND OTHER IMPROVEMENTS WITHIN THE RIGHT-OF-WAY WHICH ARE DESIGNATED FOR REMOVAL ON THE PLANS AND WOULD BE DESTROYED BECAUSE OF THE WORK.

3.2 CITY FACILITIES -- PRIOR TO CONSTRUCTION, THE PERMITTEE SHALL ASSESS THE CONDITION OF CITY FACILITIES WITHIN PROJECT LIMITS AND REPORT TO THE CITY INSPECTOR ALL DAMAGED, DEFACED OR MISSING PAVEMENT, SIDEWALK, CURB, GUTTER, TRAFFIC SIGNS, PAVEMENT MARKINGS OR HAZARDOUS CONDITIONS THAT MAY EXIST BEFORE WORK IS STARTED. PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, ALL USA MARKS MUST BE REMOVED, WATER BLAST ALL CONCRETE, BLACK OUT ALL ASPHALT, AND ALL CITY FACILITIES SHALL BE IN THE SAME OR BETTER CONDITION AS DETERMINED BY DEPARTMENT PERSONNEL.

3.3 TRAFFIC SIGNALS -- TRAFFIC SIGNAL DETECTOR LOOPS, WIRING OR APPURTENANT FACILITIES DAMAGED BY THE PERMITTEE'S OPERATION SHALL BE REPORTED IMMEDIATELY TO THE PUBLIC WORKS DEPARTMENT, TELEPHONE (909) 625-9440. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY AT NO EXPENSE TO THE CITY AS DIRECTED BY THE DEPARTMENT.

3.4 SURVEY MONUMENTS -- THE PERMITTEE SHALL LOCATE, PROTECT OR TIE-OUT ALL SURVEY MONUMENTS WHICH MAY BE DISTURBED OR DESTROYED. SURVEY MONUMENTS SHALL BE LOCATED, REFERENCED AND A COMER RECORD FILED WITH BOTH THE CITY AND THE COUNTY SURVEYOR PRIOR TO THE START OF CONSTRUCTION. FOLLOWING COMPLETION OF THE WORK, THE MONUMENTS SHALL BE RESET IN THE SURFACE OF THE NEW CONSTRUCTION, A SUITABLE MONUMENT BOX PLACED THEREON, OR PERMANENT WITNESS MONUMENTS SET AND A CORNER RECORD FILED WITH BOTH THE CITY AND THE COUNTY SURVEYOR PRIOR TO FINAL PROJECT NOTICE OF COMPLETION ISSUED BY THE DEPARTMENT. ALL WORK SHALL BE PERFORMED UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AT NO EXPENSE TO THE CITY.

**4 PROJECT MAINTENANCE**

4.1 CLEAN-UP AND DUST CONTROL -- THROUGHOUT ALL PHASES OF CONSTRUCTION, INCLUDING SUSPENSION OF WORK, THE PERMITTEE SHALL KEEP THE WORK SITE CLEAN AND FREE FROM RUBBISH AND DEBRIS. THE PERMITTEE SHALL ALSO ABATE DUST NUISANCE BY CLEANING, SWEEPING AND SPRINKLING WITH WATER OR OTHER MEANS AS NECESSARY. THE USE OF WATER RESULTING IN MUD ON STREETS OR DRAINAGE FACILITIES WILL NOT BE ALLOWED AS A SUBSTITUTE FOR SWEEPING OR OTHER CLEANING METHODS. ALL SOIL AND CONSTRUCTION MATERIAL SHALL BE REMOVED PRIOR TO THAT PORTION OF THE STREET BEING MADE AVAILABLE TO TRAFFIC.

4.2 HAUL ROUTES -- WHEN REQUIRED BY THE DEPARTMENT, OBTAIN A HAUL ROUTE PERMIT BEFORE BEGINNING WORK. PERMITS ARE ISSUED APPROXIMATELY FIVE (5) WORKING DAYS AFTER FILING OF PROPER PLANS, FEES AND APPLICATION TO THE DEPARTMENT. CARE SHALL BE EXERCISED TO PREVENT SPILLAGE ON, OR DAMAGE TO CITY STREETS. ANY SUCH SPILLAGE OR DAMAGE SHALL BE REMOVED OR REPAIRED IMMEDIATELY. DUST CONTROL SHALL BE PROVIDED FOR ALL HAULING OPERATIONS.

4.3 STORAGE IN CITY STREETS -- THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR STOCKPILED IN STREET RIGHT-OF-WAY. EQUIPMENT AND MATERIALS SHALL BE REMOVED FROM STREET RIGHT-OF-WAY WHEN NOT IN USE AND AT THE END OF EACH WORKING DAY, EXCEPT AS APPROVED BY THE DEPARTMENT.

4.4 EMERGENCY RESPONSE -- BEFORE WORK IS STARTED, THE PERMITTEE SHALL FURNISH THREE NAMES AND TELEPHONE NUMBERS OF PERSON'S ON-CALL IF EMERGENCY WORK IS REQUIRED BY THE CITY. THE DEPARTMENT, AT ITS SOLE DISCRETION, MAY ELECT TO PERFORM EMERGENCY WORK IF IT IS JUDGED AS NECESSARY FOR THE PROTECTION OF THE STREETS OR FOR THE HEALTH AND SAFETY OF THE PUBLIC. ALL EMERGENCY WORK SHALL BE ACCOMPLISHED AT NO EXPENSE TO THE CITY.

4.5 MAINTENANCE OF TRENCHES -- PERMITTEE SHALL PERFORM CONTINUING MAINTENANCE OF ALL TRENCHES, INCLUDING PERIODS OF SUSPENSION OF WORK, DURING THE COURSE OF CONSTRUCTION AND SHALL MAINTAIN THE TRENCH FOR THE LIFE OF THE INSTALLATION.

**5 MATERIALS AND EQUIPMENT**

5.1 PAVEMENT TRAFFIC MARKINGS AND STRIPING -- PAVEMENT TRAFFIC MARKINGS AND STRIPING SHALL BE CONSTRUCTED OF FAST DRY OR RAPID DRY TYPE MATERIAL AND ALL DAMAGED OR REMOVED MARKINGS SHALL BE REPLACED WITH FAST DRY OR RAPID DRY TYPE MATERIAL UNLESS OTHERWISE APPROVED BY DEPARTMENT PERSONNEL. VISUAL UNIFORMITY, AS DETERMINED BY DEPARTMENT PERSONNEL, MAY REQUIRE THAT ADJACENT MARKINGS AND ALL MARKINGS WITHIN AN INTERSECTION BE REPLACED WITH FAST DRY OR RAPID DRY TYPE MATERIAL BY THE PERMITTEE AT NO COST TO THE CITY.

5.2 ASPHALT CONCRETE -- PAVING ASPHALT SHALL BE AR4000 U2-INCH TYPE B MAXIMUM, MEDIUM SHALL BE USED. ASPHALT DIKE SHALL BE AR8000 PAVING ASPHALT WITH TYPE B 3/8-INCH MAXIMUM, MEDIUM GRADING.

5.3 BASE MATERIALS -- BASE SHALL BE CLASS II AGGREGATE BASE OR AS APPROVED BY DEPARTMENT PERSONNEL.

5.4 GRADING EQUIPMENT -- GRADING OF SOIL ROADS OR SOIL SHOULDERS MAY BE ACCOMPLISHED BY ANY MEANS THAT WILL PROVIDE A SMOOTH, COMPACTED AND UNIFORM SURFACE THAT VARIES LESS THAN 0.1-FOOT IN 10-FEET FOR LINE OR GRADE UP TO 300-FEET. PROJECTS GREATER THAN 300-FEET IN LENGTH WILL REQUIRE GRADING BE PERFORMED BY AN APPROVED MOTOR GRADER.

5.5 TRACK EQUIPMENT -- TRACK EQUIPMENT AND OUTRIGGERS USED ON PAVED SURFACES SHALL BE EQUIPMENT WITH STREET PADS AND BE OPERATED SO AS NOT TO MAR THE SURFACE OR CAUSE DAMAGE TO CITY FACILITY. IF PAVEMENT IS MARRED, IT SHALL BE RESURFACED OVER THE ENTIRE WIDTH AS REQUIRED IN SECTION 8, TRENCH RESURFACING. IF CITY FACILITIES ARE DAMAGED, THEY SHALL BE REPLACED OR REPAIRED AS SPECIFIED IN SECTION 3, PRESERVATION OF PROPERTY.

5.6 EQUIPMENT -- PAVING 6-FEET WIDE OR WIDER IN A DRIVING LANE SHALL BE ACCOMPLISHED BY USE OF A PAVING MACHINE APPROVED BY DEPARTMENT PERSONNEL. SHOULDER PAVING AND MISCELLANEOUS PAVING SHALL BE AS APPROVED BY THE INSPECTOR.

**6 TRENCHING**

6.1 CALOSHA -- ALL EXCAVATIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STATE OF CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH. THE APPLICANT FOR A PERMIT SHALL POSSESS A PERMIT TO EXCAVATE FROM THE DIVISION OF INDUSTRIAL SAFETY, DEPARTMENT OF INDUSTRIAL RELATIONS, STATE OF CALIFORNIA.

6.2 NEW STREETS -- TRENCHES INSTALLED IN STREETS THAT HAVE BEEN PAVED WITHIN 3 YEARS SHALL NOT BE OPEN-CUT UNLESS OTHERWISE AUTHORIZED BY THE CITY ENGINEER. IF AUTHORIZED, THE DRENCHING WILL BE SUBJECT TO ADDITIONAL REQUIREMENTS AS SPECIFIED BY THE CITY ENGINEER.

6.3 DEPTH OF INSTALLATION -- UNDERGROUND INSTALLATIONS SHALL HAVE A MINIMUM OF 2.5-FEET OF COVER BELOW FINISHED GRADE.

6.4 PAVEMENT REMOVAL -- PAVING SHALL BE CUT FOR REMOVAL AND EXCAVATED IN A MANNER THAT DOES NOT DISTURB THE ADJACENT PAVEMENT. PAVING SHALL BE SAWCUT OR COLD PLANED FOR PERMANENT REPAIR AS SPECIFIED IN SECTION 8. REMNANT STRIPS OF PAVING LESS THAT 2-FEET WIDE SHALL BE REMOVED AND INCLUDED IN THE REPLACEMENT PAVING. REPLACEMENT PAVING ALONG THE EDGE OF PAVING THAT DOES NOT HAVE CURB AND GUTTER, AC DIKE OR AC BERM SHALL BE A MINIMUM OF 2-FEET WIDE.

6.5 OPEN TRENCH -- THE MAXIMUM LENGTH OF OPEN TRENCH (EXCAVATION OR BACKFILL NOT RESURFACED) ALLOWED DURING CONSTRUCTION SHALL BE THE DISTANCE OF CONSTRUCTION WHICH CAN BE REASONABLY INSTALLED IN A SINGLE DAY. AN OPEN TRENCH SHALL BE ATTENDED BY CONTRACTOR'S PERSONNEL AT ALL TIMES. WHERE PAVEMENT HAS BEEN REMOVED, A MINIMUM OF 2-INCHES OF TEMPORARY PAVING SHALL BE PLACED BEFORE THAT AREA IS MADE AVAILABLE TO TRAFFIC. BEFORE LEAVING THE PROJECT AND AT THE END OF EACH DAY, ALL AREAS OF PAVEMENT REMOVAL, INCLUDING SIDEWALK, DRAINAGE COURSES AND DRIVEWAY APPROACHES SHALL BE BACKFILLED, COMPACTED AND SURFACED WITH TEMPORARY ASPHALT. UPON APPROVAL OF THE DEPARTMENT PERSONNEL, APPROPRIATE AREAS OF THE TRENCH MAY BE PROTECTED BY PLATE BRIDGING OR PROTECTIVE FENCING.

6.6 TRENCH BRIDGING -- PLATE BRIDGING IN THE TRAVELED WAY SHALL BE AS SHOWN IN THE WORK AREA TRAFFIC CONTROL HANDBOOK AND THE PLATE BRIDGING STANDARD DRAWING HEREIN.

6.7 PROTECTIVE FENCING -- WHEN PROTECTIVE FENCING IS USED TO SECURE AN AREA, IT SHALL BE CONSTRUCTED OF 6-FOOT HIGH, PIPE FRAMED CHAIN LINK PANELS OR EQUAL MATERIAL, SECURED INTO POSITION AND PLACED IN A MANNER THAT THERE ARE NO GAPS LARGER THAN 3-INCHES. FENCING SHALL BE PLACED A MINIMUM OF 4-FEET FROM THE NEAREST DRIVING LAND AND SHALL BE PROTECTED BY APPROPRIATE SIGNING AND BARRIERS PER SECTION 2.2, TRAFFIC CONTROL.

6.8 TRENCH BACKFILL -- UNLESS OTHERWISE SPECIFIED, THE MATERIAL OBTAINED FROM THE PROJECT EXCAVATIONS WILL BE SUITABLE FOR USE AS FILL OR BACKFILL, PROVIDED THAT ALL ORGANIC MATERIAL AND OTHER OBJECTIONABLE MATERIAL IS REMOVED. ROCKS, PLAIN CONCRETE RUBBLE AND PAVEMENT GRINDINGS OBTAINED FROM THE PROJECT WILL BE PERMITTED IN THE FI11 SUBJECT TO THE FOLLOWING LIMITATIONS:

- IN TRENCHES UP TO 3-FEET WIDE, THE MAXIMUM DIMENSION OF ANY PIECE USED SHALL BE 6 INCHES; IN TRENCHES MORE THAN 3-FEET WIDE, I-FOOT IS THE MAXIMUM DIMENSION.
- PIECES LARGER THAN 4-INCHES SHALL NOT BE PLACED WITHIN I-FOOT OF ANY STRUCTURE.
- PIECES LARGER THAT 3-INCHES SHALL NOT BE PLACED WITHIN I-FOOT OF THE SUBGRADE FOR PAVING.
- ROCKS OR RUBBLE INCLUDED IN THE FILL SHALL BE MIXED WITH APPROVED MATERIAL TO ELIMINATE VOIDS. SLURRY (1-1/2 SACK) IS ALSO AN ACCEPTABLE OPTION FOR BACKFILL.

6.9 NARROW TRENCH -- UNLESS OTHERWISE AUTHORIZED, TRENCHES IN PAVED AREAS, I-FOOT OR LESS IN WIDTH, SHALL BE BACKFILLED TO PAVEMENT SUBGRADE WITH 1-1/2 SACK AGGREGATE/CEMENT SLURRY. THE SLURRY SHALL BE PROTECTED UNTIL CURED AND PAVEMENT PLACED PER SECTION 8, TRENCH RESURFACING.

6.10 INCLEMENT WEATHER -- OTHER THAN EMERGENCY REPAIRS OR AS DIRECTED BY THE DEPARTMENT, THERE SHALL BE NO EXCAVATION WITHIN THE TRAVELED WAY OF CITY STREETS DURING PERIODS OF INCLEMENT WEATHER.

6.11 MANHOLE CONSTRUCTION -- MANHOLES SHALL REMAIN BELOW THE GRADING PLAN UNTIL FINAL PAVING HAS BEEN COMPLETED AND THEN SET FLUSH WITH THE SURFACE. BACKFILL AND TESTING SHALL BE PER SECTION 7, AND SHALL BE INDEPENDENT OF THE MAIN LINE KENCH TESTS.

**7 COMPACTION**

7.1 RELATIVE COMPACTION (RC) -- RC OF 95% MINIMUM SHALL BE REQUIRED FOR ASPHALT PAVEMENT, PAVING BASE MATERIAL AND THAT PORTION OF BACKFILL WHICH IS WITHIN 0.5-FOOT OF THE PAVING BASE MATERIAL. RC OF 90% MINIMUM SHALL BE REQUIRED FOR ALL OTHER FILL OR BACKFILL. ALL COMPACTION SHALL BE IN ACCORDANCE WITH CALIFORNIA TEST NO. 216 OR NO. 231 (ASTM D-1556 OR D-1557-70). USE OF AN ALTERNATE COMPACTION TEST METHOD (E.G. DYNAMIC CONE PENETROMETER) MUST BE APPROVED IN ADVANCE AND WILL BE APPROVED ON A CASE-BY-CASE BASIS.

7.2 COMPACTION TESTING FREQUENCY AND LOCATION -- TRENCH BACKFILL TESTING SHALL BE AT 250- FOOT MAXIMUM INTERVALS. ONE TEST SHALL BE PERFORMED FOR EACH 4-FOOT DEPTH OR FRACTION THEREOF. PAVEMENT SUBGRADE AND PAVEMENT BASE MATERIAL SHALL BE TESTED AT 500-FOOT INTERVALS. TESTS FOR BACKFILL SHALL BE TAKEN AT MID-DEPTH OF EACH 4-FEET OF BACKFILL STARTING AT THE TOP OF THE INSTALLATION. 20% OF LATERALS AND 100% OF MANHOLES SHALL BE TESTED INDEPENDENTLY OF THE MAIN LINE. FAILURE OF A COMPACTION TEST WILL RESULT IN THE ENTIRE AREA REPRESENTED BY THAT TEST BEING UNIFORMLY REWORKED AND RETESTED AT A RANDOM LOCATION.

7.3 TEST REPORTS -- TESTS SHALL BE CERTIFIED BY A REGISTERED CALIFORNIA CIVIL OR GEOTECHNICAL ENGINEER OR TESTING LABORATORY IN ACCORDANCE WITH THE STATE OF CALIFORNIA TEST REQUIREMENTS. TEST LOCATIONS SHALL BE DETERMINED BY DEPARTMENT PERSONNEL. TEST REPORTS SHALL BE LISTED INDIVIDUALLY FOR EACH TRENCH OR FOR EACH TYPE AND PHASE OF CONSTRUCTION THAT INCLUDES AN ACCURATE DESCRIPTION OF THE BEST LOCATION. COMPACTION REPORTS SHALL BE SUBMITTED TO THE CITY INSPECTOR PRIOR TO PERMANENT PAVING. IF AN ALTERNATE COMPACTION METHOD IS APPROVED PER SECTION 7.1, ALTERNATE TEST REPORTS SPECIFIED AT TIME OF PERMIT ISSUANCE SHALL BE SUBMITTED.

7.4 MECHANICAL COMPACTION -- BACKFILL SHALL BE PLACED IN HORIZONTAL LAYERS OF THICKNESS COMPATIBLE TO THE MATERIAL BEING PLACED AND THE TYPE OF EQUIPMENT BEING USED. EACH LAYER SHALL BE EVENLY SPREAD THEN TAMPED OR ROLLED UNTIL THE SPECIFIED RELATIVE COMPACTION IS ATTAINED.

7.5 WATER DENSIFICATION -- DENSIFYING BY PONDING AND JETTING WILL NOT BE ALLOWED WITHIN 4-FEET OF FINISH GRADE UNLESS CONFINED TO THE PIPE ZONE AND APPROVED BY THE INSPECTOR. WATER DENSIFICATION MAY BE ALLOWED WHEN, AS DETERMINED BY DEPARTMENT PERSONNEL, THE BASE AND BACKFILL MATERIALS HAVE A SAND EQUIVALENT OF 20 OR GREATER (CALIFORNIA TEST NO.217) AND ARE OF SUCH CHARACTER THAT THEY WILL BE SELF-DRAINING WHEN COMPACTED AND THE FOUNDATION MATERIAL WILL NOT SOFTEN, OR OTHERWISE BE DAMAGED BY THE APPLIED WATER. FOR AUTHORIZATION TO USE WATER DENSIFICATION, SUBMIT REQUEST AND TEST REPORTS REPRESENTING THE FOUNDATION SOILS AND BACKFILL MATERIAL, AT A MAXIMUM OF 1000-FOOT INTERVALS TO THE INSPECTOR FIVE (5) WORKING DAYS PRIOR TO STARTING WORK.

**8 TRENCH RESURFACING**

8.1 TEMPORARY AC PAVEMENT -- TEMPORARY ASPHALT COMPACTED TO 2-INCHES THICK SHALL BE PLACED AND MAINTAINED IN A SMOOTH AND COMPACTED CONDITION AT ALL LOCATIONS WHERE PAVING HAS BEEN REMOVED AND BEFORE TRAFFIC IS ALLOWED TO PASS OVER AREAS OF PAVEMENT REMOVAL. TEMPORARY ASPHALT SHALL BE REMOVED FOR PERMANENT REPAIR.

8.2 PAVEMENT REPAIR-GENERAL -- DAMAGED PAVING ADJACENT TO THE TRENCH EDGES SHALL BE SAWCUT AND REMOVED IN RECTANGULAR SECTIONS. REMNANT STRIPS OF PAVING 2-FEET WIDE OR LESS WILL BE REMOVED AND THAT AREA INCLUDED IN THE PAVING REPAIR. ASPHALT PAVING SHALL BE PLACED IN A MINIMUM OF TWO LIFTS AND BE IN ACCORDANCE WITH THE "GREENBOOK", STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. LATEST ADDITION AND BE A MINIMUM OF 95% RC. THE REPAIRED SECTION SHALL BE 1-INCH THICKER THAN THE EXISTING PAVING BUT NOT LESS THAN 3-INCHES THICK. PAVING SHALL BE PLACED WITHIN FIFTEEN (15) WORKING DAYS OF COMPLETION OF THE SUBSURFACE INSTALLATION IN ACCORDANCE WITH SECTION 1.5. AREAS TO BE JOINED WITH ASPHALT PAVING SHALL BE CLEANED OF ALL SOIL AND FOREIGN MATERIAL AND TACKED 100% COVERAGE OF ASPHALTIC EMULSION OR PAINT BINDER.

8.3 PERMANENT PAVEMENT REPAIR -- BASE PAVING WILL BE IN COMPACTED LIFTS A MAXIMUM OF 3- INCHES THICK AND THE USE B-AR-4000 MAY BE REQUIRED AT THE DISCRETION OF THE CITY INSPECTOR. FINISH COURSE SHALL BE A MINIMUM OF 1-INCH AND A MAXIMUM OF 2-INCHES THICK OF C2--AR-4000 FLUSH WITH THE EXISTING PAVING. TRENCH SECTIONS OVER 6-FEET IN WIDTH SHALL UTILIZE A SELF-PROPELLED VIBRATING SCREED PAVING MACHINE (BARBER-GREENE OR EQUIVALENT) AND MAY BE SUBJECT TO ADDITIONAL REQUIREMENTS.

8.4 TRENCH OPTIONS

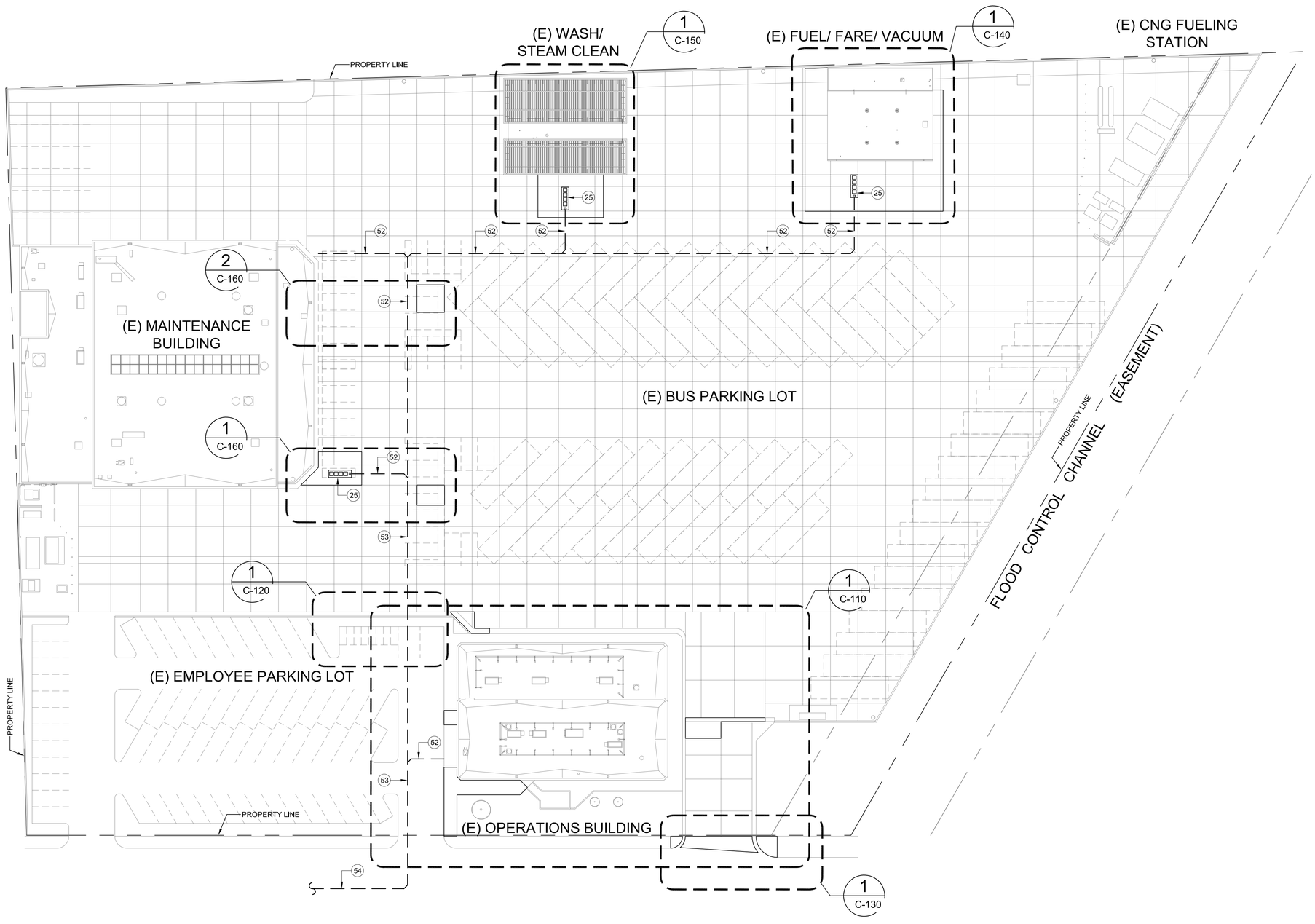
T-CUT TRENCH -- AFTER BACKFILL IS COMPLETED, TRENCH EDGES SHALL BE SAWCUT OR GROUND TO STRAIGHT LINES A MINIMUM OF 1.0-FOOT FROM THE EDGE OF THE EXCAVATION OR PAVEMENT REMOVAL AND SHALL BE PARALLEL AND AT RIGHT ANGLES TO THE CENTERLINE OF THE STREET (SEE TRENCH DETAIL A).

OPTIONAL T-CUT TRENCH -- IN CASES WHERE THE EXISTING PAVEMENT HAS A THICKNESS IN EXCESS OF 4-INCHES, GRINDING A MINIMUM OF 1-FOOT FROM EACH EDGE OF THE EXCAVATION OR PAVEMENT REMOVAL TO A MINIMUM DEPTH OF 2-INCHES MAY BE ALLOWED AT THE DISCRETION OF THE CITY INSPECTOR (SEE TRENCH DETAIL B).

NON T-CUT TRENCH ALTERNATIVE -- TRENCH DETAIL C REQUIRES OVERLAY PAVING IN ACCORDANCE WITH SECTION 8.5 FOR TRENCHES OVER 200-FEET.

8.5 OVERLAY PAVING -- WHEN THE T-CUT TRENCH OR T-CUT OPTION IS USED TO REPAIR OR RESTORE PAVEMENT REMOVAL TO 200-FEET OR LONGER, AN OVERLAY SHALL NOT BE REQUIRED UNLESS THE ROAD HAS BEEN PAVED WITHIN THREE YEARS OR THE ROAD HAS A SUPER-ELEVATION, OR TILT CROSS SECTION. WHEN THE NON T-CUT TRENCH IS USED TO REPAIR OR RESTORE PAVEMENT REMOVALS OF 200-FEET OR LONGER, AN OVERLAY SHALL BE REQUIRED. THE DETERMINATION OF THE OVERLAY SHALL BE MADE BY THE PUBLIC WORKS DEPARTMENT AT THE PRE-BID/PRECONSTRUCTION MEETING OR PRIOR TO ISSUANCE OF THE PERMIT. SUBSTANTIAL DAMAGE TO THE ROADWAY BEYOND THE TRENCH EXCAVATION AS A RESULT OF NEGLIGENCE BY THE PERMITTEE OR THEIR CONTRACTOR SHALL BE REPAIRED TO MEET OR EXCEED PRIOR STREET CONDITIONS AND REPAIR METHODS WILL BE DETERMINED BY THE DEPARTMENT. THE OVERLY, WHEN REQUIRED, SHALL BE A MINIMUM OF 1-INCH THICK OF D2-AR-4000 PLACED WITH A PAVING MACHINE PER SECTION 5.6 AND SHALL EXTEND BEYOND PAVEMENT REMOVAL A MINIMUM OF 1-FOOT LATERALLY AND 5-FEET LONGITUDINALLY AND SHALL COVER THE DRIVING LANE OR SHOULDER FULL WIDTH. ROADS THAT HAVE A SUPER-ELEVATION OR TILT CROSS SECTION MAY REQUIRE FULL ROAD WIDTH OVERLAY IN THE AREA OF THE SUPER-ELEVATION OR TILT SECTION.

8.6 EXCESSIVE PAVEMENT REMOVAL -- REMOVAL OF SIX OR MORE SEPARATE AREAS OF PAVEMENT OR THE REMOVAL OF 15




GENERAL NOTES:

1. PCC (PORTLAND CEMENT CONCRETE) JOINT PATTERN IS GENERALLY DEPICTIVE OF THE EXISTING LAYOUT AND SHALL BE USED FOR THE PURPOSE OF ESTABLISHING THE UNIT PRICE COST FOR REPAIR OF EACH JOINT TYPE BASED UPON THE SPECIFICATIONS. JOINT REPAIR AREA OF WORK IS THE ENTIRE BUS YARD.
2. RANDOM STRESS CRACKS WHICH MUST BE REPAIRED ARE NOT DEPICTED. CONTRACTOR SHALL INVENTORY CRACKING IN THE FIELD AND SHALL ESTABLISH THE UNIT PRICE COST FOR EACH CRACK REPAIR TYPE BASED UPON THE SPECIFICATIONS. CRACK REPAIR AREA OF WORK IS THE ENTIRE BUS YARD.
3. THE WORK NOTED IN GENERAL NOTES 1 AND 2 SHALL BE DONE IN PHASES TO LIMIT INTERRUPTION OF THE BUS PARKING LOT – COORDINATE WITH OMNITRANS REGARDING THE TYPICAL SIZE FOR PHASES, AND PROGRESSION.
4. REFER TO CIVIL SITE PLAN AND PLUMBING PLANS FOR LOCATION OF SEWER LINES AND ASSOCIATED PIPES.
5. FOR WORK AREAS ALONG ARROW HIGHWAY, CONTRACTOR SHALL PROVIDE TEMPORARY CONSTRUCTION FENCE WITH SCREEN, AND SHALL NOT BLOCK THE EXIT DOOR FROM THE BUILDING.
6. FOR WORK AREAS NORTH OF THE ROLLING VEHICLE GATE (LOCATED AT THE EAST SIDE OF THE OPERATIONS BUILDING), DELINEATORS WITH CAUTION TAPE ARE TYPICALLY ACCEPTABLE WITHIN THE YARD. HOWEVER, FOR AREAS THAT REQUIRE PAVEMENT DEMO OR EXCAVATION, K-RAIL SHALL BE PROVIDED TO PREVENT VEHICLES AND PERSONNEL FROM ENTERING THESE AREAS. PLASTIC K-RAIL IS ACCEPTABLE AS LONG AS IT IS WATER-FILLED. K-RAIL SHALL BE PINED IN SERIES.

KEYNOTES:

(25) (N) CLARIFIER TANK & SAMPLE BOX

(52) (E) 4" INDUSTRIAL WASTE LINE (EXTRA STRENGTH VITRIFIED CLAY PIPE)

(53) (E) 6" INDUSTRIAL WASTE LINE (EXTRA STRENGTH VITRIFIED CLAY PIPE)

(54) (E) CONNECTION TO (E) MAIN SEWER LINE

## SITE PLAN

1" = 30' - 0"

1 C-100

30 0 30 60

1" = 30'-0"

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

LICENSED ARCHITECT JASON D. YEAGER NO. C 35458 RENEW FEB 28, 2021 ARCHITECTURAL STATE OF CALIFORNIA

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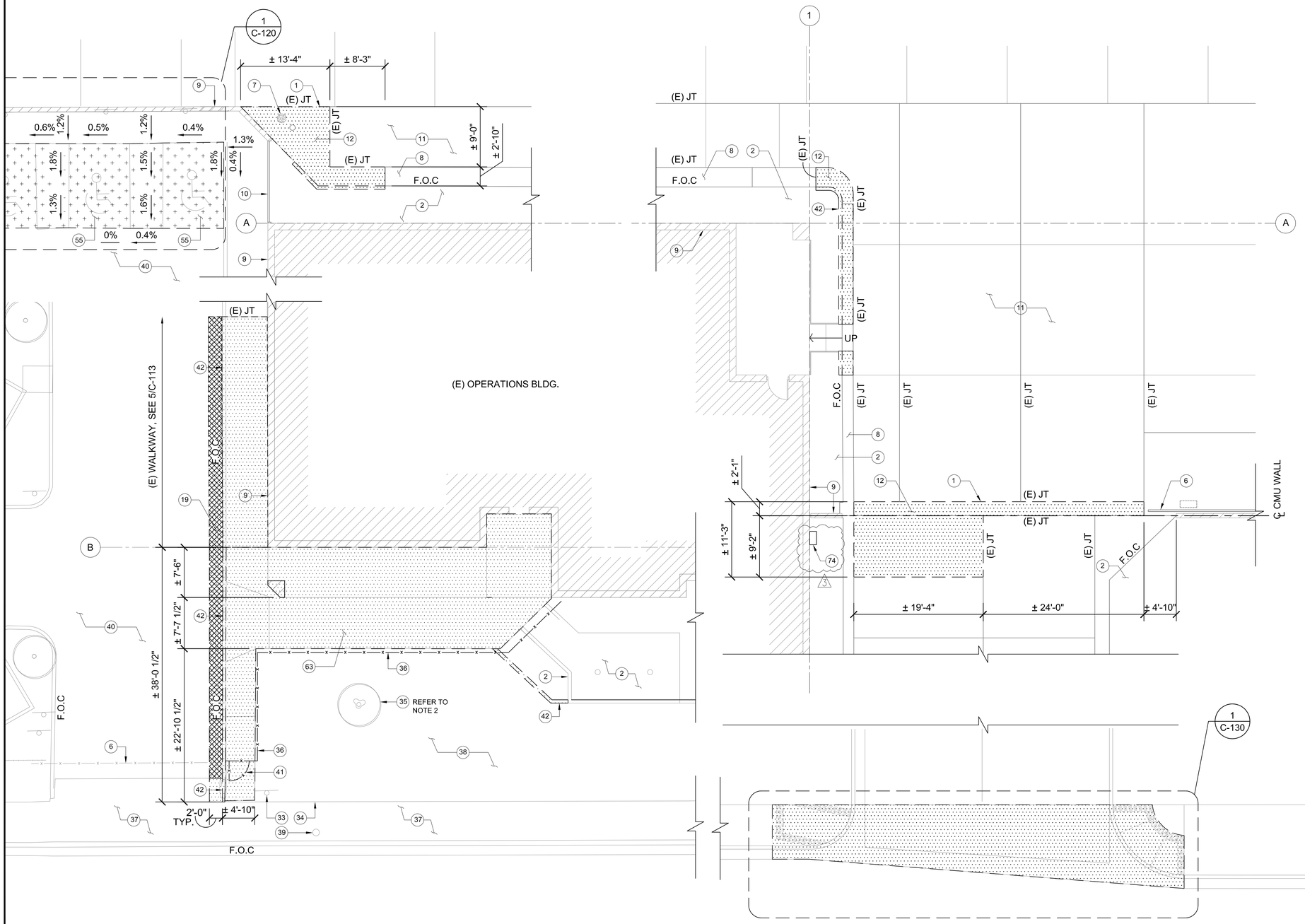
OmniTrans

PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
SITE PLAN

PROJECT NO 4017599
SCALE 1" = 30' - 0"
DRAWING NO C-100
SHEET NO 3 OF 30




## DEMO PLAN - AT OPERATIONS BUILDING

1/8" = 1' - 0"

1 C-110

GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 REFER TO LANDSCAPE DRAWING L-100 FOR MORE DEMO INFORMATION, SPECIFICALLY RELATED TO LANDSCAPE ELEMENTS.

KEYNOTES:

(1) LIMIT OF PAVEMENT DEMO. SAW CUT AT (E) JOINTS, FIELD VERIFY LOCATION.

(2) (E) CONCRETE WALKWAY/CURB TO REMAIN, TO PROTECT IN PLACE.

(6) (E) MOTORIZED ROLLING STEEL GATE FOR VEHICLES

(7) (E) LIGHT POLE BASE

(8) (E) GUTTER

(9) (E) CMU WALL

(10) (E) STEEL GATE FOR PEDESTRIANS

(11) (E) CONC. PAVEMENT TO REMAIN

(12) (E) CONC. PAVEMENT TO BE REMOVED & REPLACED W/ 6" CONC. OVER COMPACTED SUBGRADE

(19) (E) ASPHALT CONC. PAVEMENT TO BE REMOVED & REPLACED W/ 6" ASPHALT CONC. OVER COMPACTED SUBGRADE

(33) (E) SIGNAGE TO BE REMOVED, AND REINSTALLED AFTER PAVEMENT MODIFICATIONS

(34) (E) EDGE OF (E) SIDEWALK, PROTECT IN PLACE.

(35) (E) TREE TO BE REMOVED, SEE LANDSCAPE DRAWINGS FOR MORE INFORMATION.

(36) DEMO (E) STEEL FENCE LOCATED AT FRONT YARD OF OPERATIONS BUILDING.

(37) (E) CONC. SIDEWALK (LOCATED WITHIN STREET R.O.W.), PROTECT IN PLACE.

(38) (E) LANDSCAPE AREA (GRASS), TURF TO BE REMOVED AND REPLACED WITH DROUGHT TOLERANT LANDSCAPE. SEE LANDSCAPE DRAWINGS FOR MORE INFORMATION.

(39) (E) MAIL BOX TO REMAIN

(40) (E) ASPHALT CONC. PAVEMENT TO REMAIN

(41) DEMO (E) PEDESTRIAN STEEL GATE

(42) LIMIT OF CONC. WALKWAY/CURB DEMO. SAW CUT AT (E) JOINTS, FIELD VERIFY LOCATION.

(55) (E) ACCESSIBLE PARKING STALLS TO BE RESTRIPED

(63) (E) CONCRETE WALKWAY/CURB TO BE REMOVED.

(74) (E) IRRIGATION CONTROLLER ENCLOSURE. DEMO EXISTING CONTROLLER, AND PROTECT ENCLOSURE FOR RE-USE. 3

LEGEND:

DEMO

PARKING STALL RESTRIPING

(E) TO REMAIN

(E) FENCE / GATE /RAILING TO BE DEMO'D

(E) FENCE / GATE / RAILING TO REMAIN

8 0 8 16
1/8"=1'-0"

N

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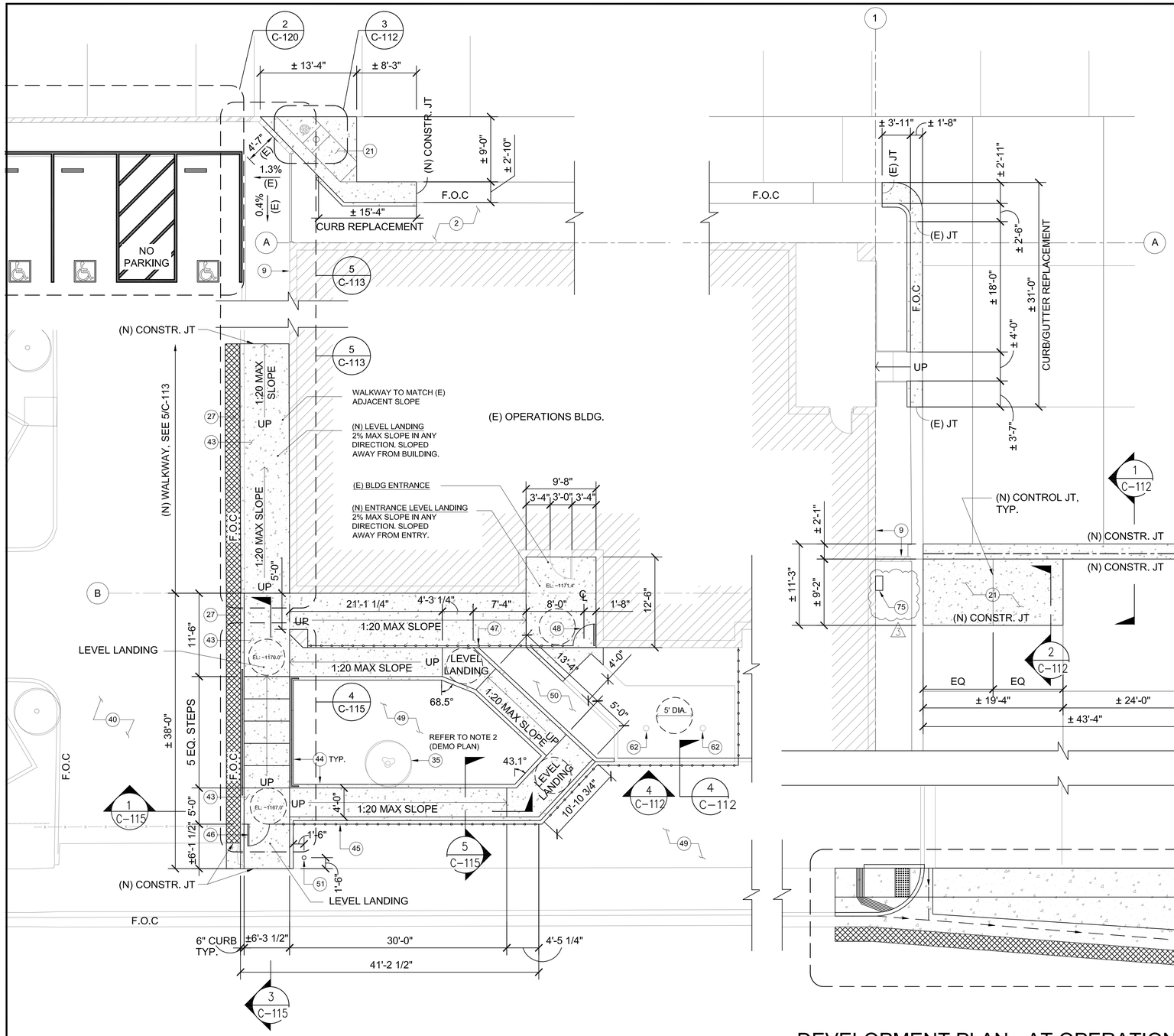
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DEMO PLAN - EXTERIOR IMPROVEMENTS AT OPERATIONS BUILDING

PROJECT NO 4017599
SCALE 1/8" = 1'-0"
DRAWING NO C-110
SHEET NO 4 OF 30




## DEVELOPMENT PLAN - AT OPERATIONS BUILDING

1/8" = 1' - 0"

1 C-111

NEW GATE NOTES:

1. GATE OPENING SHALL PROVIDE A CLEAR WIDTH OF 32" MINIMUM. CLEAR OPENING OF DOORWAYS WITH SWINGING GATES SHALL BE MEASURED BETWEEN THE FACE OF THE GATE AND THE STOP, WITH THE GATE OPEN 90 DEGREES.
2. OPERABLE PARTS OF GATE HARDWARE SHALL BE 34" MINIMUM AND 44" MAXIMUM ABOVE GRADE.
3. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5 POUNDS MAXIMUM.
4. GATE CLOSERS - SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE GATE TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MINIMUM.
5. SWINGING GATE SURFACES WITHIN 10 INCHES OF GRADE SHALL HAVE A SMOOTH SURFACE ON THE PUSH SIDE EXTENDING THE FULL WIDTH OF THE GATE.

GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 TYPICAL REBAR,
6" SLAB: #5 @ 12" EACH WAY AT CENTER OF SLAB
10" SLAB: #5 @12" EACH WAY TOP & BOTTOM
NEW SLABS SHALL BE PLACED ON WELL COMPACTED SUBGRADE.

3 LEVEL LANDINGS SHALL HAVE A MAX SLOPE OF 2% IN ANY DIRECTION.

KEYNOTES:

(2) (E) CONCRETE WALKWAY/CURB TO REMAIN, TO PROTECT IN PLACE.

(9) (E) CMU WALL

(21) (N) PCC PAVING (4000 PSI), 6" THK

(27) (N) 6" ASPHALT CONC. PAVEMENT

(28) (N) GATE RAIL ON TOP OF (N) 18" CONC. BASE SEE DETAIL 1/C-112 FOR MORE INFO.

(35) (E) TREE TO BE REMOVED, SEE LANDSCAPE DRAWINGS FOR MORE INFORMATION.

(40) (E) ASPHALT CONC. PAVEMENT TO REMAIN

(43) (N) 6" CONC. WALKWAY SLAB

(44) (N) CONC. CURB, 6" WIDE TYP. FOR ALL

(45) (N) STEEL FENCE LOCATED AT FRONT YARD OF OPERATIONS BUILDING, SEE DETAIL 4/C-112 FOR TYP. FENCE DETAILS. FENCE PATHING PER PLAN. FOOTINGS TO BE PLACED DIRECTLY ADJACENT TO (N) WALKWAY AND (E) FLAG POLE AREA. MINIMIZE THE HORIZONTAL GAP BETWEEN WALKWAY AND FENCE.

(46) (N) PEDESTRIAN STEEL GATE, 3'-0" WIDE, EQUIPPED WITH ACCESSIBLE HARDWARE AND GATE CLOSER, MATCH EXISTING (STYLE, FINISH, COLOR). PROVIDE LOCKSET AND KEY TO MATCH EXISTING LOCKS, SEE NEW GATE NOTES FOR MORE INFO. POST FOOTINGS SHALL BE SIMILAR TO FENCE FOOTINGS, SEE DETAIL 4/C-112.

(47) (N) STEEL RAILING, 42" HEIGHT. SIMILAR TO HANDRAILS AT STAIRS. SEE DETAIL 5/C-114 FOR CONNECTION.

(48) (N) STEEL GATE, EQUIPPED WITH ACCESSIBLE HARDWARE AND GATE CLOSER, 3'-0" WIDE W/ STD LATCHKEY.

(49) REGRADE THE SITE UNDERNEATH AND ADJACENT TO THE (N) SLOPED WALKWAY TO ENSURE THE REQUIRED SLOPES ARE PROVIDED, AS NOTED IN THE PLANS. PROVIDE DROUGHT TOLERANT LANDSCAPE THROUGHOUT THE FRONT YARD, SEE LANDSCAPE DRAWINGS FOR MORE INFORMATION.

(50) EXPANDED (E) AREA FOR PLANTS/FLOWERS

(51) (E) SIGNAGE AT (N) LOCATION.

(62) (E) FLAGPOLE TO REMAIN

△3 (75) INSTALL NEW IRRIGATION CONTROLLER IN EXISTING ENCLOSURE.

LEGEND:

- (N) ASPHALT CONCRETE
- (N) CONCRETE
- (N) DEVELOPMENT
- (E) TO REMAIN
- (N) FENCE / GATE / RAILING
- (E) FENCE / GATE / RAILING

8 0 8 16
1/8"=1'-0"

N

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| △3 | 05/07/20 | JDY | CONFORMED SET |

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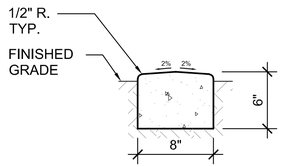
PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

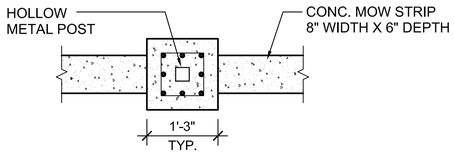
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DEVELOPMENT PLAN - PAVEMENT REPLACEMENT AT OPERATIONS BUILDING

PROJECT NO 4017599
SCALE 1/8"=1'-0"
DRAWING NO C-111
SHEET NO 5 OF 30

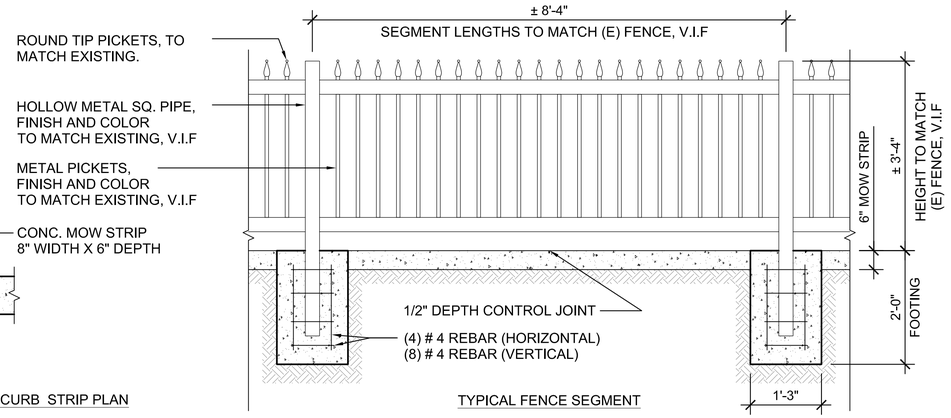



CONCRETE MOWING STRIP UNDER FENCES




TYPICAL FENCE POST FOUNDATION AND MOW CURB STRIP PLAN

*NOTE: 1/2" DEPTH CONTROL JOINTS SHALL BE INSTALLED PERPENDICULAR AT BETWEEN POSTS ALONG ENTIRE MOW STRIP LENGTH, UNO.

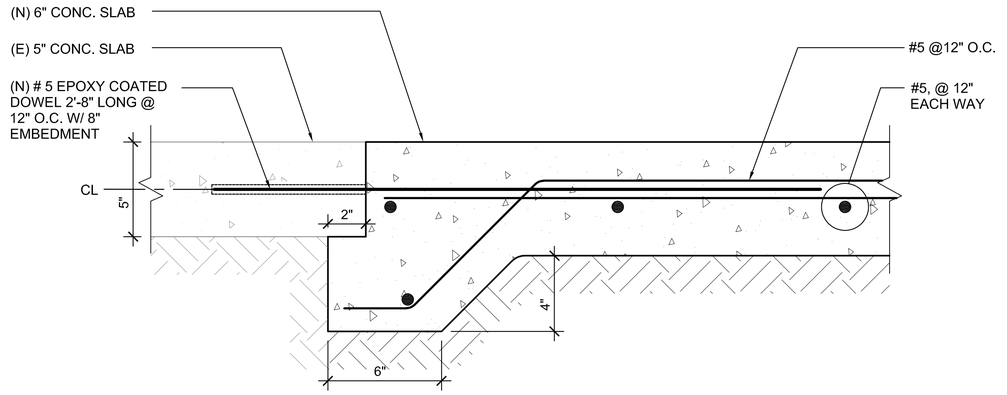



TYPICAL FENCE SEGMENT

## (N) FENCE DETAILS

N.T.S

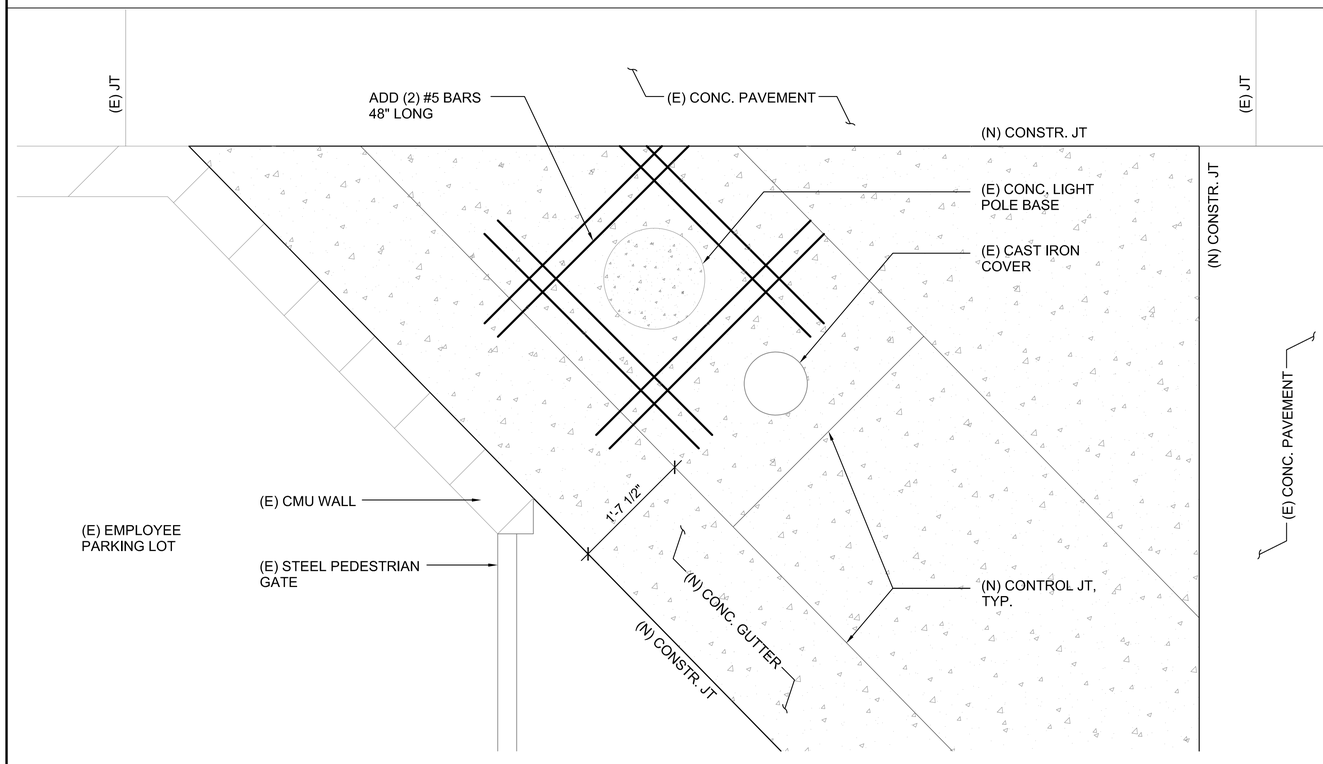
4 C-112




## (N) CONC. PAVEMENT CONSTRUCTION JOINT DETAIL

3"= 1' - 0"

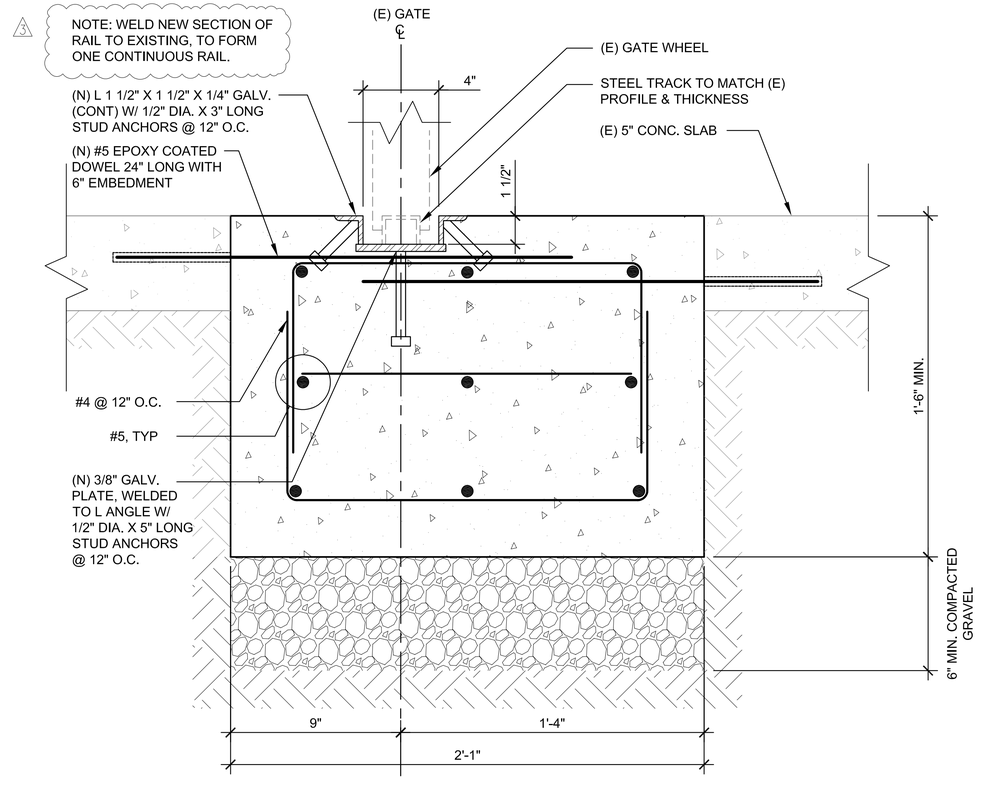
2 C-112




## (N) REBAR REINFORCEMENT AT LIGHT POLE BASE

1" = 1' - 0"

3 C-112




## (N) ROLLING GATE TRACK DETAIL

3" = 1' - 0"

1 C-112

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4748 ARROW HWY
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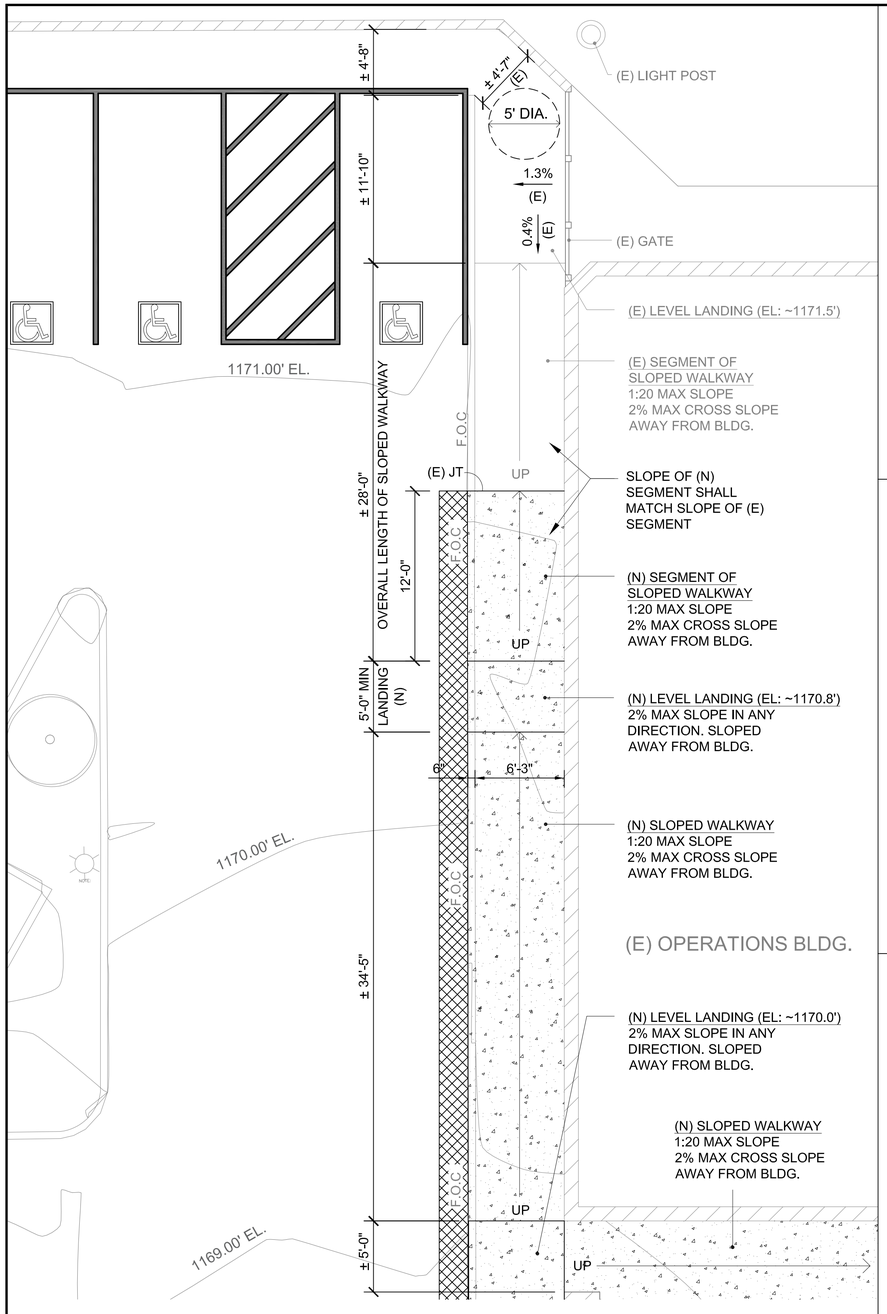
PROJECT TITLE
CONCRETE REPAIRS WV

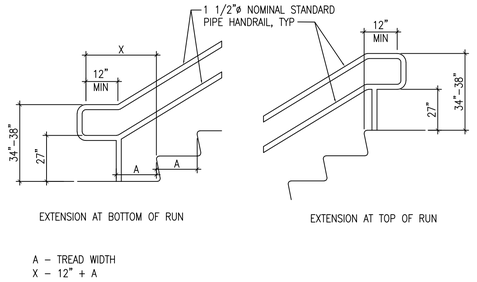
SHEET TITLE
DETAILS - PAVEMENT REPLACEMENT AT OPERATIONS BUILDING

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-112
SHEET NO 6 OF 30



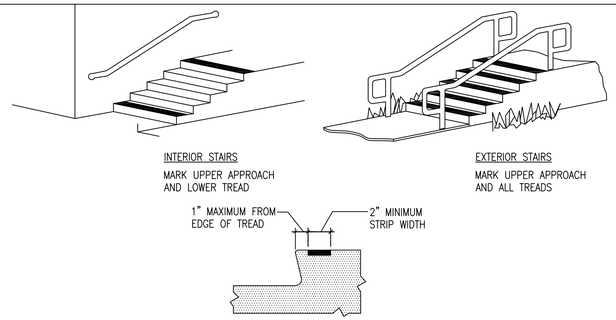

## OPERATIONS BLDG-WALKWAY 5 C-113

3/16"=1'-0"



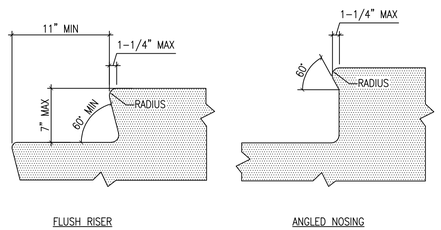

## HANDRAIL EXTENSIONS AT STAIRWAYS 4 C-113

N.T.S



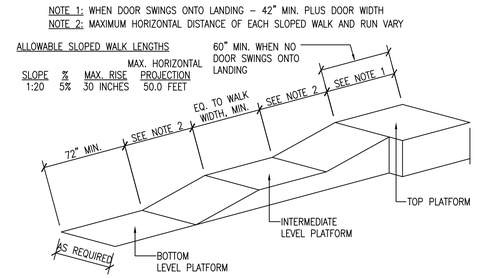

## WARNING STRIP AT STAIRS 3 C-113

N.T.S

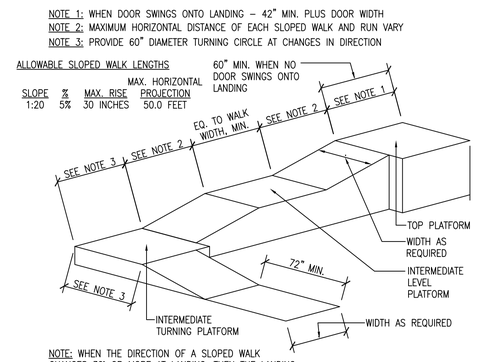



## STAIR NOSING 2 C-113

N.T.S

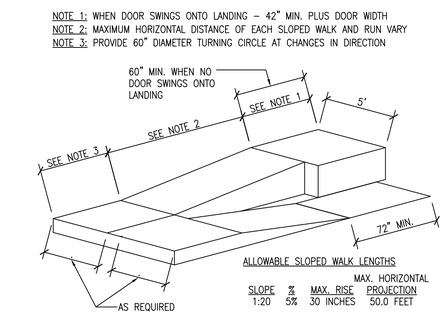



## SLOPED WALK – STRAIGHT RUN




NOTE: WHEN THE DIRECTION OF A SLOPED WALK CHANGES 30° OR MORE AT LANDING, THEN THE LANDING MUST BE A MINIMUM OF 72" IN LENGTH AND INCLUDE A MINIMUM 60"x60" TURNING PLATFORM

## SLOPED WALK – WITH TURNING PLATFORM (WHEN DIRECTION OF WALK CHANGES 30 DEGREES OR MORE)




## SLOPED WALK WITH INTERMEDIATE SWITCH-BACK PLATFORM

## ACCESSIBLE WALKS 1 C-113

N.T.S

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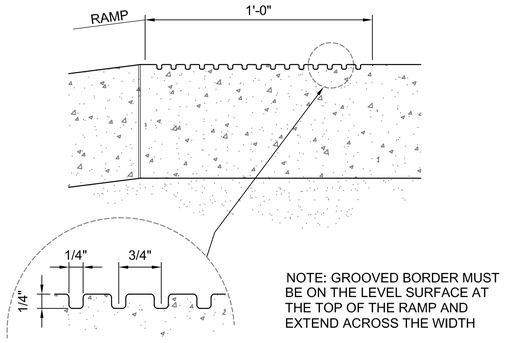
CONCRETE REPAIRS WV

SHEET TITLE
TYPICAL ACCESSIBILITY DETAILS

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-113
SHEET NO 7 OF 30

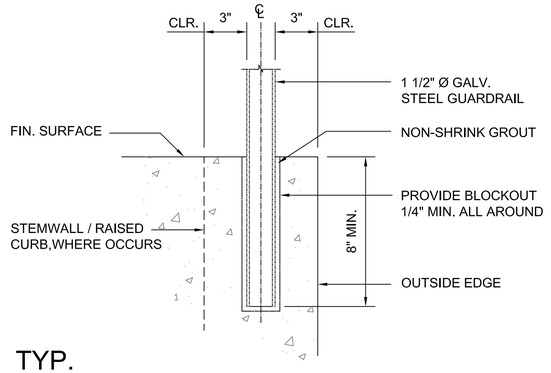



NOTE: GROOVED BORDER MUST BE ON THE LEVEL SURFACE AT THE TOP OF THE RAMP AND EXTEND ACROSS THE WIDTH

## TYP. GROOVED BORDER AT RAMP

6 C-114

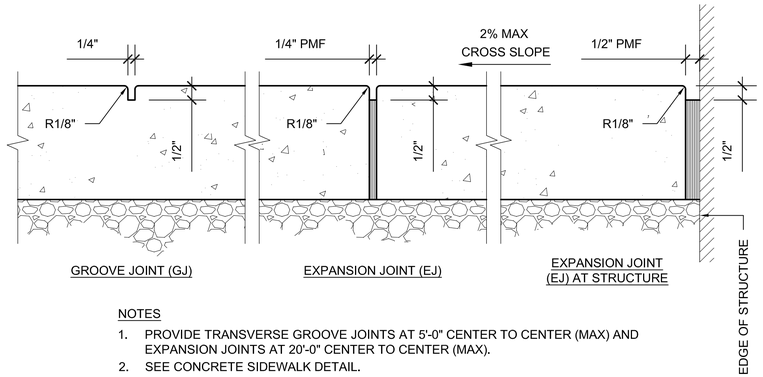
3"=1'-0"




## TYP. GUARDRAIL/HANDRAIL AT SLAB

5 C-114

3"=1'-0"



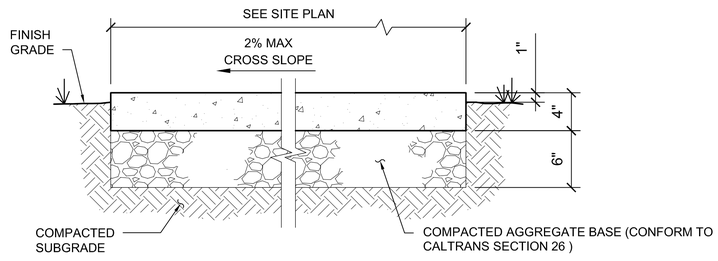

NOTES

1. PROVIDE TRANSVERSE GROOVE JOINTS AT 5'-0" CENTER TO CENTER (MAX) AND EXPANSION JOINTS AT 20'-0" CENTER TO CENTER (MAX).
2. SEE CONCRETE SIDEWALK DETAIL.

## TYP. CONC. SIDEWALK JOINTS

4 C-114

N.T.S




NOTES

1. CONCRETE SIDEWALK WITH CROSS SLOPE SHOWN.
2. SEE CONCRETE SIDEWALK JOINTS DETAIL.

## TYP. CONC. SIDEWALK

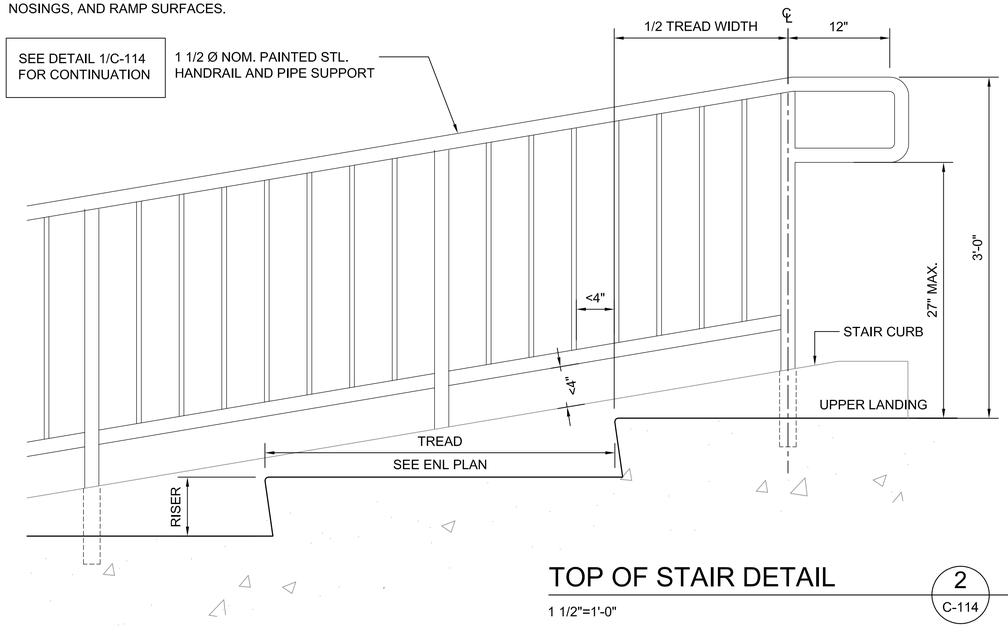
3 C-114

N.T.S

NOTE:
TOP OF GRIPPING SURFACES OF HANDRAILS ARE 34" MIN AND 38" MAX VERTICALLY ABOVE WALKING SURFACES, STAIR NOSINGS, AND RAMP SURFACES.

SEE DETAIL 1/C-114 FOR CONTINUATION

1 1/2 Ø NOM. PAINTED STL. HANDRAIL AND PIPE SUPPORT




## TOP OF STAIR DETAIL

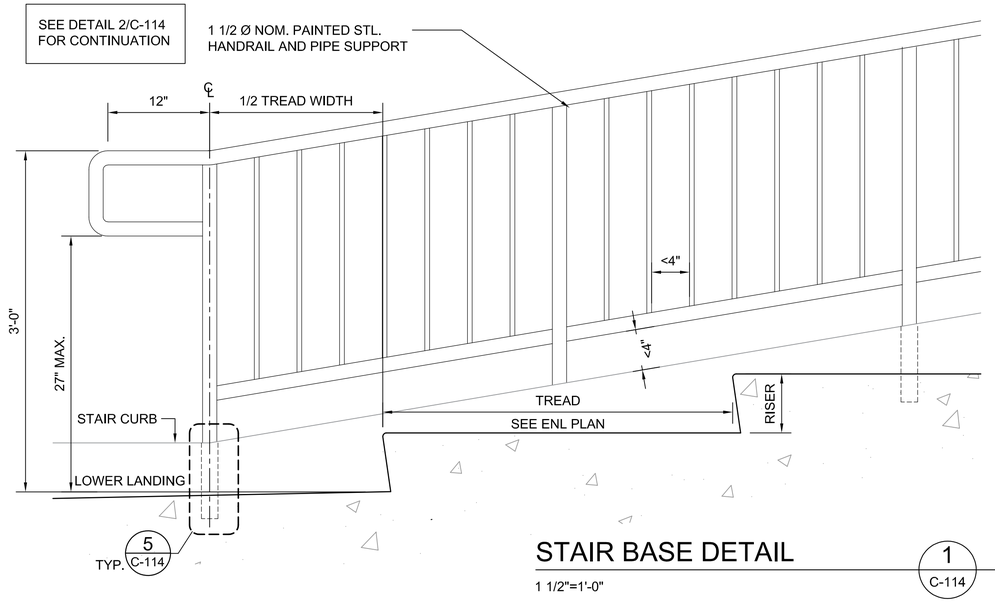
2 C-114

1 1/2"=1'-0"

NOTE:
TOP OF GRIPPING SURFACES OF HANDRAILS ARE 34" MIN AND 38" MAX VERTICALLY ABOVE WALKING SURFACES, STAIR NOSINGS, AND RAMP SURFACES.

SEE DETAIL 2/C-114 FOR CONTINUATION

1 1/2 Ø NOM. PAINTED STL. HANDRAIL AND PIPE SUPPORT




## STAIR BASE DETAIL

1 C-114

1 1/2"=1'-0"

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

LICENSED ARCHITECT JASON D. YEAGER NO. C 35458 REN: FEB 28, 2021 ARCHITECTURAL STATE OF CALIFORNIA

STV Incorporated
ENGINEERS/ARCHITECTS/PLANNERS/CONSTRUCTION MANAGERS
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LOS ANGELES, CA. 90017-2577

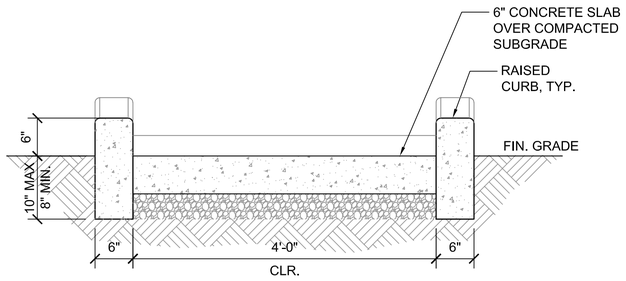
OmniTrans

PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DETAILS - CONCRETE SIDEWALK AND STAIRS

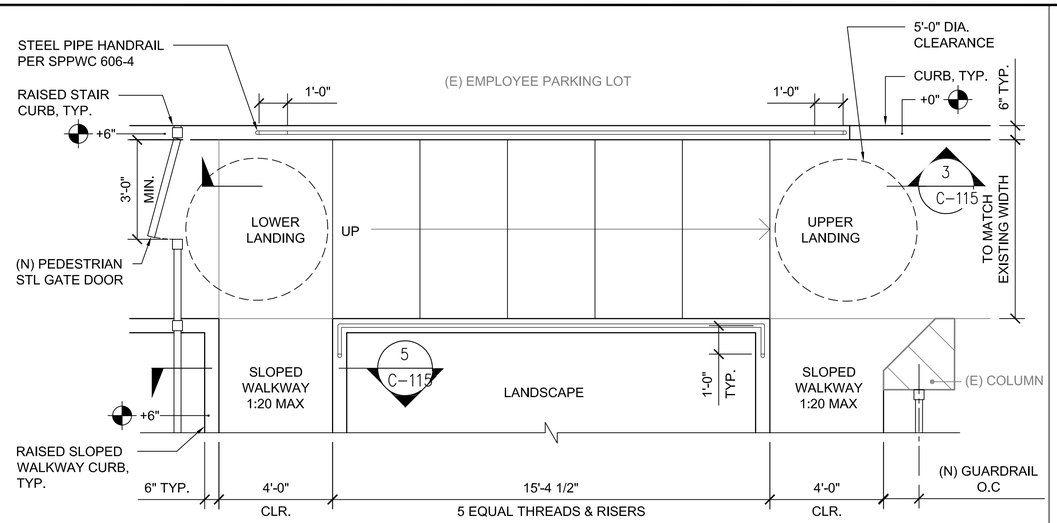
PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-114
SHEET NO 8 OF 30




## TYP. SLOPED WALK CROSS SECTION

5 / C-115

1"=1'-0"

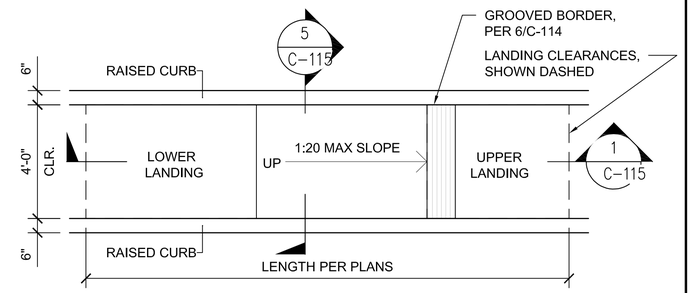



NOTES:
CONTRACTOR TO VERIFY EXISTING GRADES, SLOPES, AND ELEVATIONS PRIOR TO CONSTRUCTION OF REINFORCED CONCRETE STAIRS AND SLOPED WALKWAY.

## ENLARGED PLAN - STAIR

4 / C-115

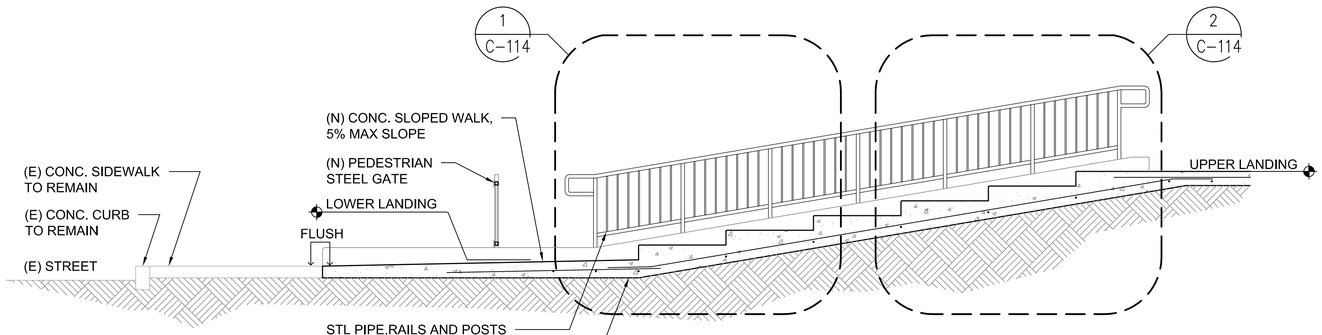
3/8"=1'-0"




## ENLARGED PLAN - TYP. SLOPED WALK

2 / C-115

3/8"=1'-0"

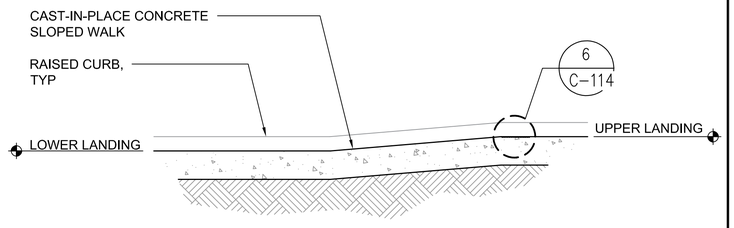



NOTES:
REFER TO STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC) FOR REINFORCED CONCRETE STAIRWAY DETAILS AND MORE DETAILED INFORMATION ON METAL HAND RAILINGS

## STAIR SECTION

3 / C-115

3/8"=1'-0"




## TYP. SLOPED WALK SECTION

1 / C-115

3/8"=1'-0"

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

LICENSED ARCHITECT
JASON D. YEAGER
NO. C 35458
REN. FEB 28, 2021
ARCHITECTURAL
STATE OF CALIFORNIA

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PROJECT ADDRESS
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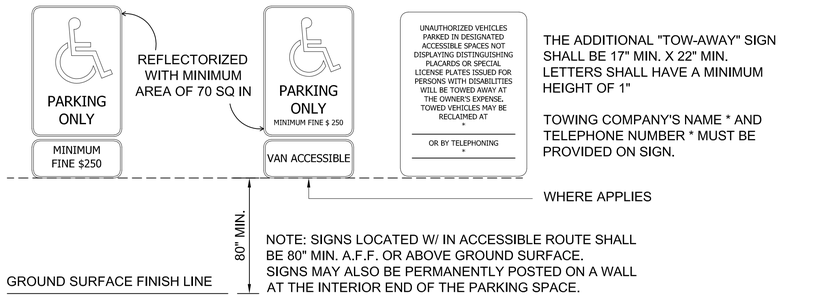
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
STAIR AND SLOPED WALK
PLAN & SECTIONS

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-115
SHEET NO 9 OF 30

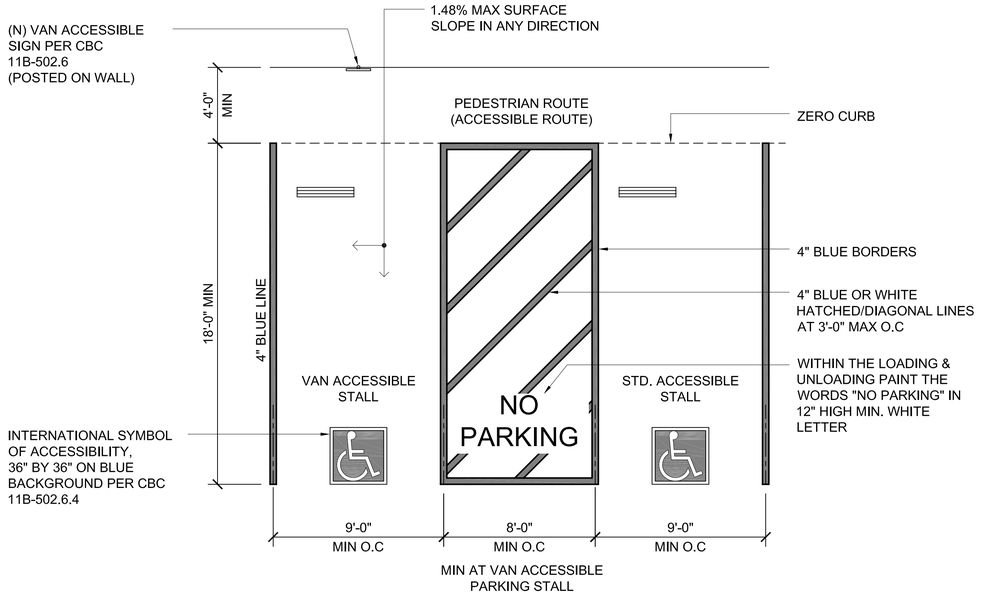
ACCESSIBLE PARKING SIGN INSTALLED AT EACH SPACE




## SIGN IDENTIFICATION- ACCESSIBLE PARKING STALLS

N.T.S

4 C-120

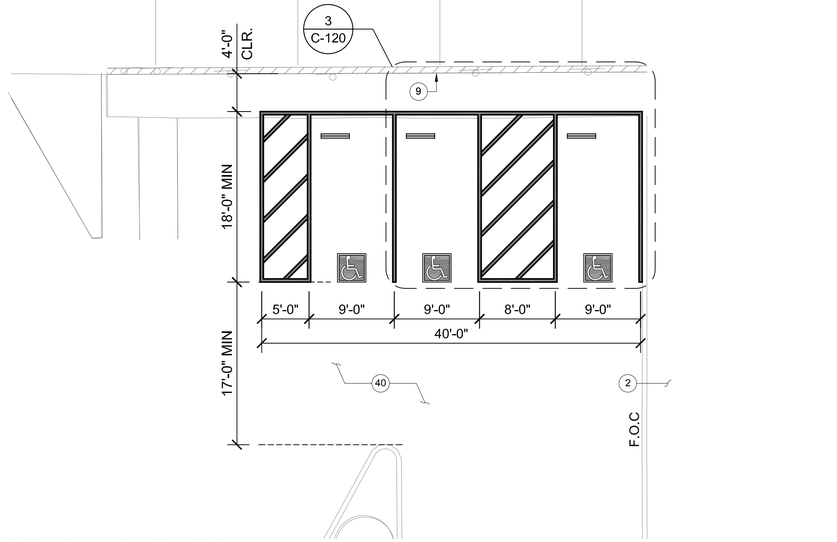



VAN PARKING SPACES SHALL BE PERMITTED TO BE 108 INCHES (9FT) WIDE MINIMUM WHERE THE ACCESS AISLE IS 96 INCHES (8FT) WIDE MINIMUM

## ENLARGED PLAN- ACCESSIBLE PARKING STALLS

1/4"=1'-0"

3 C-120




## DEVELOPMENT PLAN- ACCESSIBLE PARKING STALLS

1/8" = 1' - 0"

2 C-120

N

GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 ALL CONFLICTING STRIPING, PAVEMENT MARKINGS, SHALL BE REMOVED BY WET SANDBLASTING OR OTHER APPROVED METHOD PRIOR TO INSTALLATION OF NEW STRIPING.

KEYNOTES:

(2) (E) CONCRETE WALKWAY/CURB TO REMAIN, TO PROTECT IN PLACE

(9) (E) CMU WALL

(40) (E) ASPHALT CONC. PAVEMENT TO REMAIN

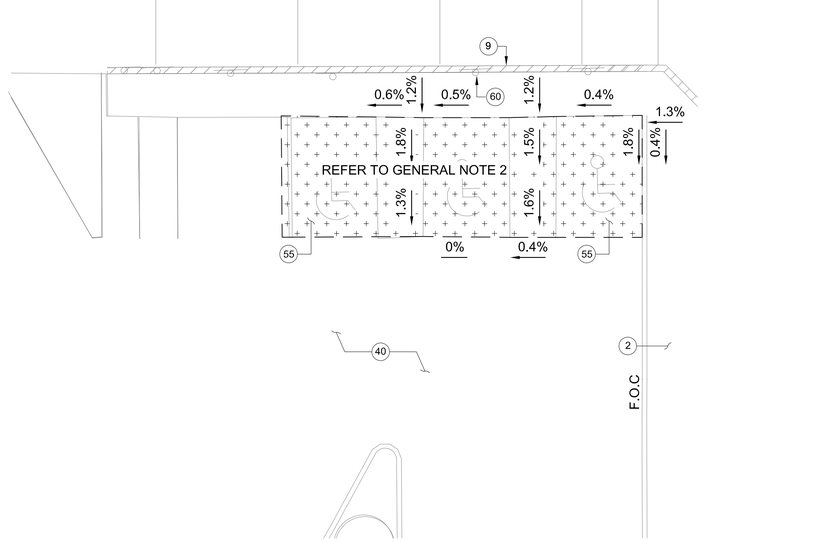
(55) (E) ACCESSIBLE PARKING STALLS TO BE RESTRIPPED

(60) (E) SIGN TO BE REPLACED WITH (N) VAN ACCESSIBLE PARKING SIGN. ALL OTHERS TO REMAIN IN PLACE.

LEGEND:

PARKING STALL RESTRIPING

(E) TO REMAIN




## DEMO PLAN - ACCESSIBLE PARKING STALLS

1/8" = 1' - 0"

1 C-120

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

LICENSED ARCHITECT JASON D. YEAGER NO. C 35458 REN. FEB 28, 2021 ARCHITECTURAL STATE OF CALIFORNIA

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PROJECT ADDRESS
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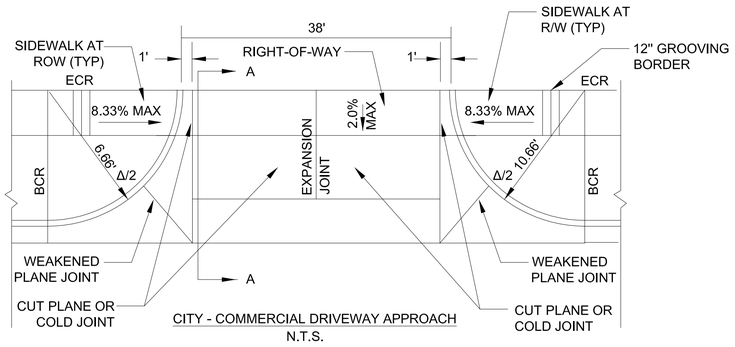
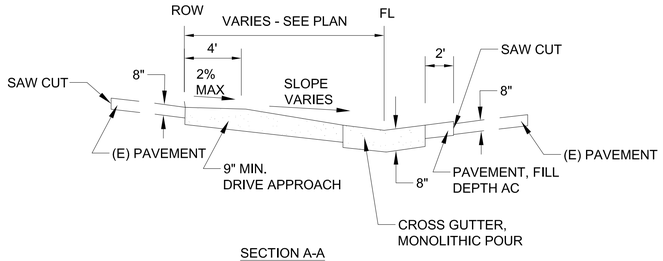
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
ACCESSIBLE PARKING STALLS - ACCESSIBILITY IMPROVEMENTS

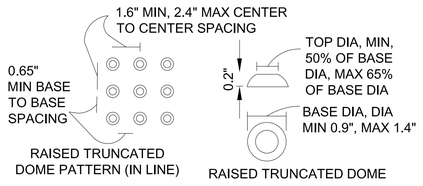
PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-120
SHEET NO 10 OF 30



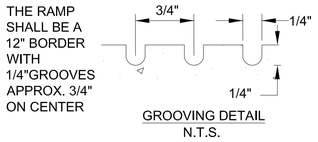

CITY - COMMERCIAL DRIVEWAY APPROACH
N.T.S.



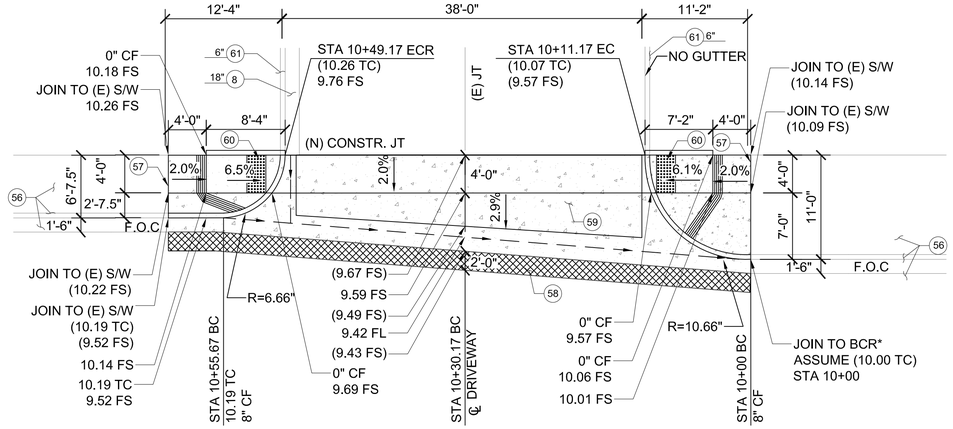

SECTION A-A
N.T.S.




DETECTABLE WARNING SURFACE
N.T.S.



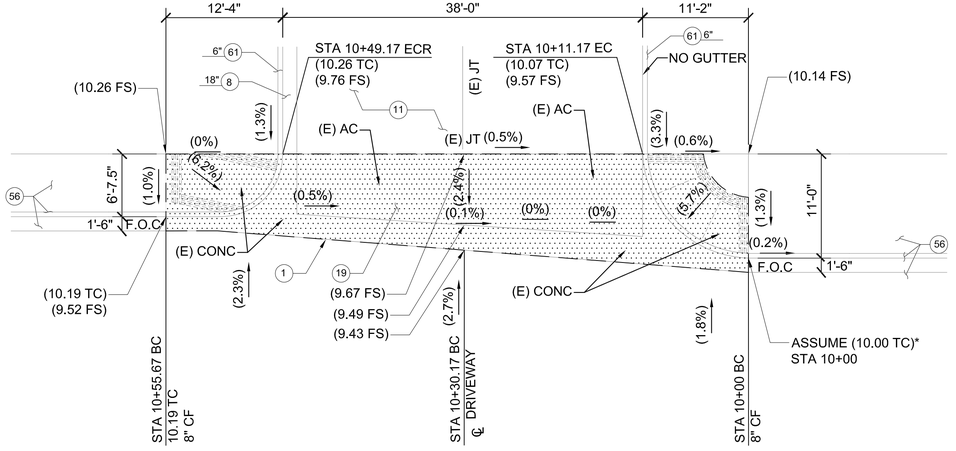

GROOVING DETAIL
N.T.S.




## DEVELOPMENT PLAN - PROPOSED DRIVEWAY

2
C-130

1/8" = 1' - 0"




## DEMO PLAN - EXISTING DRIVEWAY

1
C-130

1/8" = 1' - 0"

KEYNOTES:

1. LIMIT OF PAVEMENT DEMO. SAW CUT AT (E) JOINTS, FIELD VERIFY LOCATION.
2. (E) CONCRETE WALKWAY/CURB TO REMAIN, TO PROTECT IN PLACE.
8. (E) GUTTER.
11. (E) CONC. PAVEMENT TO REMAIN.
19. (E) ASPHALT CONC. PAVEMENT TO BE REMOVED & REPLACED W/ 6" ASPHALT CONC. OVER COMPACTED SUBGRADE.
56. (E) CONCRETE SIDEWALK AND CURB GUTTER TO REMAIN, TO PROTECT IN PLACE.
57. (E) SAW CUT AND REMOVE EXISTING CURB RETURN, CROSS GUTTER AND ASPHALT CONCRETE PAVEMENT.
58. REPLACE FULL DEPTH ASPHALT CONCRETE PAVING .
59. PLACE PCC PAVING (4000 PSI), 9" THICK.
60. INSTALL DETECTABLE WARNING DEVICE PADS PER DETAIL HEREON (2'X4'). COLOR SHALL BE CONTRASTING WITH ADJACENT SURFACES, AND CONFIRMED BY OWNER - TO MATCH EXISTING INSTALLATIONS ON SITE.
61. (E) CONCRETE CURB TO REMAIN, PROTECT IN PLACE.

LEGEND:

- DEMO
- (N) ASPHALT CONCRETE, FULL DEPTH = 9"
- (N) CONCRETE, 9" THICK
- (N) DEVELOPMENT
- (E) TO REMAIN

* CONTRACTOR TO VERIFY EXISTING GRADES, RATES AND ELEVATIONS PRIOR TO CONSTRUCTION

8 0 8 16
1/8"=1'-0"

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

REGISTERED PROFESSIONAL ENGINEER KENNETH C. TAYLOR NO. 56185 EXP. 12-31-22 CIVIL ENGINEER STATE OF CALIFORNIA

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OmniTrans

PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

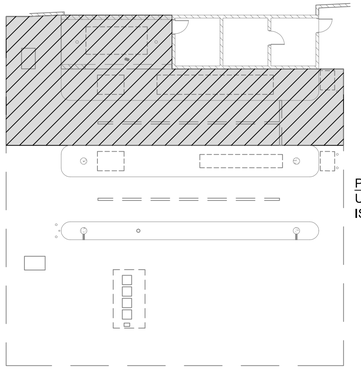
SHEET TITLE
RIGHT OF WAY - IMPROVEMENTS

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-130
SHEET NO 11 OF 30

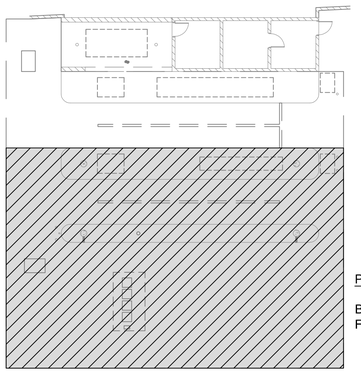
△3

PHASING NOTES:

1 THE INTENTION OF THE PHASED CONSTRUCTION AT THE FUEL ISLAND IS TO ALLOW BUS OPERATIONS TO CONTINUE DURING CONSTRUCTION. AS SUCH, ONE LANE HAS TO REMAIN IN SERVICE AT ANY GIVEN TIME – THIS INCLUDES THE CONCRETE PAVEMENT THE BUSES DRIVE OVER AT A LANE, PLUS THE DRAINS, CONCRETE ISLAND EXTENSION WITH FAREBOX RE-INSTALLATION, AND ANYTHING ELSE THAT TIES INTO THESE ITEMS (DOWELS, CONDUIT, ETC).



PHASE 2 (REFER TO GENERAL NOTE 1)
UPPER PORTION OF FUEL/SERVICE ISLAND



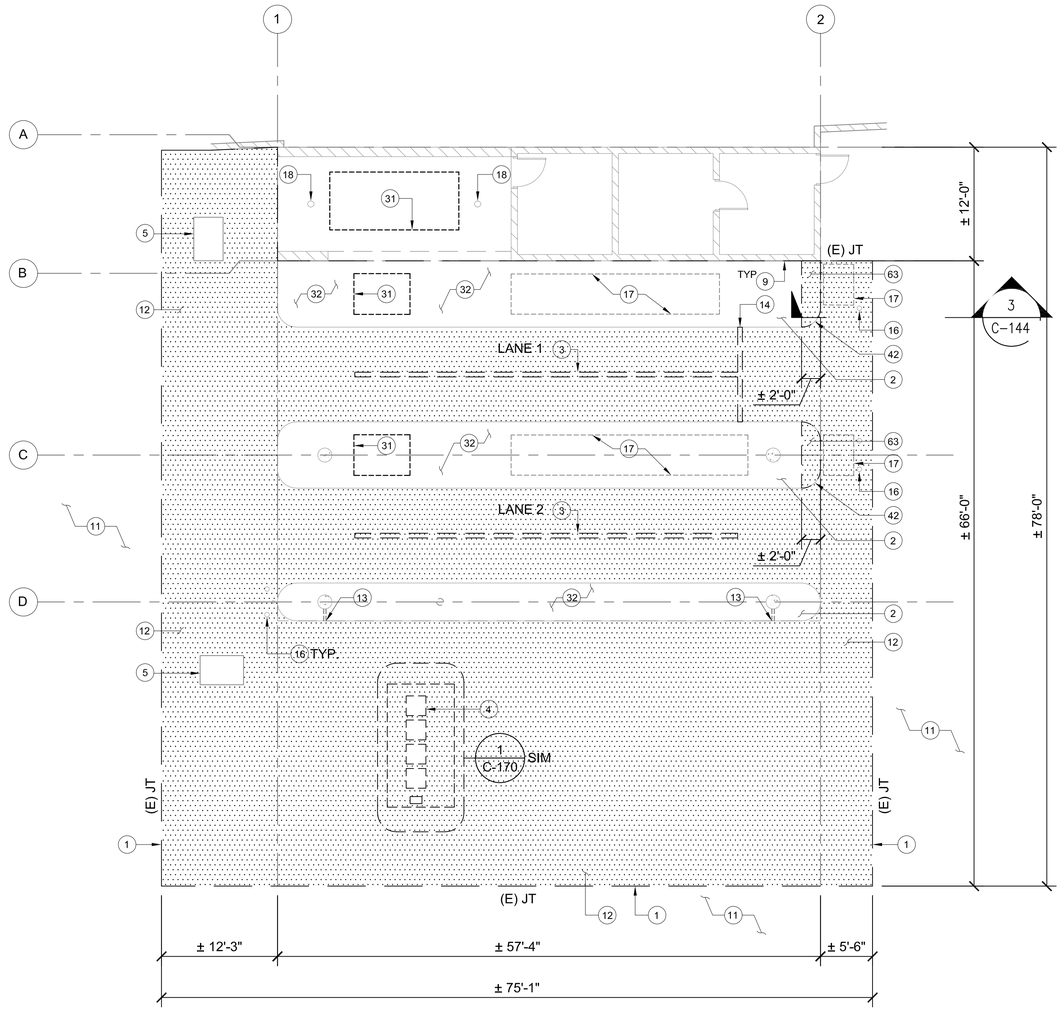
PHASE 1 (REFER TO GENERAL NOTE 1)

BOTTOM & MIDDLE PORTION OF FUEL/SERVICE ISLAND

## CONSTRUCTION PHASING DIAGRAM

2 C-140

N.T.S




* REFER TO PHASING DIAGRAM & GENERAL NOTE 1 FOR MORE INFORMATION REGARDING DEMOLITION AND/OR CONSTRUCTION.

## DEMO PLAN - FUEL / SERVICE ISLAND

1 C-140

1/8" = 1' - 0"

GENERAL NOTES:

1 PHASING DIAGRAMS ARE PROVIDED TO DEMONSTRATE PROPOSED SEQUENCE OF WORK, SEE 2/C-140 FOR REFERENCE.IN GENERAL, PHASING IS SET UP TO ALLOW NEW REPLACEMENT AREAS TO BE CONSTRUCTED BEFORE EXISTING ONES ARE REMOVED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE AND MAINTAIN SAFETY REGULATIONS DURING CONSTRUCTION.

2 REFER TO CIVIL SITE PLAN AND PLUMBING PLANS FOR LOCATION OF SEWER LINES AND ASSOCIATED PIPES.

KEYNOTES:

(1) LIMIT OF PAVEMENT DEMO.
SAW CUT AT (E) JOINTS, FIELD VERIFY LOCATION.

(2) (E) CONCRETE WALKWAY/CURB TO REMAIN, PROTECT IN PLACE.

(3) DEMO (E) TRENCH DRAIN AND ASSOCIATED PIPE CONNECTING TO GREASE INTERCEPTOR.

(4) DEMO (E) PRECAST CONCRETE SAND AND GREASE INTERCEPTOR, BACK FILL AND COMPACT EXCAVATION. SEE NOTES ON COVER SHEET REGARDING CONTAMINATED SOIL.

(5) (E) ELECTRICAL BOX, 37"X55", AT TWO LOCATIONS, PROTECT IN PLACE.

(9) (E) CMU WALL

(11) (E) CONC. PAVEMENT TO REMAIN

(12) DEMO (E) CONC. PAVEMENT, REPLACE W/ 6" CONC. OVER COMPACTED SUBGRADE EXCEPT WHERE NOTED.
SEE NEW DEVELOPMENT PLAN FOR MORE INFO.

(13) (E) DOWNSPOUT OUTLET, PROTECT IN PLACE

(14) DEMO (E) "T-DRAIN" AT LANE 1

(16) REMOVE (E) BOLLARDS AND VERIFY CONDITION. SAVE AND STORE BOLLARDS SUITABLE FOR REINSTALLATION. DEMO AND REPLACE IN KIND FOR BOLLARDS NOT SUITABLE FOR REINSTALLATION.

(17) IN PREPARATION OF INSTALLING (N) CONCRETE TOPPING, REMOVE (E) EQUIPMENT BOLTED TO THE RAISED SERVICE AREAS, EXCLUDING FUELING EQUIPMENT. STORE EQUIPMENT IN A SAFE LOCATION, AND REINSTALL IT AFTER CONC. TOPPING WORK IS COMPLETED. ALL OTHER EQUIPMENT SHOULD BE PROTECTED IN PLACE

(18) (E) FLOOR DRAINS, PROTECT IN PLACE

(31) REMOVE AND DISPOSE OF (E) VACUUM SYSTEM IN ITS ENTIRETY INCLUDING ALL ELECTRICAL FEEDERS, WHICH SHALL BE TERMINATED IN AN APPROVED MANNER.

(32) REMOVE AND DISPOSE OF ALL (E) SKID RESISTANT COATING AT RAISED SERVICE AREAS.

(42) LIMIT OF CONC. WALKWAY/CURB DEMO. SAW CUT AT (E) JOINTS, OR AS DIMENSIONED WHEN NOT OCCURRING AT EXISTING JOINTS, FIELD VERIFY LOCATION.

(63) (E) CONCRETE WALKWAY/CURBS TO BE REMOVED.

LEGEND:

DEMO

(E) TO REMAIN

(E) EQUIPMENT TO BE REMOVED SEE KEYNNOTES - 17 & 31

8 0 8 16
1/8"=1'-0"

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| △3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

LICENSED ARCHITECT JASON D. YEAGER NO. C 35458 REN. FEB 28, 2021 ARCHITECTURAL STATE OF CALIFORNIA

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OmniTrans

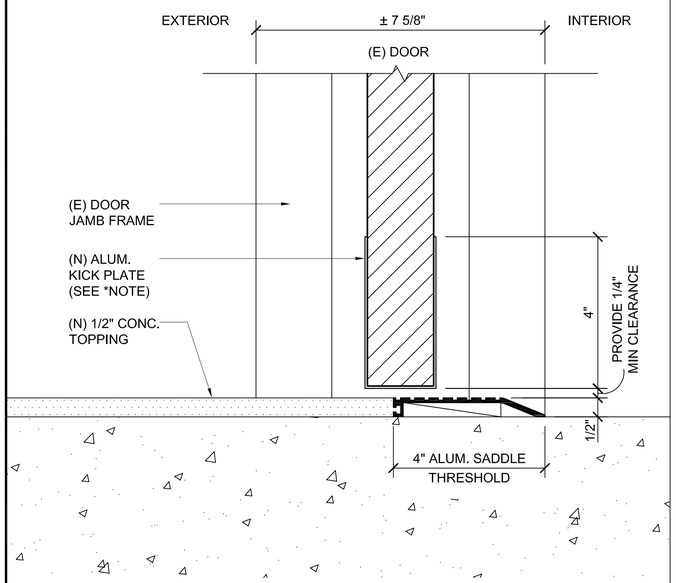
PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DEMO PLAN - PAVEMENT REPLACEMENT AT FUEL/SERVICE ISLAND

PROJECT NO 4017599
SCALE 1/8" = 1'-0"
DRAWING NO C-140
SHEET NO 12 OF 30

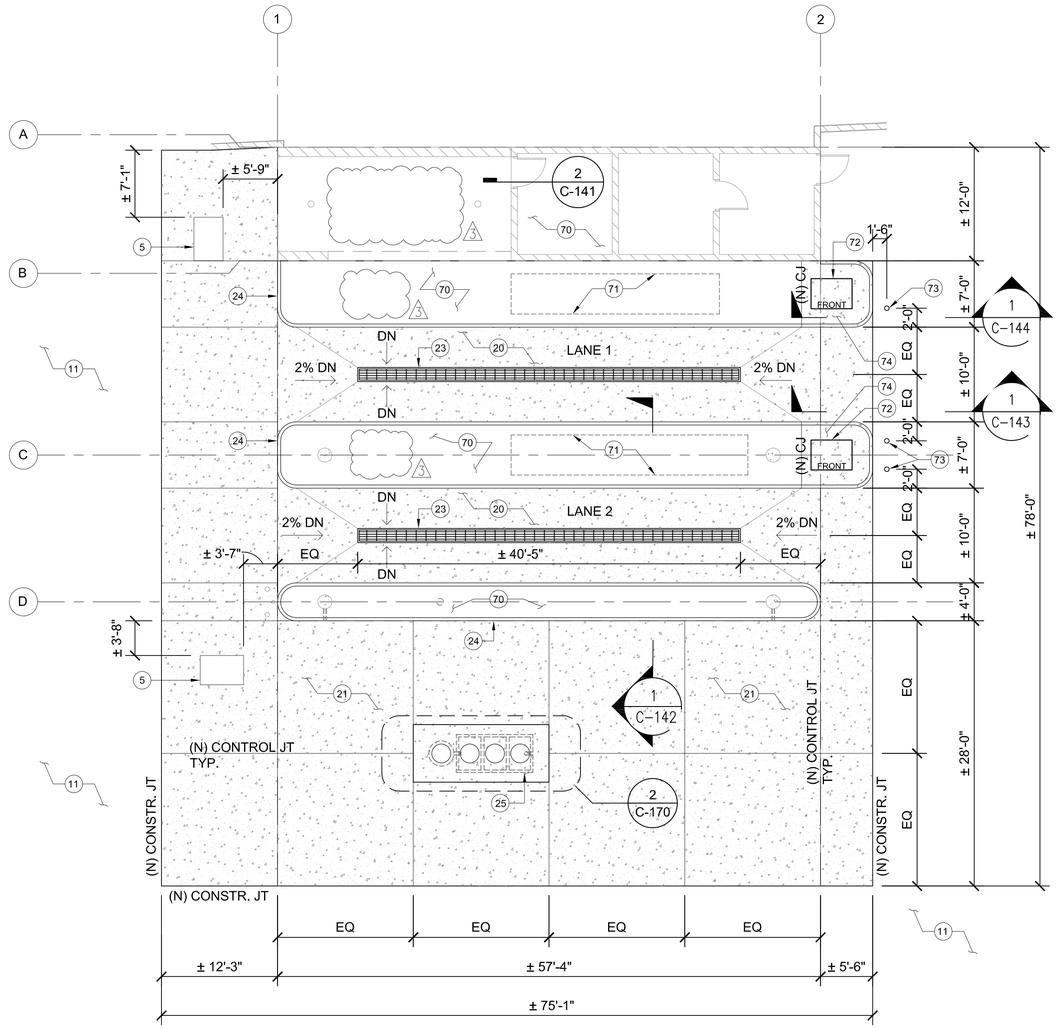
*NOTE: (E) DOOR HEIGHT TO BE CUT ON FIELD TO ACCOMMODATE NEW THRESHOLD. SAW CUT DOOR BOTTOM RAIL AND PROVIDE NEW ALUMINUM CHANNEL KICK PLATE FOR PROTECTION.




## DOOR THRESHOLD DETAIL

2 / C-141

6" = 1' - 0"




## DEVELOPMENT PLAN - FUEL / SERVICE ISLAND

1 / C-141

1/8" = 1' - 0"

1/8"=1'-0"

GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 TYPICAL REBAR,
6" SLAB: #5 @ 12" EACH WAY AT CENTER OF SLAB
10" SLAB: #5 @12" EACH WAY TOP & BOTTOM
NEW SLABS SHALL BE PLACED ON WELL COMPACTED SUBGRADE.

3 REFER TO CIVIL SITE PLAN AND PLUMBING PLANS FOR LOCATION OF SEWER LINES AND ASSOCIATED PIPES.

KEYNOTES:

(5) (E) ELECTRICAL BOX, 37"X55", AT TWO LOCATIONS, PROTECT IN PLACE

(11) (E) CONC. PAVEMENT TO REMAIN

(20) (N) PCC PAVING (4000 PSI), 10" THK - AT BUS LANE 1 & 2. SPECIFICALLY, THIS IS DEFINED AS THE SPACE BETWEEN THE RAISED CONCRETE ISLANDS AND BETWEEN GRIDLINES 1 AND 2. △3

(21) (N) PCC PAVING (4000 PSI), 6" THK

(23) (N) FIBERGLASS GRATING

(24) (N) GALV. STEEL EDGE PROTECTION, AROUND ENTIRE PERIMETER OF RAISED CONC. CURBS, SEE DETAIL 2/C-142. PRIOR TO INSTALLATION, PATCH CONCRETE CURB WHERE DAMAGE IS PRESENT TO PROVIDE A SMOOTH SURFACE FOR THE EDGE PROTECTION. △3

(25) (N) CLARIFIER TANK & SAMPLE BOX.

(70) (N) CONCRETE TOPPING, WITH NON-SLIP COATING.

(71) RE-INSTALL (E) EQUIPMENT IN ORIGINAL LOCATIONS AND ORIENTATIONS, WITH THE EXCEPTION OF THE FARE BOX VAULTS, SEE KEYNOTE 72 FOR MORE INFO.

(72) (E) FARE BOX VAULTS SHALL BE REINSTALLED IN THE SAME LOCATION, BUT SHALL BE PLACED ON TOP OF THE NEW SECTION OF CONCRETE ISLAND (INSTEAD OF THE CONCRETE PAVEMENT), AND ROTATED 90° SUCH THAT THEY FACE SOUTH (INSTEAD OF EAST). MODIFY EXISTING CONDUIT FOR ELECTRICAL AND SECURITY CAMERA TO WORK WITH THE NEW PLACEMENT ELEVATION AND ORIENTATION OF THE FARE BOX VAULTS.

(73) RE-INSTALL BOLLARDS TO MATCH (E) INSTALLATION.

(74) (N) PORTION OF CONCRETE SERVICE ISLAND, WITH NON-SLIP COATING. MATCH EXISTING WIDTH, THICKNESS, AND END RADII. SEE SHEET C-144 FOR MORE INFO ON CONNECTIONS.

LEGEND:

(N) CONCRETE

(N) DEVELOPMENT

(E) TO REMAIN

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| △3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

LICENSED ARCHITECT
JASON D. YEAGER
NO. C 35458
REN. FEB 28, 2021
ARCHITECTURAL
STATE OF CALIFORNIA

STV Incorporated
ENGINEERS/ARCHITECTS/PLANNERS/CONSTRUCTION MANAGERS
1055 WEST 7th STREET., SUITE 3150
LOS ANGELES, CA. 90017-2577

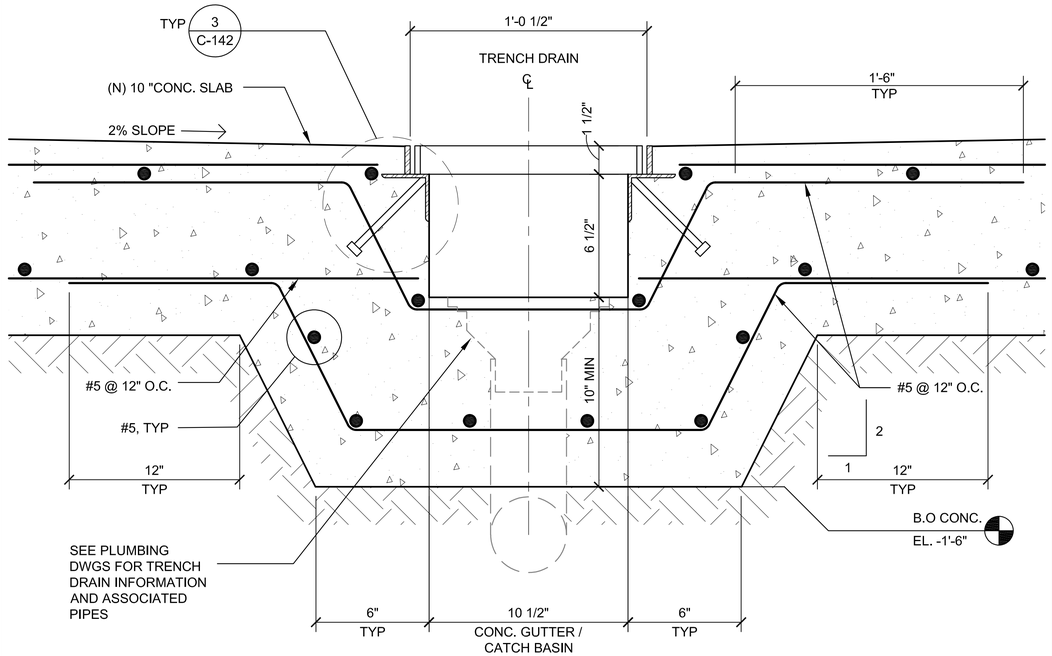
OmniTrans

PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

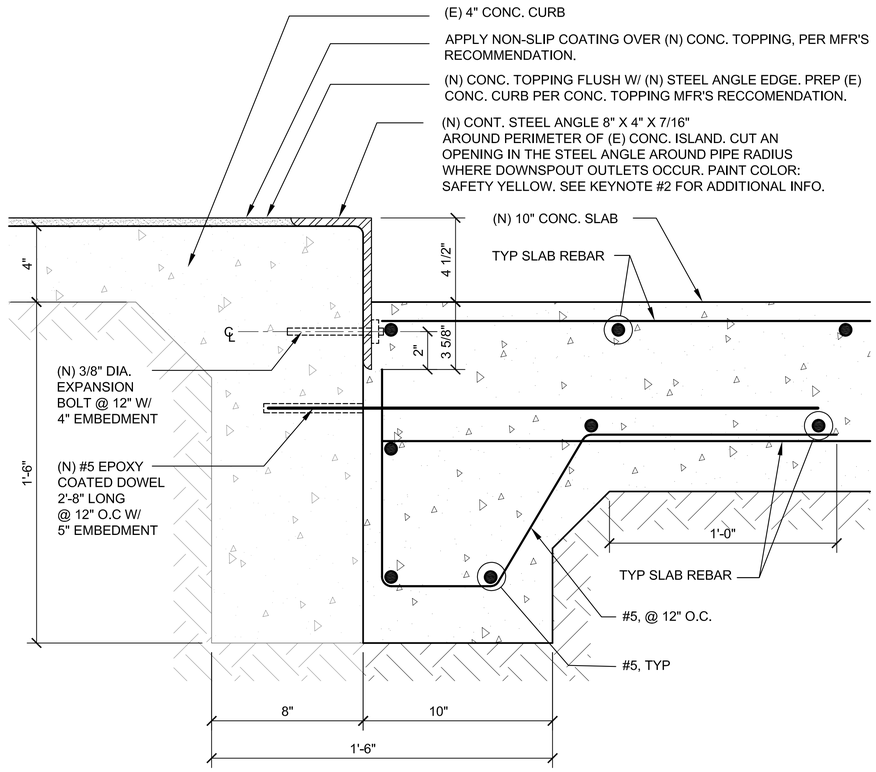
SHEET TITLE
DEVELOPMENT PLAN - PAVEMENT REPLACEMENT AT FUEL / SERVICE ISLAND

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-141
SHEET NO 13 OF 30




## ENLARGED (N) TRENCH DRAIN DETAIL 4 C-142

3" = 1' - 0"



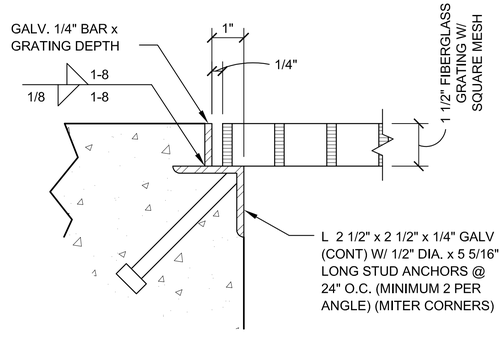

## (N) BUS LANE & CURB PROTECTION DETAIL 2 C-142

3" = 1' - 0"

GENERAL NOTES:

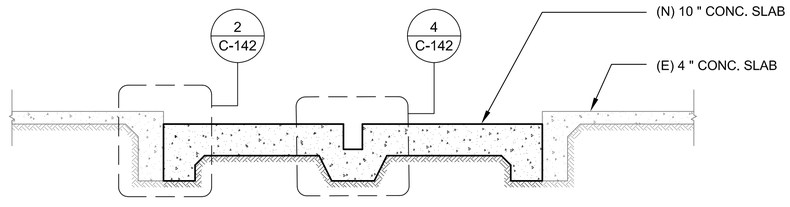
1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 EDGE PROTECTION AT LOCATION OF (E) PORTION OF CONC. SERVICE ISLAND SHALL BE PER DETAIL 2/C-142. REFER TO DETAIL 2/C-144 FOR EDGE PROTECTION AT LOCATION OF (N) POTION OF CONC. SERVICE ISLAND.




## (N) TRENCH DRAIN EDGE PROTECTION GRATE DETAIL 3 C-142

N.T.S




## (E) CONC. CURB / (N) BUS LANE SECTION 1 C-142

1/2" = 1' - 0"

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
DRAWN BY: GP
CHECKED BY: JDY
DATE: 05/07/2020

LICENSED ARCHITECT JASON D. YEAGER NO. C 35458 REN: FEB 28, 2021 ARCHITECTURAL STATE OF CALIFORNIA

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PROJECT ADDRESS
WEST VALLEY VMF
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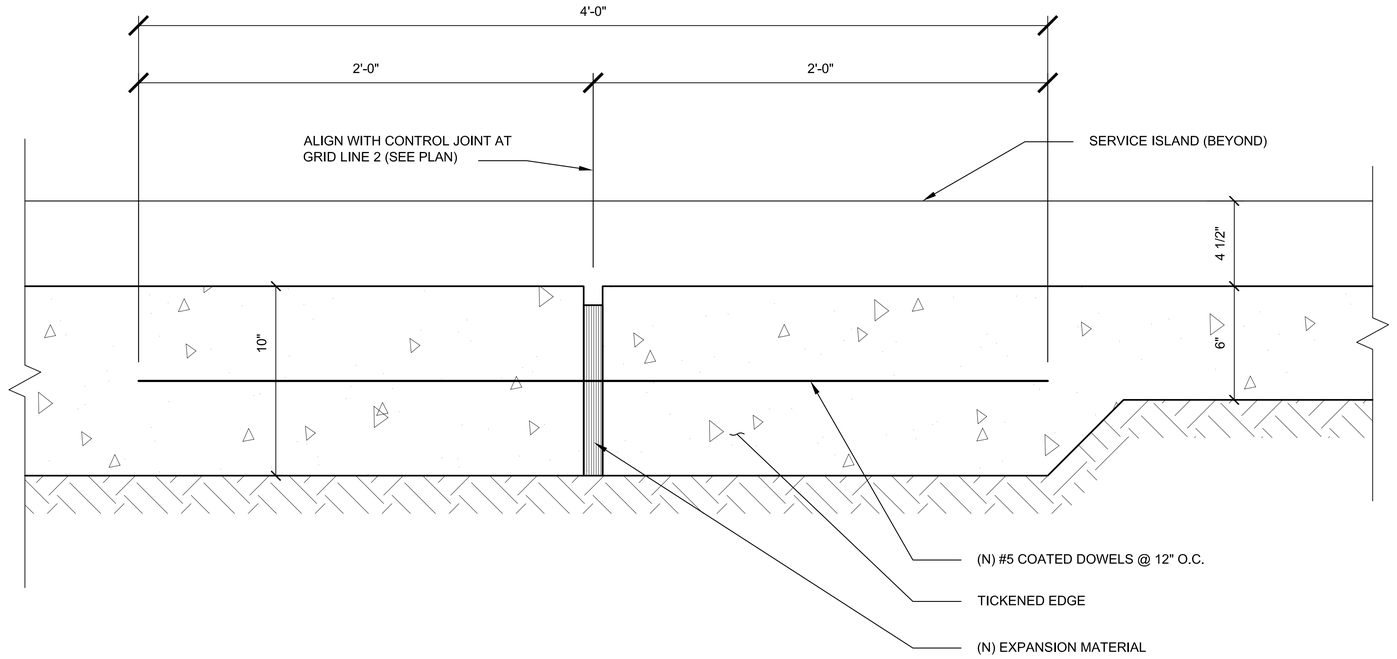
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DETAILS - PAVEMENT REPLACEMENT AT FUEL/SERVICE ISLAND

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-142
SHEET NO 14 OF 30




## ENLAGED CONNECTION DETAIL

3" = 1' - 0"

2 / C-143

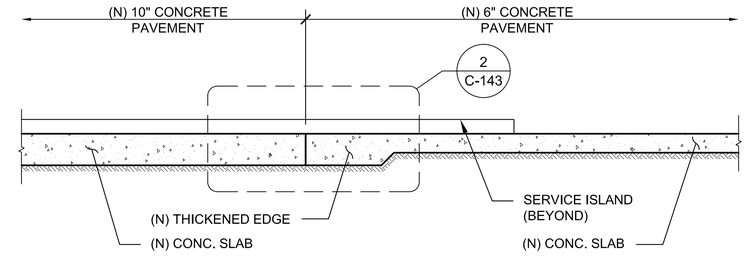
GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

## NOT USED

N.T.S.

3 / C-143




## (N) CONC. PAVEMENT - CONNECTION DETAIL AT 10" & 6" SECTIONS AT SERVICE ISLAND

1/2" = 1' - 0"

1 / C-143

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

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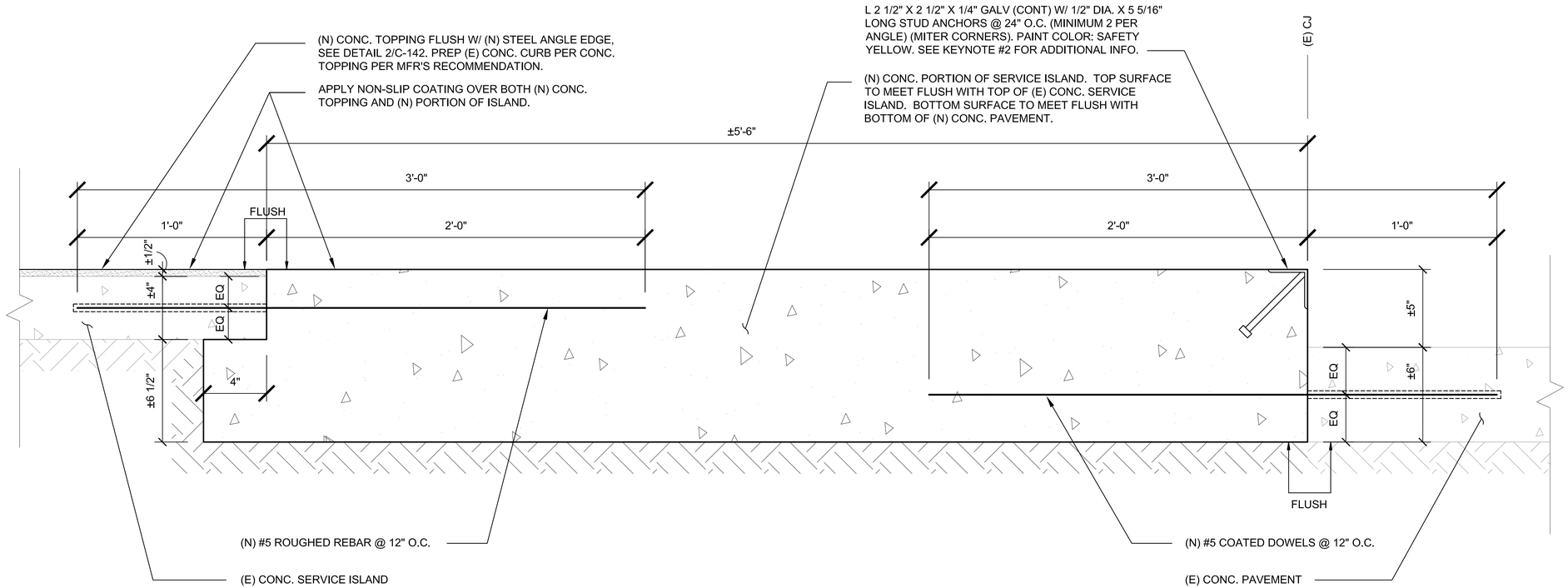
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DETAILS - PAVEMENT REPLACEMENT AT FUEL/SERVICE ISLAND

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-143
SHEET NO 14A OF 30




## ENLARGED CONNECTION & CURB PROTECTION DETAIL

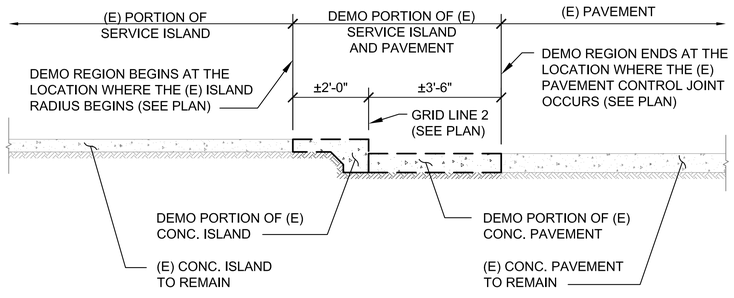
3" = 1' - 0"

2 / C-144

GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

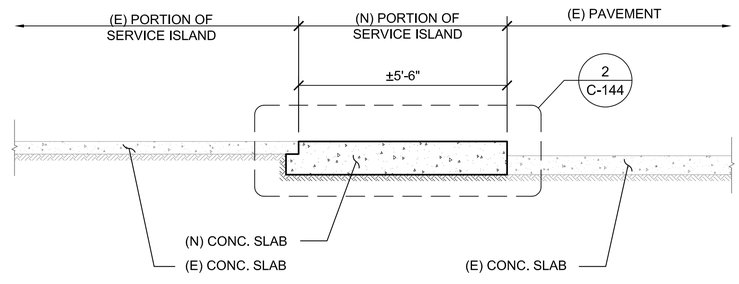
2 EDGE PROTECTION AT LOCATION OF (N) PORTION OF CONC. SERVICE ISLAND SHALL BE PER DETAIL 2/C-144. REFER TO DETAIL 2/C-142 FOR EDGE PROTECTION AT LOCATION OF (E) POTION OF CONC. SERVICE ISLAND.




## DEMO PORTION OF (E) SERVICE ISLAND

1/2" = 1' - 0"

3 / C-144




## (N) PORTION OF SERVICE ISLAND

1/2" = 1' - 0"

1 / C-144

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

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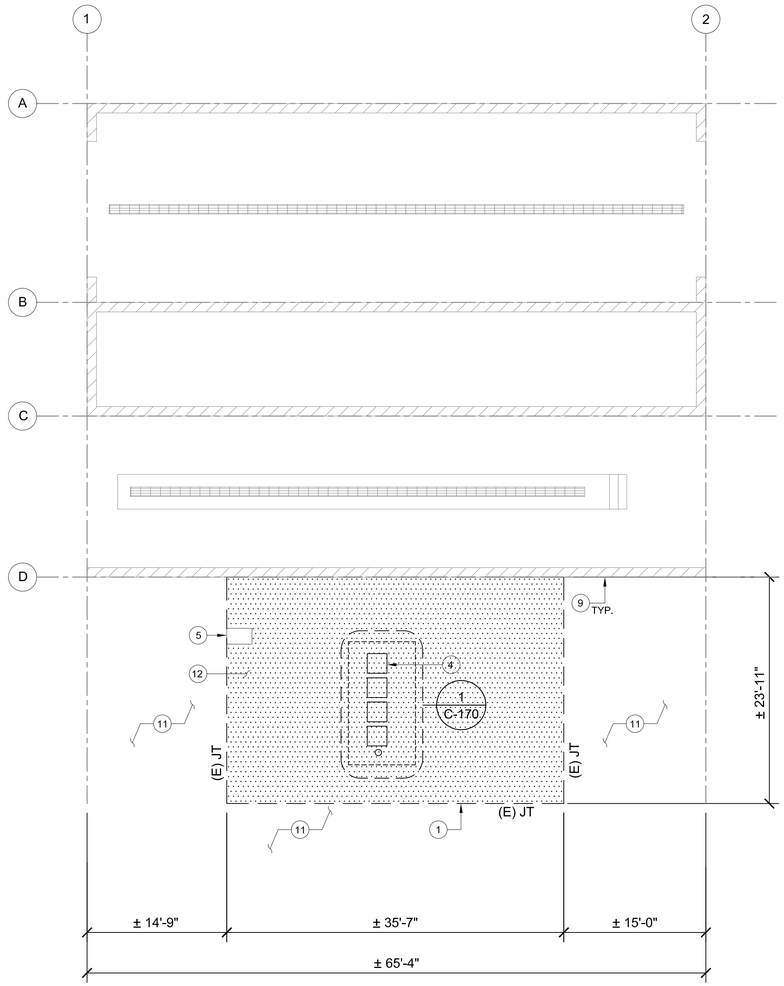
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DETAILS - SERVICE ISLAND MODIFICATIONS

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-144
SHEET NO 14B OF 30




GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 REFER TO CIVIL SITE PLAN AND PLUMBING PLANS FOR LOCATION OF SEWER LINES AND ASSOCIATED PIPES.

KEYNOTES:

(1) LIMIT OF PAVEMENT DEMO.
SAW CUT AT (E) JOINTS, FIELD VERIFY LOCATION.

(4) DEMO (E) PRECAST CONCRETE SAND AND GREASE INTERCEPTOR, BACK FILL & COMPACT EXCAVATION. SEE NOTES ON COVER SHEET REGARDING CONTAMINATED SOIL.

(5) (E) ELECTRICAL BOX, 20"X32", AT ONE LOCATION, PROTECT IN PLACE.

(9) (E) CMU WALL

(11) (E) CONC. PAVEMENT TO REMAIN

(12) DEMO (E) CONC. PAVEMENT, REPLACE W/ 6" CONC. OVER COMPACTED SUBGRADE EXCEPT WHERE NOTED. SEE NEW DEVELOPMENT PLAN FOR MORE INFO.

LEGEND:

DEMO

(E) TO REMAIN

## DEMO PLAN - WASH / CLEAN BUILDING PLAN

1/8" = 1' - 0"

1 / C-150

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
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PROJECT ADDRESS
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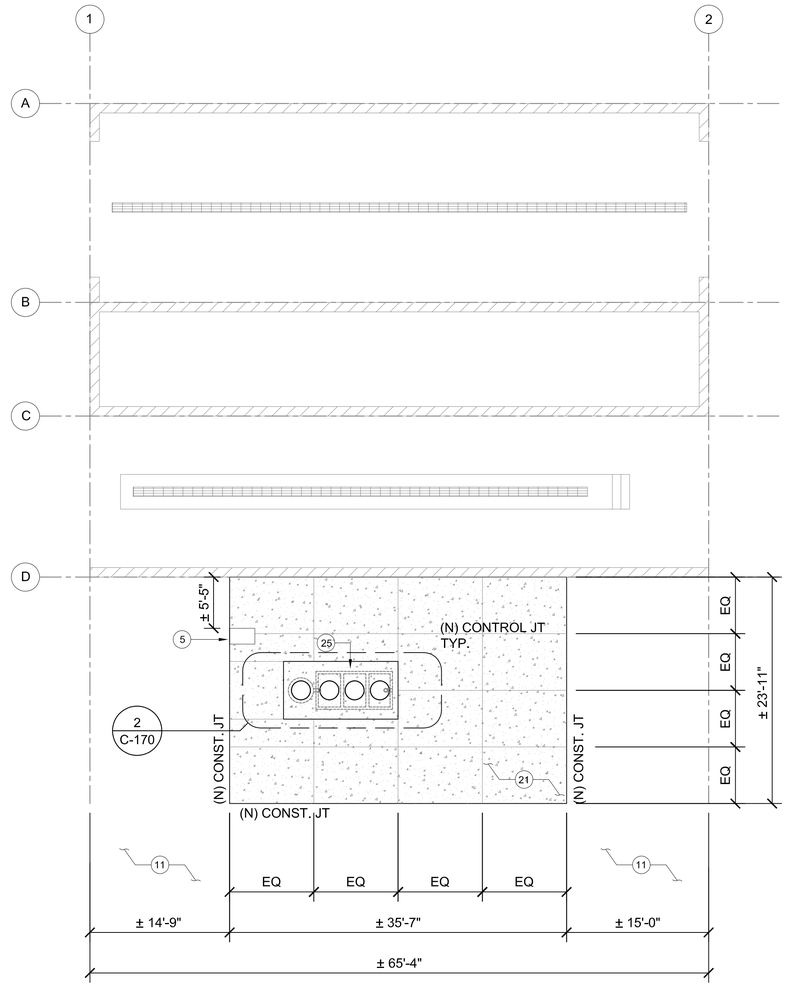
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DEMO PLAN - PAVEMENT REPLACEMENT AT WASH/CLEAN BUILDING

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-150
SHEET NO 15 OF 30




GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 TYPICAL REBAR,
6" SLAB: #5 @ 12" EACH WAY AT CENTER OF SLAB
10" SLAB: #5 @12" EACH WAY TOP & BOTTOM
NEW SLABS SHALL BE PLACED ON WELL COMPACTED SUBGRADE

3 REFER TO CIVIL SITE PLAN AND PLUMBING PLANS FOR LOCATION OF SEWER LINES AND ASSOCIATED PIPES.

KEYNOTES:

(5) (E) ELECTRICAL BOX, 20"X32", AT ONE LOCATION, PROTECT IN PLACE.

(11) (E) CONC. PAVEMENT TO REMAIN

(21) PCC PAVING (4000 PSI), 6" THK

(25) (N) CLARIFIER TANK & SAMPLE BOX

LEGEND:

(N) CONCRETE

(N) DEVELOPMENT

(E) TO REMAIN

## DEVELOPMENT PLAN - WASH / CLEAN BUILDING PLAN

1/8" = 1' - 0"

1 / C-151

N

8 0 8 16
1/8"=1'-0"

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
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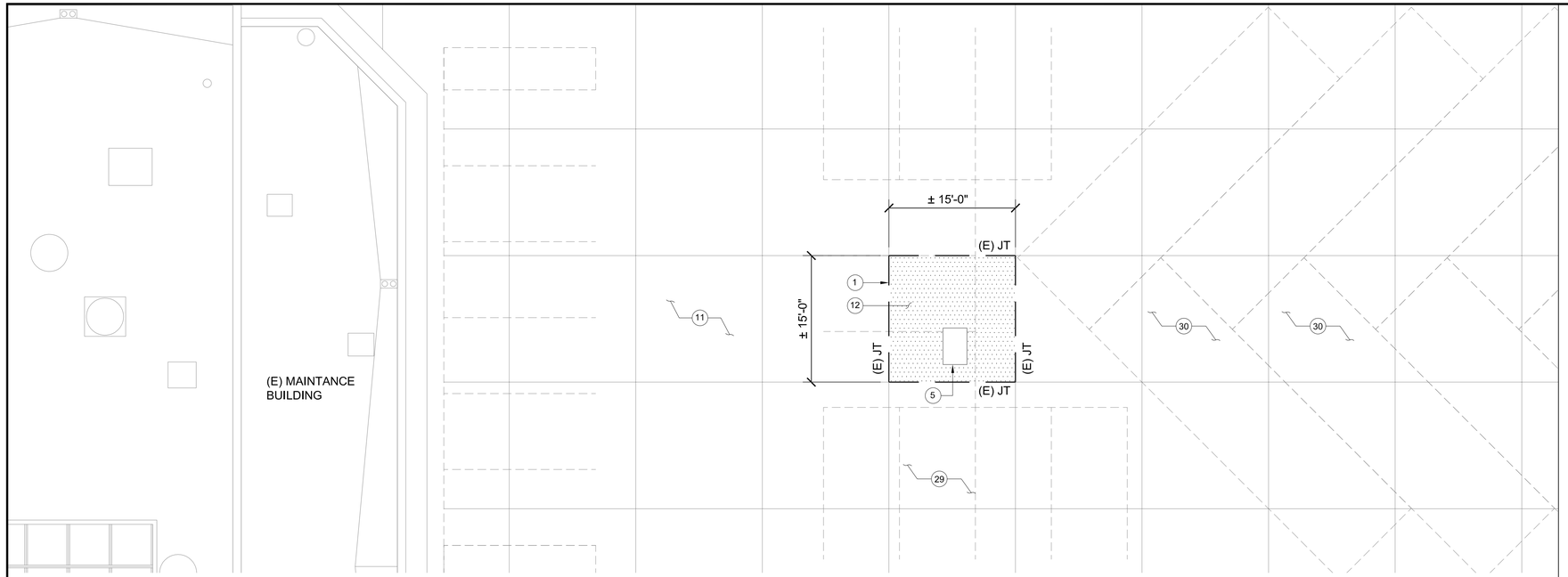
OmniTrans

PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DEVELOPMENT PLAN - PAVEMENT REPLACEMENT AT WASH/CLEAN BUILDING

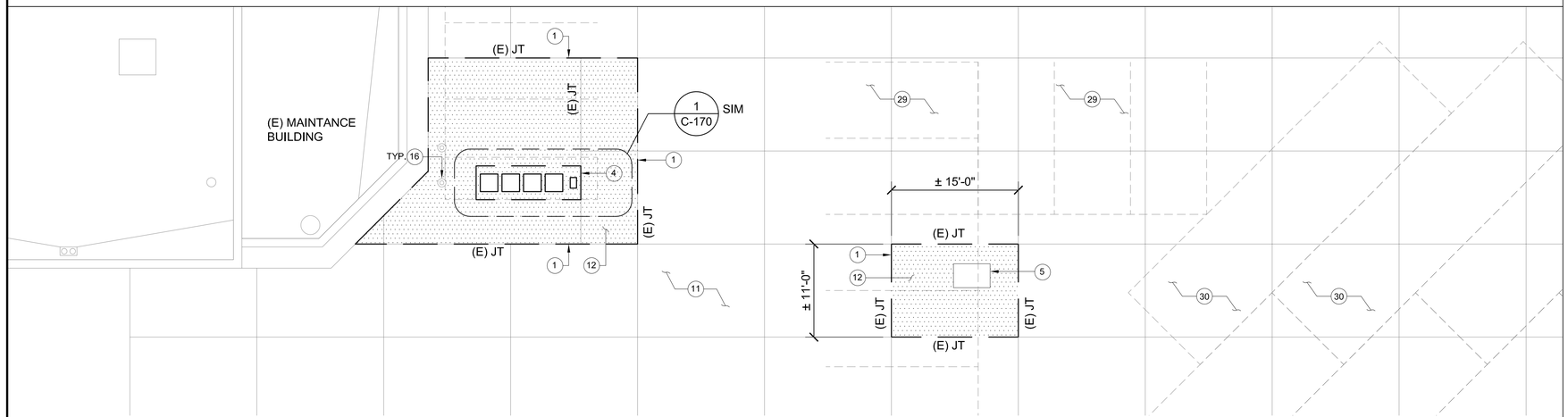
PROJECT NO 4017599
SCALE 1/8" = 1'-0"
DRAWING NO C-151
SHEET NO 16 OF 30




## DEMO PLAN - PARKING LOT AT EAST SIDE OF MAINTANCE BUILDING

2
C-160

1/8" = 1' - 0"




## DEMO PLAN - PARKING LOT AT EAST SIDE OF MAINTANCE BUILDING

1
C-160

1/8" = 1' - 0"

GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 REFER TO CIVIL SITE PLAN AND PLUMBING PLANS FOR LOCATION OF SEWER LINES AND ASSOCIATED PIPES

KEYNOTES:

(1) LIMIT OF PAVEMENT DEMO.
SAW CUT AT (E) JOINTS, FIELD VERIFY LOCATION.

(4) DEMO (E) PRECAST CONCRETE, SAND AND GREASE INTERCEPTOR.
SEE NOTES ON COVER SHEET REGARDING CONTAMINATED SOIL.

(5) (E) ELECTRICAL BOX, 34"X52", TWO LOCATIONS PROTECT IN PLACE.

(11) (E) CONC. PAVEMENT TO REMAIN

(12) DEMO (E) CONC. PAVEMENT, REPLACE W/ 6" CONC. OVER COMPACTED SUBGRADE EXCEPT WHERE NOTED.
SEE NEW DEVELOPMENT PLAN FOR MORE INFO.

(16) (E) BOLLARD, PROTECT IN PLACE

(29) (E) STANDARD PARKING STALLS

(30) (E) BUS PARKING STALLS

LEGEND:

DEMO

(E) TO REMAIN

8 0 8 16
1/8"=1'-0"

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
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DATE: 05/07/2020

LICENSED ARCHITECT
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NO. C 35458
REN. FEB 28, 2021
ARCHITECTURAL
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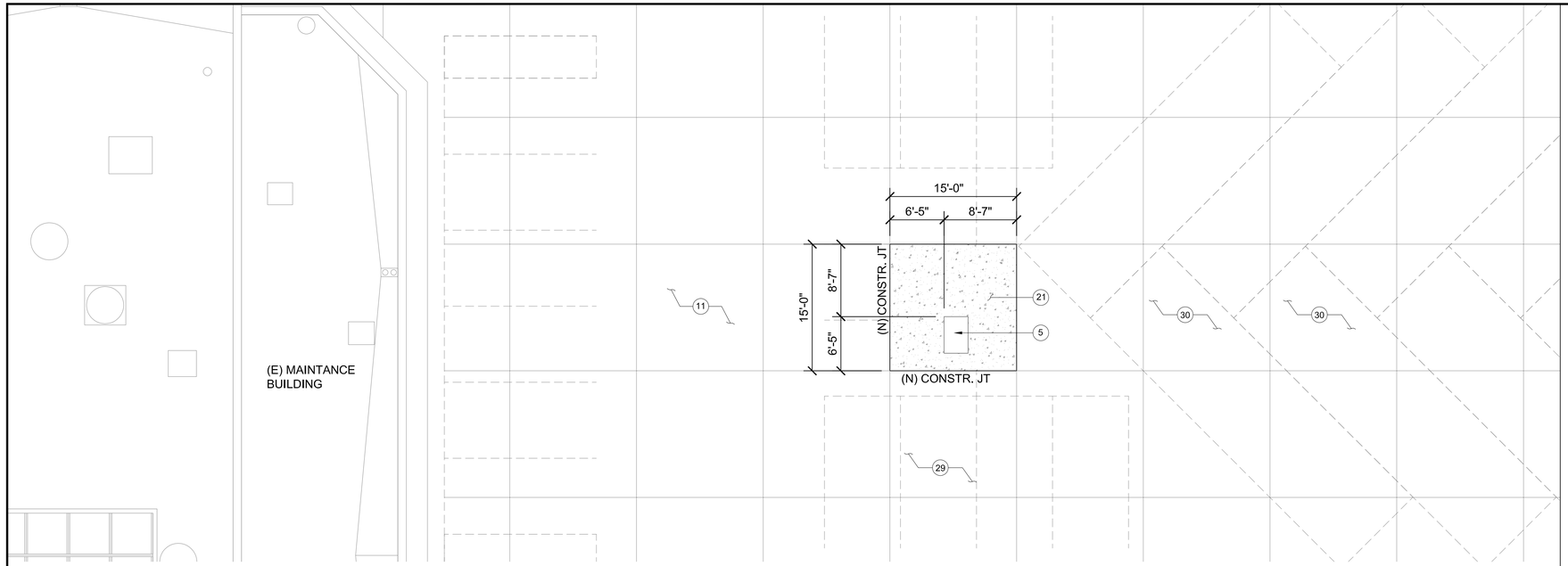
PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DEMO PLAN - PAVEMENT REPLACEMENT AT PARKING STALLS

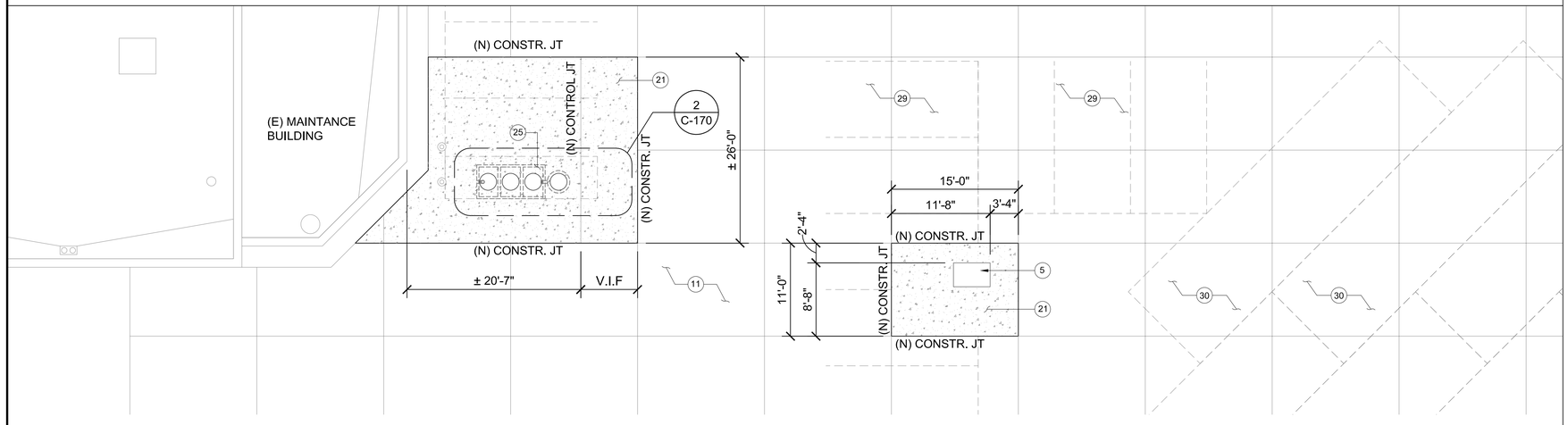
PROJECT NO 4017599
SCALE 1/8 = 1' - 0"
DRAWING NO C-160
SHEET NO 17 OF 30




# DEVELOPMENT PLAN - PARKING LOT AT EAST SIDE OF MAINTANCE BUILDING

2
C-161

1/8" = 1' - 0"




# DEVELOPMENT PLAN - PARKING LOT AT EAST SIDE OF MAINTANCE BUILDING

1
C-161

1/8" = 1' - 0"

GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC. PAVEMENT TO OLD CONC. PAVEMENT.

2 TYPICAL REBAR,
6" SLAB: #5 @ 12" EACH WAY AT CENTER OF SLAB
10" SLAB: #5 @12" EACH WAY TOP & BOTTOM
NEW SLABS SHALL BE POURED ON WELL COMPACTED SUBGRADE.

3 REFER TO CIVIL SITE PLAN AND PLUMBING PLANS FOR LOCATION OF SEWER LINES AND ASSOCIATED PIPES

KEYNOTES:

(5) (E) ELECTRICAL BOX,34"X52", TWO LOCATIONS, PROTECT IN PLACE

(11) (E) CONC. PAVEMENT TO REMAIN

(21) (N) PCC PAVING (4000 PSI), 6" THK

(25) (N) CLARIFIER TANK & SAMPLE BOX

(29) (E) STANDARD PARKING STALLS

(30) (E) BUS PARKING STALLS

LEGEND:

(N) CONCRETE

(N) DEVELOPMENT

(E) TO REMAIN

8 0 8 16
1/8"=1'-0"

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: MAP
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LICENSED ARCHITECT
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PROJECT ADDRESS
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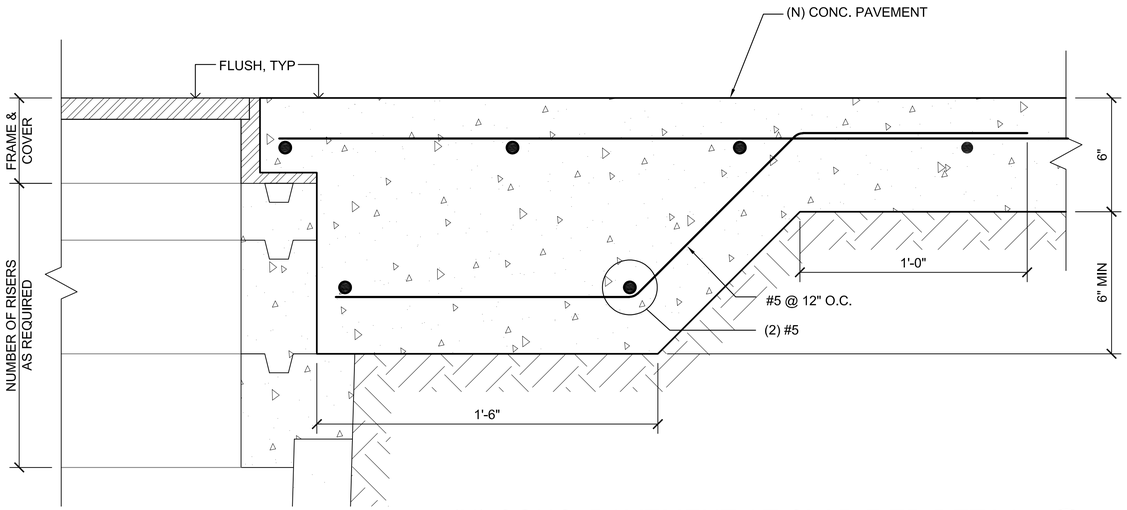
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DEVELOPMENT PLAN - PAVEMENT REPLACEMENT AT PARKING STALLS

PROJECT NO 4017599
SCALE 1/8 = 1' - 0"
DRAWING NO C-161
SHEET NO 18 OF 30




## (N) CONC. PAVEMENT AT CLARIFIER DETAIL

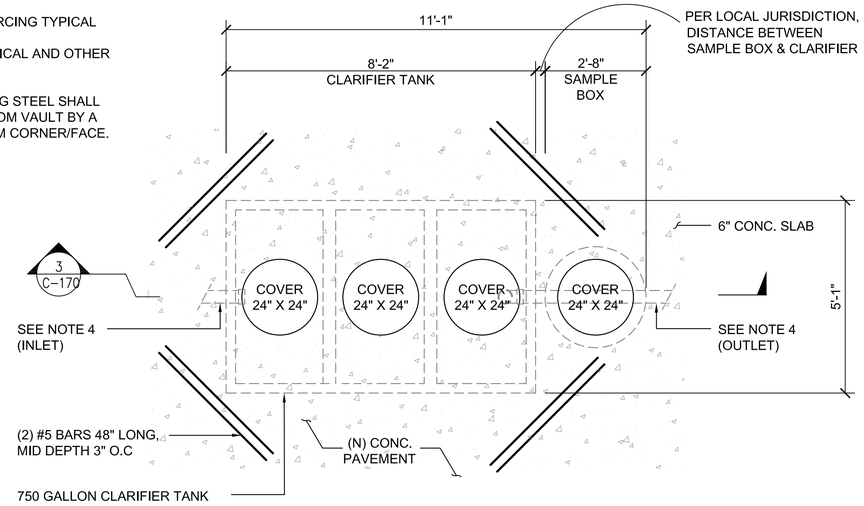
4 C-170

3" = 1' - 0"

NOTE: REINFORCING TYPICAL

1. FOR ELECTRICAL AND OTHER VAULTS

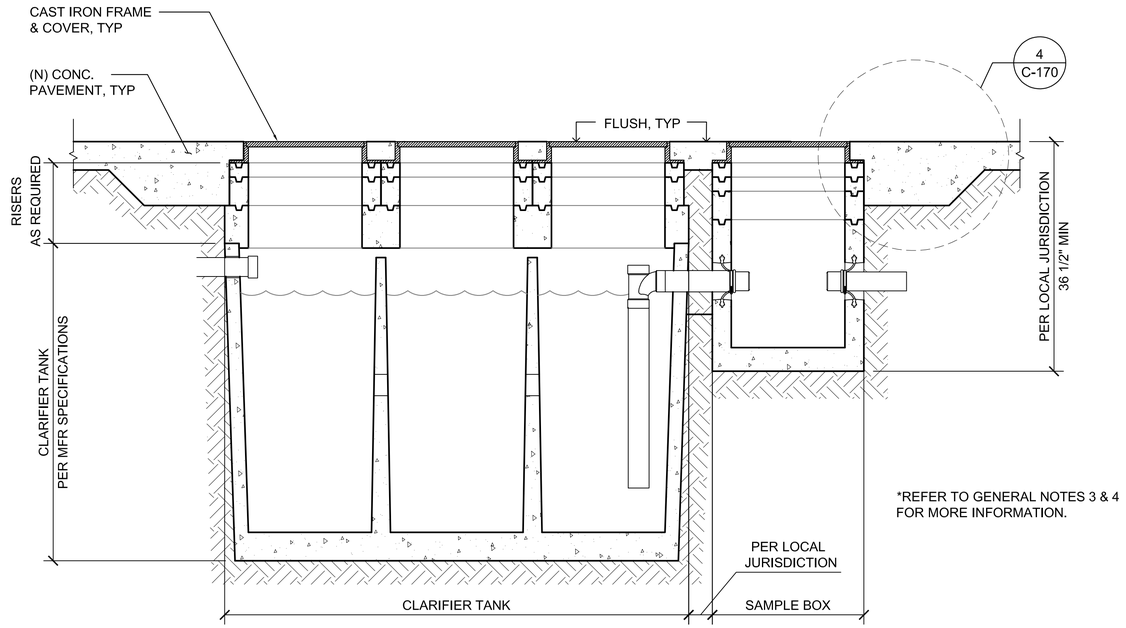
2. REINFORCING STEEL SHALL BE OFFSET FROM VAULT BY A MIN OF 3" FROM CORNER/FACE.




## PLAN - (N) CLARIFIER TANK & SAMPLE BOX

2 C-170

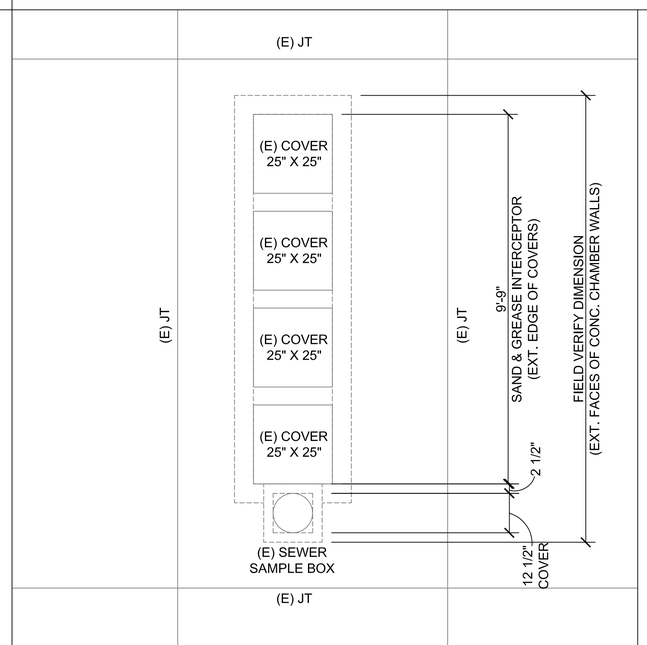
1/2" = 1' - 0"




## SECTION - (N) CLARIFIER TANK & SAMPLE BOX

3 C-170

3/4" = 1' - 0"




## PLAN - (E) SAND AND GREASE INTERCEPTOR

1 C-170

1/2" = 1' - 0"

GENERAL NOTES:

1 SEE DETAIL 2/C-112 FOR DOWELING OF NEW CONC.
PAVEMENT TO OLD CONC. PAVEMENT.

2 TYPICAL REBAR,
6" SLAB: #5 @ 12" EACH WAY AT CENTER OF SLAB
10" SLAB: #5 @12" EACH WAY TOP & BOTTOM

3 THE FOLLOWING PLAN & SECTIONS ARE REPRESENTATIVE OF A TYPICAL (N) CLARIFIER TANK AND SAMPLE BOX. IT IS THE CONTRACTOR RESPONSIBILITY TO ENSURE THAT ALL WORKS ARE CARRIED OUT ACCORDINGLY TO THE PLUMBING DRAWINGS SPECIFICATIONS.

4 REFER TO PLUMBING DEVELOPMENT DWGS FOR CUSTOMED INLET AND OUTLET LOCATIONS.

5 SEE NOTES ON COVER SHEET REGARDING CONTAMINATED SOIL.

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
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DESIGNED BY: MAP
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LICENSED ARCHITECT JASON D. YEAGER NO. C 35458 REN: FEB 28, 2021 ARCHITECTURAL STATE OF CALIFORNIA

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4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
DETAILS - CLARIFIER TANK & SAMPLE BOX

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO C-170
SHEET NO 19 OF 30

GENERAL NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH AND TO LOCATE ALL EXISTING SITE CONDITIONS AND UNDERGROUND UTILITIES, PIPES, AND OTHER SUBSTRUCTURES, AND TO PROTECT THEM FROM DAMAGE. THE EXPENSE OF REPAIR OR REPLACEMENT OF SAID SUBSTRUCTURES INCLUDING DAMAGE OF THE OWNER'S PROPERTY SHALL BE BORN BY THE CONTRACTOR. THE CONTRACTOR SHALL HAND DIG TREE PITS, PLANTING BEDS, ETC AS REQUIRED. CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITY COMPANY PRIOR TO ANY EXCAVATION.
2. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, LANDSCAPING, AND FEATURES TO REMAIN ON AND/OR ADJACENT TO THE PROJECT SITE DURING CONSTRUCTION. CONTRACTOR SHALL REPAIR, AT HIS OWN EXPENSE, ALL DAMAGE RESULTING FROM HIS OPERATIONS.
3. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO ENFORCE SAFETY MEASURES OR REGULATIONS.
4. ALL LOCAL, MUNICIPAL, AND STATE LAWS, RULES AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THE PROJECT AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR.

LEGEND:

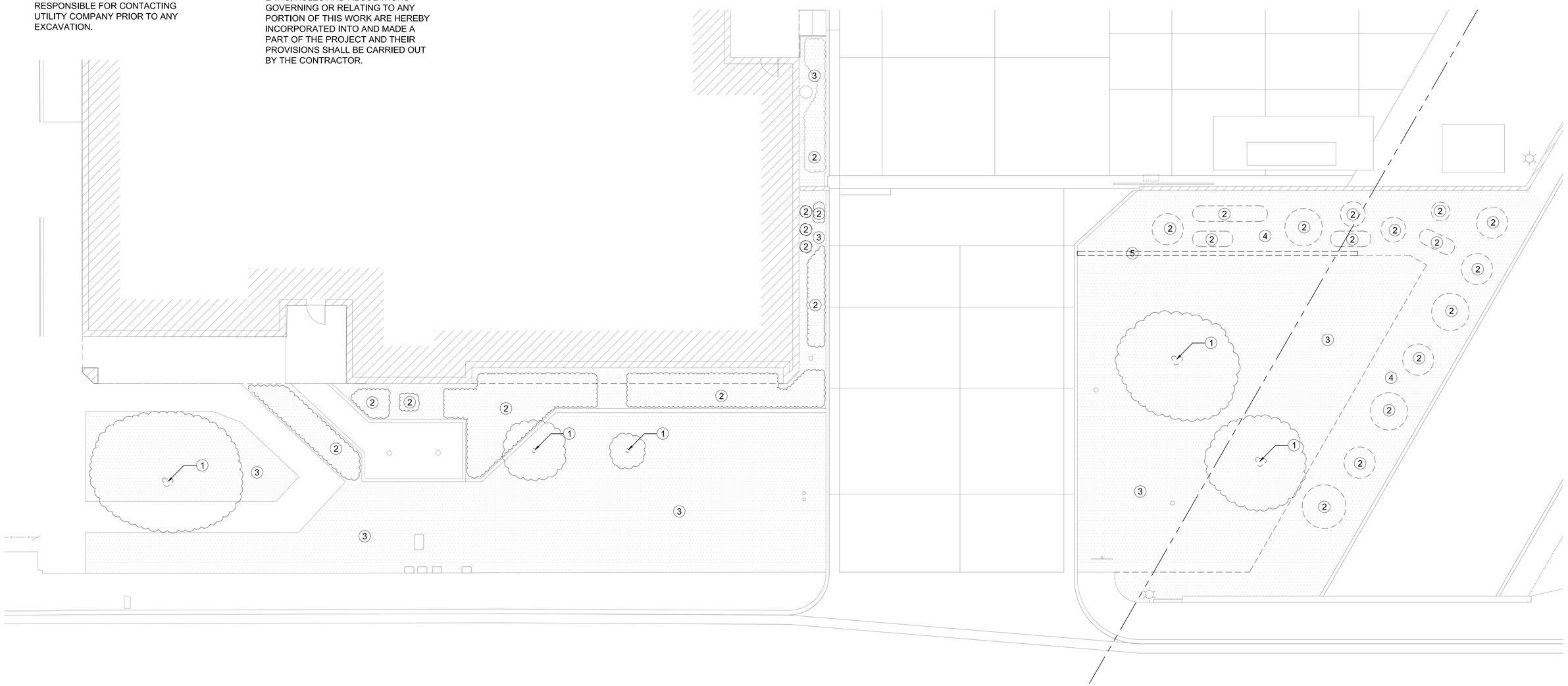
LIMITS OF LANDSCAPE DEMOLITION

LANDSCAPE DEMOLITION NOTES:

1. REMOVE TREE AND STUMP
2. REMOVE SHRUBS AND ROOTS
3. REMOVE SOD AND ROOTS TO A DEPTH OF 4 INCHES.
4. REMOVE SOIL TO A DEPTH OF 4 INCHES.
5. REMOVE CONCRETE CURB AND SUBBASE.

LANDSCAPE GENERAL NOTES:

1. REFER TO GENERAL PERMIT CONDITIONS ON SHEET C-001.
2. REFER TO CIVIL DRAWINGS FOR DEMOLITION PLAN FOR EXTERIOR IMPROVEMENTS.
3. UNLESS NOTED TO BE REMOVED OR ABANDONED, ALL EXISTING UTILITY SERVICES ARE TO REMAIN OPERATIONAL AT ALL TIMES.
4. CONTRACTOR IS RESPONSIBLE TO DETERMINE EXISTING CONDITIONS TO HIS SATISFACTION PRIOR TO THE BEGINNING OF CONSTRUCTION.
5. CONTRACTOR TO PROTECT EXISTING ABOVE GRADE UTILITIES AND UNDERGROUND UTILITIES DURING CONSTRUCTION AND PROVIDE STANDARD MINIMUM COVER FOR ALL UTILITIES.
6. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE IN GRASS AND PAVED AREAS DURING ALL PHASES OF CONSTRUCTION AND IN FINISHED GRADES.
7. CONTRACTOR IS RESPONSIBLE FOR FOR VERIFYING ALL QUANTITIES TO THEIR OWN SATISFACTION PRIOR TO BIDDING THE WORK.



LANDSCAPE DEMOLITION PLAN

1/8" = 1' - 0"

1 / L-100

8 0 8 16

1/8"=1'-0"

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: KKG
DRAWN BY: KKG
CHECKED BY: SHP
DATE: 05/07/2020

STV Incorporated
ENGINEERS/ARCHITECTS/PLANNERS/CONSTRUCTION MANAGERS
1055 WEST 7th STREET., SUITE 3150
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OmniTrans

PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
LANDSCAPE - DEMOLITION PLAN

PROJECT NO 4017599
SCALE 1/8"=1'-0"
DRAWING NO L-100
SHEET NO 20 OF 30

| GRANITE BOULDER POINT DATA | | | | |
|---|---|---|---|---|
| NO. | ID | X | Y | DESCRIPTION |
| 01 | POI | 200.00' | 200.00' | STARTING POINT. CENTER OF FIRE HYDRANT. |
| B01 | CT | 219.00' | 187.75' | CENTER OF BOULDER |
| B02 | CT | 222.75' | 189.75' | CENTER OF BOULDER |
| B03 | CT | 225.00' | 208.50' | CENTER OF BOULDER |
| B04 | CT | 204.50' | 211.25' | CENTER OF BOULDER |
| B05 | CT | 200.00' | 214.75' | CENTER OF BOULDER |
| B06 | CT | 131.25' | 202.58' | CENTER OF BOULDER |
| B07 | CT | 92.08' | 213.33' | CENTER OF BOULDER |
| B08 | CT | 94.25' | 200.00' | CENTER OF BOULDER |
| B09 | CT | 73.17' | 197.83' | CENTER OF BOULDER |
| B10 | CT | 41.67' | 210.50' | CENTER OF BOULDER |
| B11 | CT | 32.00' | 204.67' | CENTER OF BOULDER |

ABBREVIATION NOTES:

POI = POINT OF INTEREST. THIS IS THE REFERENCE POINT FOR THE DIMENSIONS IN THE TABLE ON SHEET L-101. AS NOTED ON SHEET L-101, THIS POINT OCCURS AT THE CENTER OF THE EXISTING FIRE HYDRANT IN THE YARD TO THE EAST OF THE BUS DRIVEWAY. SEE DRAWING BELOW.

CT = CENTER. THIS IS USED EXCLUSIVELY FOR THE BOULDERS, NOTING THE LOCATION OF WHERE THEIR CENTER POINTS SHOULD BE LOCATED.

PC = POINT ON CURVE. THIS IS USED EXCLUSIVELY FOR THE EDGING. LOCATING DIMENSIONS FOR THE END POINTS OF EACH CURVE OF EDGING IS PROVIDED ON THE TABLE TO THE RIGHT. TOGETHER WITH THE RADIUS SHOWN ON THE DRAWING BELOW, PROVIDES THE DATA NEEDED TO PROPERLY ALIGN THE EDGING.

PRC = POINT OF REVERSE CURVE. THIS IS SIMILAR TO "PC", EXCEPT THIS DENOTES THE LOCATION WHERE A TWO CURVES OF DIFFERENT DIRECTION MEET.

| LANDSCAPING EDGING POINT DATA | | | | |
|---|---|---|---|---|
| NO. | ID | X | Y | DESCRIPTION |
| 01 | POI | 200.00' | 200.00' | STARTING POINT. CENTER OF FIRE HYDRANT. |
| E01 | PC | 184.83' | 203.37' | LANDSCAPE EDGING |
| E02 | PRC | 214.75' | 206.00' | LANDSCAPE EDGING |
| E03 | PC | 235.58' | 205.83' | LANDSCAPE EDGING |
| E04 | PC | 225.17' | 211.17' | LANDSCAPE EDGING |
| E05 | PRC | 208.00' | 223.08' | LANDSCAPE EDGING |
| E06 | PC | 184.75' | 232.00' | LANDSCAPE EDGING |
| E07 | PC | 144.42' | 201.75' | LANDSCAPE EDGING |
| E08 | PRC | 122.42' | 203.83' | LANDSCAPE EDGING |
| E09 | PC | 96.00' | 201.50' | LANDSCAPE EDGING |
| E10 | PC | 89.25' | 203.42' | LANDSCAPE EDGING |
| E11 | PC | 101.25' | 198.83' | LANDSCAPE EDGING |
| E12 | PC | 50.58' | 212.92' | LANDSCAPE EDGING |
| E13 | PRC | 40.00' | 208.58' | LANDSCAPE EDGING |
| E14 | PC | 25.67' | 200.25' | LANDSCAPE EDGING |
| E15 | PC | 25.58' | 192.83' | CENTERLINE OF SWALE |
| E16 | PRC | 46.83' | 192.17' | CENTERLINE OF SWALE |
| E17 | PRC | 85.25' | 192.17' | CENTERLINE OF SWALE |
| E18 | PC | 103.83' | 192.50' | CENTERLINE OF SWALE |
| E19 | PC | 108.83' | 191.58' | CENTERLINE OF SWALE |
| E20 | PRC | 133.75' | 192.50' | CENTERLINE OF SWALE |
| E21 | PC | 144.42' | 194.58' | CENTERLINE OF SWALE |

LEGEND:

- (N) MEXICAN BEACH PEBBLE -TYPE H-01
- (N) MEXICAN BEACH PEBBLE - TYPE H-02
- (N) DECOMPOSED GRANITE - TYPE H-03
- (N) GRANITE BOULDER -TYPE H-04
- (N) ALUMINUM LANDSCAPE EDGING - TYPE H-05
- (N) FENCE/GATE/RAILING (REFER TO CIVIL DWG)

HARDSCAPE NOTES:

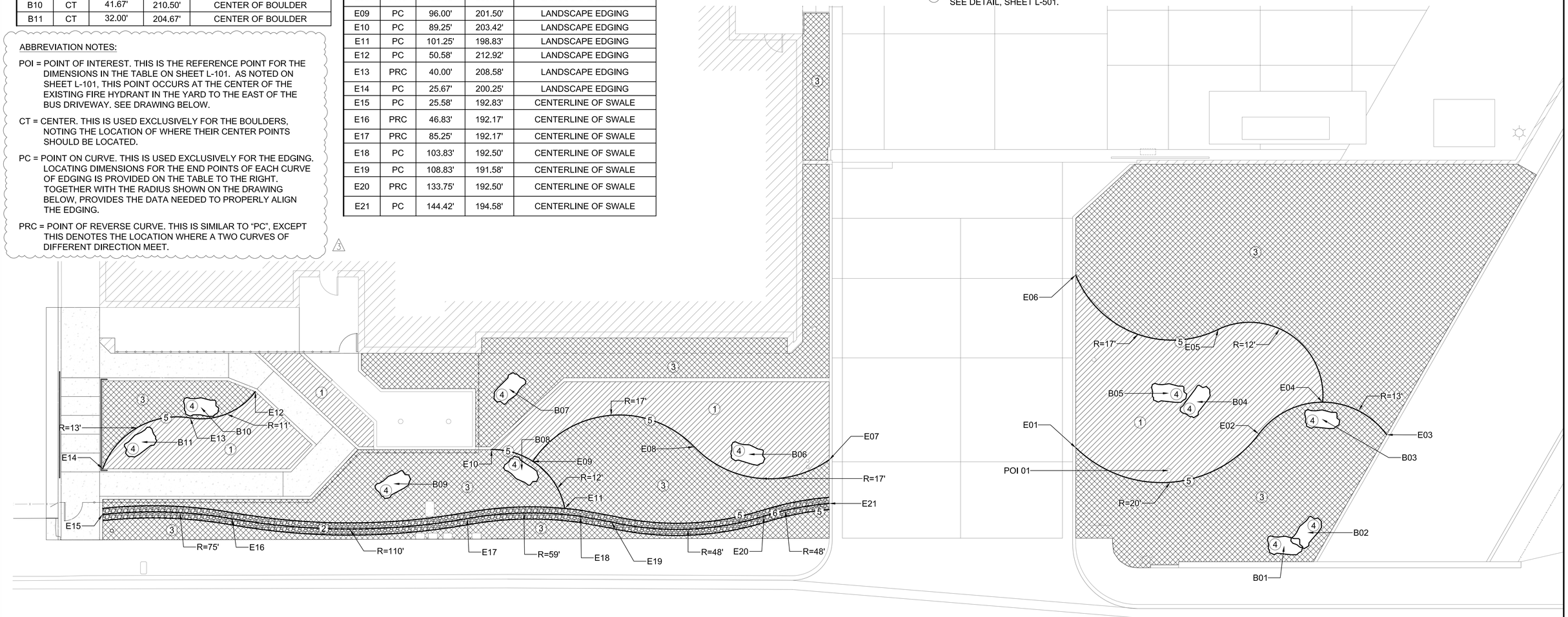
1. PROVIDE MEXICAN BEACH PEBBLE TYPE H-01. SEE DETAIL, SHEET L-501.
2. PROVIDE MEXICAN BEACH PEBBLE TYPE H-02. SEE DETAIL, SHEET L-501.
3. PROVIDE DECOMPOSED GRANITE TYPE H-03. SEE DETAIL, SHEET L-501.
4. PROVIDE GRANITE BOULDER TYPE H-04. SEE MATERIAL SCHEDULE.
5. PROVIDE ALUMINUM LANDSCAPE EDGING. SEE DETAIL, SHEET L-501.
6. PROVIDE 2' WIDE SWALE. SEE DETAIL, SHEET L-501.

LAYOUT NOTES:

1. STARTING POINT OF LAYOUT IS POI #1.
2. CONTRACTOR TO PAINT OUT LANDSCAPE EDGING DESIGN FOR ARCHITECT'S/OWNER'S APPROVAL PRIOR TO INSTALLATION.

GENERAL NOTES:

1. REFER TO GENERAL PERMIT CONDITIONS ON SHEET C-001.
2. REFER TO CIVIL DRAWINGS FOR EXTERIOR IMPROVEMENTS.
3. REFER TO PLANTING PLAN ON SHEET L-102.
4. REFER TO HARDSCAPE SCHEDULE ON SHEET L-503.




## HARDSCAPE AND LAYOUT PLAN

1/8" = 1' - 0"

1 / L-101

8 0 8 16

1/8"=1'-0"

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: KKG
DRAWN BY: KKG
CHECKED BY: SHP
DATE: 05/07/2020


STV Incorporated
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4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
LANDSCAPE - HARDSCAPE AND LAYOUT PLAN

PROJECT NO 4017599
SCALE 1/8"=1'-0"
DRAWING NO L-101
SHEET NO 21 OF 30

| TREE PLANTING POINT DATA | | | | |
|---|---|---|---|---|
| NO. | ID | X | Y | DESCRIPTION |
| 01 | POI | 200 | 200 | STARTING POINT. CENTER OF FIRE HYDRANT. |
| T01 | CT | 197.00' | 238.00' | CENTER OF TREE TRUNK |
| T02 | CT | 222.00' | 238.00' | CENTER OF TREE TRUNK |
| T03 | CT | 247.00' | 238.00' | CENTER OF TREE TRUNK |

| PLANT KEY | | |
|---|---|---|
| KEY | BOTANICAL NAME | COMMON NAME |
| *TREE* | | |
| PC | Prosopis chilensis | Thornless Chilean Mesquite |
| *SHRUBS* | | |
| Clj | Callistemon viminalis 'Little John' | Little John Dwarf Bottlebush |
| Ld | Lavandula dentata var. candicans | French Lavender |
| Ro | Rosmarinus officinalis 'Prostratus' | Creeping Rosemary |
| Sl | Salvia leucantha 'Midnight' | Midnight Mexican Bush Sage |
| Swg | Salvia clevelandii 'Winnifred Gilman' | Winifred Gilman Sage |
| *PERENNIALS* | | |
| am | Achillea 'Moonshine' | Moonshine Yarrow |
| ec | Epilobium canum | California Fuchsia |
| hp | Hesperaloe parviflora 'Pink Parade' | Pink Parade Red Yucca |
| kv | Kniphofia uvaria 'Christmas Cheer' | Christmas Cheer Red Hot Poker |
| pa | Perovskia atriplicifolia 'Little Spire' | Little Spire Russian Sage |
| vl | Verbena lilacina 'De La Mina' | De La Mina Verbena |

LEGEND:

(N) DECIDUOUS TREE

(N) SHRUBS

(N) PERENNIALS

(N) GRANITE BOULDER - TYPE H-04

(N) ALUMINUM LANDSCAPE EDGING - TYPE H-05

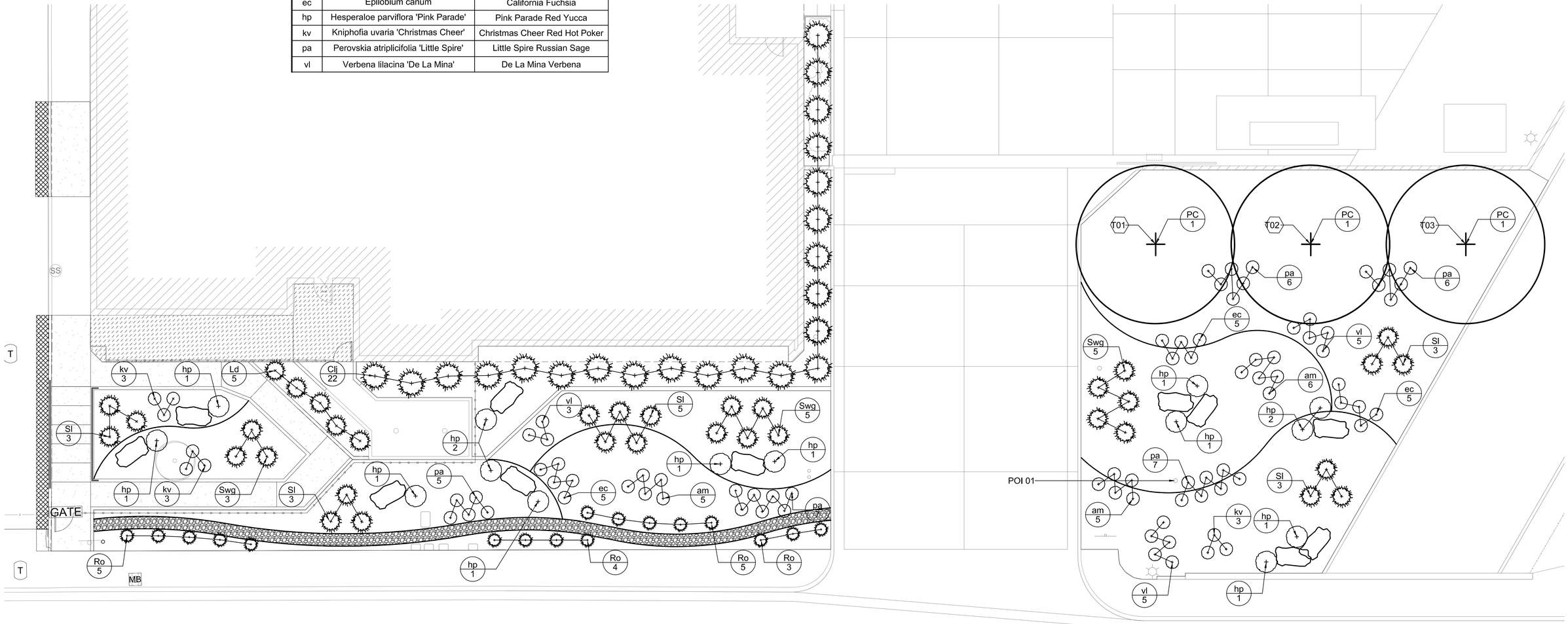
(N) FENCE/GATE/RAILING (REFER TO CIVIL DWGS)

LANDSCAPE NOTES:

1. PROVIDE DECIDUOUS TREES. SEE PLANT SCHEDULE, SHEET L-501.
2. PROVIDE SHRUBS. SEE PLANT SCHEDULE, SHEET L-501.
3. PROVIDE PERENNIAL. SEE PLANT SCHEDULE, SHEET L-501.
4. CONTRACTOR TO PROVIDE IRRIGATION SYSTEM TO COMPLIMENT PLANTING LAYOUT AND WATER NEEDS OF PLANTS. REFER TO CHINO BASIN WATER CONSERVATION DISTRICT (WWW.INLANDVALLEYGARDENPLANNER.ORG) FOR INFORMATION ABOUT IRRIGATION SCHEDULE. BASIS OF DESIGN: RAIN BIRD XERIGATION/LANDSCAPE DRIP IRRIGATION SYSTEM OR APPROVED EQUAL.

GENERAL NOTES:

1. REFER TO GENERAL PERMIT CONDITIONS ON SHEET C-001.
2. REFER TO CIVIL DRAWINGS FOR EXTERIOR IMPROVEMENTS.
3. REFER TO HARDSCAPE PLAN ON SHEET L-101.
4. REFER TO PLANT SCHEDULE ON SHEET L-503.
5. REFER TO PLANTING DETAILS ON SHEET L-501.




## PLANTING PLAN

1/8" = 1' - 0"

1 / L-102

8 0 8 16

1/8"=1'-0"

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: KKG
DRAWN BY: KKG
CHECKED BY: SHP
DATE: 05/07/2020

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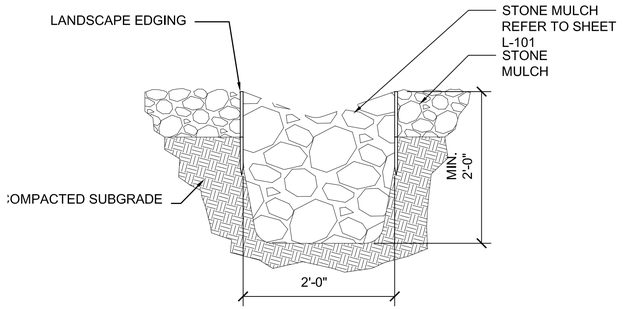
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
LANDSCAPE - PLANTING PLAN

PROJECT NO 4017599
SCALE 1/8"=1'-0"
DRAWING NO L-102
SHEET NO 22 OF 30



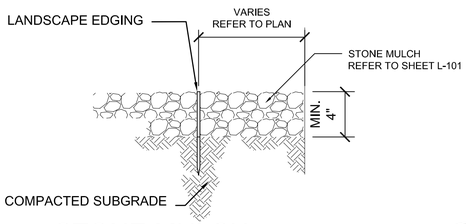

## DRY STREAM SWALE

NOT TO SCALE

7 L-501

NOTES

1. INSTALL STONE MULCH AS SHOWN ON SHEET L-101.
2. SUBGRADE NEEDS TO BE RELATIVELY FREE OF ANY ROCKS/DEBRIS LARGER THAN 1" IN DIAMETER.
3. INSTALL IN 6-INCH LIFTS.
4. USE A STEEL GARDEN RAKE OR A SHOVEL TO EVEN OUT THE STONE MULCH. TOP OF STONE MULCH TO BE LEVEL WITH TOP OF LANDSCAPE EDGING.
5. FOR MANUFACTURER INFORMATION, REFER TO HARDSCAPE SCHEDULE ON SHEET L-503.



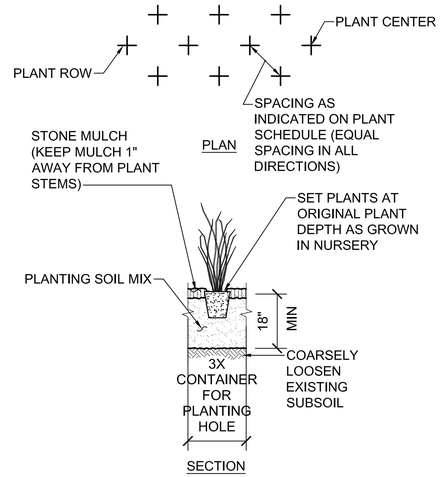

## STONE MULCH

NOT TO SCALE

6 L-501

NOTES

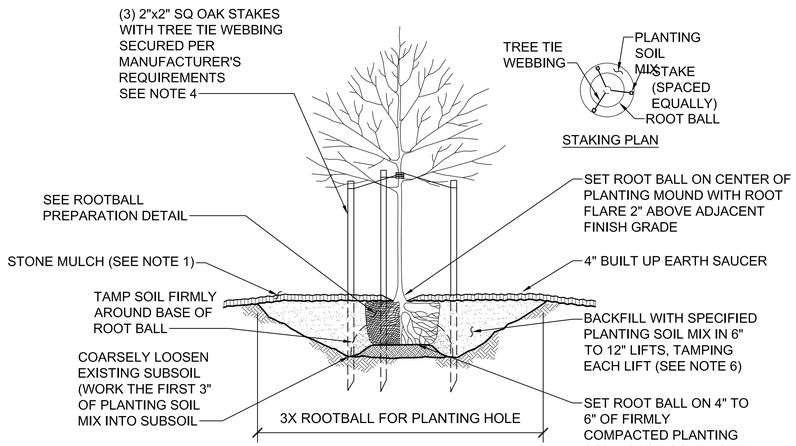
1. INSTALL STONE MULCH AS SHOWN ON SHEET L-101.
2. SUBGRADE NEEDS TO RELATIVELY FLAT, WEED-FREE AND FREE OF ANY ROCKS/DEBRIS LARGER THAN 1" IN DIAMETER.
3. INSTALL A MINIMUM 4-INCH LAYER OF STONE MULCH.
4. USE A STEEL GARDEN RAKE OR A SHOVEL TO EVEN OUT THE STONE MULCH. TOP OF STONE MULCH TO BE LEVEL WITH TOP OF LANDSCAPE EDGING.
5. ONCE THE STONE MULCH IS LEVEL, GENTLY COMPACT THE STONE MULCH TO A MINIMUM OF 4 INCHES.
6. FOR MANUFACTURER INFORMATION, REFER TO HARDSCAPE SCHEDULE ON SHEET L-503.




## PERENNIAL PLANTING

NOT TO SCALE

5 L-501



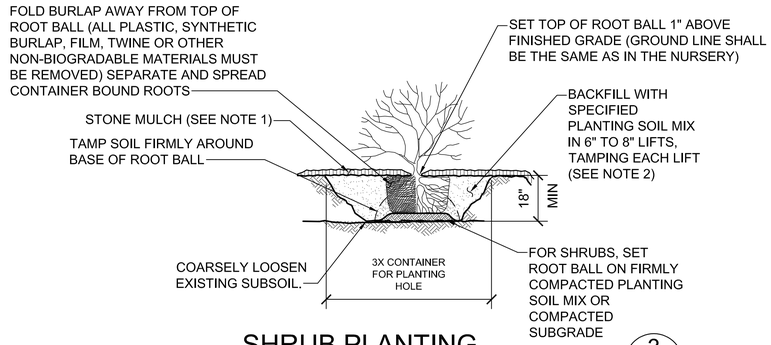

## DECIDUOUS TREE PLANTING

NOT TO SCALE

4 L-501

NOTES

1. STONE MULCH SHALL BE PLACED WHEN INSTALLATION IS COMPLETE. STONE MULCH SHALL BE TAPERED AWAY FROM THE TREE TRUNK. STONE MULCH SHALL NOT BE MOUNDED AROUND THE BASE OF THE TREE AND THE ROOT FLARE SHALL REMAIN VISIBLE.
2. DO NOT PRUNE TREES EXCEPT FOR BROKEN BRANCHES.
3. DO NOT WRAP TRUNK OF TREE. TREE STAKES SHALL BE 2"x2" SQUARE OAK STAKES. STAKES AND GUYS SHALL BE REMOVED AT THE END OF ONE YEAR.
4. REMOVE ALL ROPE AND BURLAP FROM AROUND TRUNK.
5. WHEN PLANT PIT IS APPROXIMATELY HALF-FILLED, WATER THOROUGHLY BEFORE PLACING REMAINING BACKFILL. REPEAT WATERING WHEN BACKFILL IS COMPLETE.



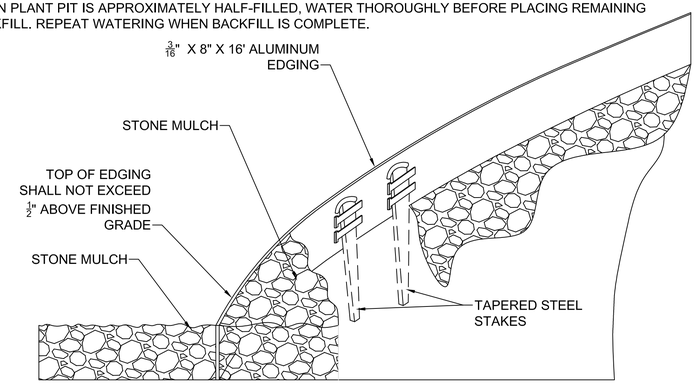

## SHRUB PLANTING

NOT TO SCALE

3 L-501

NOTES

1. STONE MULCH SHALL BE PLACED WHEN INSTALLATION IS COMPLETE. STONE MULCH SHALL BE TAPERED AWAY FROM BASE OF PLANT.
2. WHEN PLANT PIT IS APPROXIMATELY HALF-FILLED, WATER THOROUGHLY BEFORE PLACING REMAINING BACKFILL. REPEAT WATERING WHEN BACKFILL IS COMPLETE.



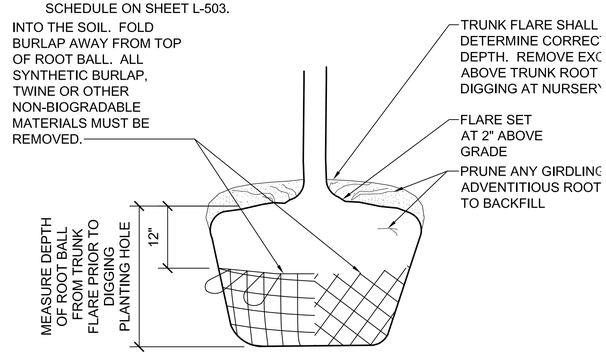

## LANDSCAPE EDGING

NOT TO SCALE

2 L-501

NOTES

1. INSTALL METAL EDGING AS SHOWN ON SHEET L-101.
2. FOR MANUFACTURER INFORMATION, REFER TO HARDSCAPE SCHEDULE ON SHEET L-503.




## ROOTBALL PREPARATION

NOT TO SCALE

1 L-501

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: KKG
DRAWN BY: KKG
CHECKED BY: SHP
DATE: 05/07/2020

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PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
LANDSCAPE -
PLANTING DETAILS

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO L-501
SHEET NO 23 OF 30

## PLANTING AND HARDSCAPE NOTES:

SITE CONDITIONS

- CONTRACTOR SHALL VERIFY THE 'AS BUILT' LOCATIONS OF ALL UTILITIES PRIOR TO DIGGING. PRIOR TO EXCAVATION FOR CONSTRUCTION OR PLANTING, OWNER VERIFICATION OF EXISTING UNDERGROUND UTILITIES AND OWNER APPROVAL TO PROCEED IS REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND MAKE MINOR ADJUSTMENTS IN SPACING AND/OR LOCATION OF PLANT MATERIALS TO AVOID CONFLICTS WITH UTILITIES. CONSULT WITH THE LANDSCAPE ARCHITECT IF SIGNIFICANT REVISION TO THE PLANTING PLAN IS REQUIRED DUE TO FIELD CONDITIONS.

- CONTRACTOR SHALL PERFORM ALL WORK IN A MANNER THAT PROTECTS COMPLETED WORK BY OTHERS.

SUBMITTALS

- MATERIAL TEST REPORTS: TOPSOIL, COMPOST, PLANTING SOIL MIX, AND MULCH.

- SAMPLES FOR VERIFICATION: STONE MULCH, LANDSCAPE EDGING AND BOULDERS. PROVIDE SAMPLE OF STONE MULCH AND LANDSCAPE EDGING CLEARLY LABELED WITH NAME/COMPOSITION AND SOURCE. PROVIDE PHOTOS OF ALL THE BOULDERS TO BE INSTALLED CLEARLY LABEL PHOTO WITH BOULDER ID NUMBER.

- PLANT MATERIALS: PROVIDE COMPLETE LIST WITH SCIENTIFIC AND COMMON NAME, QUANTITY, SIZE, AND SOURCE FOR ALL PLANTS. PLANTS SHALL BE OBTAINED FROM REGIONAL SOURCES.

- CONTRACTOR SHALL IDENTIFY A GROWING NURSERY WITHIN 100 MILES OF THE PROJECT SITE WITH A SUITABLE SELECTION OF THE REQUIRED SPECIES. CONTRACTOR SHALL PROVIDE PHOTOS OF TREES, SHRUBS AND PERENNIALS TO BE APPROVED BY THE LANDSCAPE ARCHITECT.

- MAINTENANCE SCHEDULE FOR ONE-YEAR WARRANTY PERIOD SHALL BE SUBMITTED PRIOR TO SUBSTANTIAL COMPLETION.

PLANT MATERIALS

- PLANT MATERIALS SHALL MEET OR EXCEED THE STANDARDS PUBLISHED IN THE "AMERICAN STANDARD FOR NURSERY STOCK", ANSI Z60.1, LATEST EDITION.

- PROVIDE VIGOROUS, HEALTHY, FULLY BRANCHED PLANTS TYPICAL OF SPECIES, CULTIVAR OR VARIETY SPECIFIED. TREES WITH DAMAGED OR CROOKED CENTRAL LEADERS, BRANCHES WITH "INCLUDED BARK", CROSSING TRUNKS, OR STEM GIRDLING ROOTS WILL NOT BE ACCEPTED. EXCESS SOIL COVERING THE TRUNK FLARE SHALL BE REMOVED AT THE NURSERY BEFORE DIGGING.

- PLANT MATERIAL TO BE OBSERVED BY THE LANDSCAPE ARCHITECT/ARCHITECT AT THE NURSERY OR AT THE PROJECT SITE BEFORE PLANTING FOR COMPLIANCE WITH GENUS, SPECIES, VARIETY, CULTIVAR, SIZE AND QUALITY. THE LANDSCAPE ARCHITECT/ARCHITECT RESERVES THE RIGHT TO FURTHER OBSERVE FOR SIZE AND CONDITION OF ROOT BALLS AND ROOT SYSTEMS, PESTS OR DISEASE SYMPTOMS, INJURIES AND LATENT DEFECTS, AND TO REJECT UNSATISFACTORY MATERIAL AT ANY TIME DURING THE PROGRESS OF WORK.

- CONTRACTOR SHALL VERIFY PLANT QUANTITIES. QUANTITIES INDICATED ON THE PLANS SHALL TAKE PRECEDENCE OVER QUANTITIES SHOWN IN THE PLANT SCHEDULE.

- SUPPLY PLANTS GROWN IN USDA HARDINESS ZONE 9b OR 10a AND WITHIN APPROXIMATELY 100 MILES OF THE PROJECT SITE. SUBMIT SOURCE OF SUPPLY TO LANDSCAPE ARCHITECT FOR APPROVAL WELL IN ADVANCE OF SHIPPING PLANTS.

- PROPOSED SUBSTITUTIONS FOR SPECIES OR SIZE OF PLANT MATERIALS SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT FOR APPROVAL. THE REQUEST SHALL STATE THE REASONS FOR THE SUBSTITUTION REQUEST AND SUGGESTED ALTERNATIVES.

SOIL MATERIALS

- PLANTING SOIL MIX: THOROUGHLY COMBINE 9 PARTS SANDY LOAM TOPSOIL AND 1 PART COMPOST. PH SHALL BE BETWEEN 6.6 - 7.0 PROVIDE LAB RESULTS TO VERIFY COMPOSITION AND PH.

- TOPSOIL SHALL BE TESTED TO ESTABLISH SUITABILITY FOR USE AS PLANTING SOIL. LAB REPORT SHALL INCLUDE ANALYSIS OF SAND FRACTIONS, MACRONUTRIENTS AND MICRONUTRIENTS WITH RECOMMENDATIONS FOR AMENDMENTS TO ADDRESS ANY NUTRIENT DEFICIENCIES.

- TOPSOIL COMPOSITION: FERTILE SURFACE SOIL FREE OF SUBSOIL, CONTAMINANTS, WEEDS AND ROOTS, DEBRIS AND STONES OVER 1-INCH IN DIAMETER. PROVIDE SOIL TEST RESULTS FROM A QUALIFIED, INDEPENDENT LABORATORY IN COMPLIANCE WITH THE FOLLOWING:

  NATURAL (UNAMENDED)
  pH: 6.6 - 7.0
  SAND: 52 %
  CLAY:10 %
  SILT: 20 %
  ORGANIC MATTER: 5 %
  SOLUBLE SALTS/CONDUCTIVITY: MAX 600 PPM/0.9 MMHOS/CM

- DO NOT TOP DRESS OR ADD FERTILIZER TO PLANTING SOIL MIX UNLESS BASED ON SPECIFIC WRITTEN RECOMMENDATIONS FROM SOIL TEST RESULTS. WHEN REQUIRED, PROVIDE SLOW-RELEASE FERTILIZER WITH A MINIMUM OF 50% WATER INSOLUBLE NITROGEN (WIN) AND SALT INDEX LESS THAN 50.

- COMPOST SHALL BE MATURE, WELL-COMPOSTED AND WEED-FREE ORGANIC MATERIALS MEETING THE U.S. COMPOSTING COUNCIL (WWW.COMPOSTINGCOUNCIL.ORG) SEAL OF TESTING APPROVAL REQUIREMENTS. COMPOST FOR TOPDRESSING OF PLANTING BEDS SHALL BE DERIVED FROM LOCALLY PRODUCED LEAVES/YARD WASTE.

- TOPSOIL AND COMPOST TESTING DATA SHALL BE SUBMITTED A MINIMUM OF 4 WEEKS BEFORE ANY PLACEMENT OF TOPSOIL OR PLANTING IS SCHEDULED TO OCCUR. DATA FOR BOTH TOPSOIL AND COMPOST ARE REQUIRED CONCURRENTLY AND WILL NOT BE APPROVED SEPARATELY.

PLANTING EXECUTION

- INSTALL PLANTS WITHIN THE FOLLOWING TIMEFRAME UNLESS OTHERWISE APPROVED:

  TREES AND SHRUBS: SEPTEMBER 30 TO JUNE 15
  ORNAMENTAL GRASSES/PERENNIALS: SEPTEMBER 30 TO JUNE 15
  HERBACEOUS PLANTS SHALL BE INSTALLED WHEN THERE IS NO IMMEDIATE DANGER OF FROST.

- PRE-INSTALLATION CONFERENCE SHALL BE HELD AT THE SITE PRIOR TO THE START OF PLANTING BED PREPARATION.

- PROVIDE 18" MINIMUM DEPTH OF PLANTING SOIL MIX FOR ALL PLANTS.

- DELIVER PLANTS AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND INSTALL WITHIN 48 HOURS. SET PLANTS IN APPROPRIATE ASPECT (SUN/SHADE), KEEP ROOTS MOIST AND PROTECT PLANTS FROM WEATHER AND MECHANICAL DAMAGE. PLANTS DAMAGED AFTER ARRIVAL AT THE SITE WILL BE REJECTED.

- PLACE STONE MULCH TO DEPTH INDICATED ON THE DETAILS. TAPER STONE MULCH AWAY FROM PLANTS AND KEEP FOLIAGE FREE OF STONE MULCH. ROOT FLARE MUST REMAIN VISIBLE AT THE BASE OF TREES AND SHRUBS.

- WATER NEW PLANTS IMMEDIATELY AFTER INSTALLATION AND AGAIN WITHIN 48 HOURS. WATER DEEPLY AND THOROUGHLY DURING PLANT ESTABLISHMENT PERIOD TO PROMOTE DEEP ROOT GROWTH.

- DISTURBED AREAS NOT STABILIZED WITH PAVING, PLANT MATERIALS OR STONE MULCH AS SHOWN ON THE HARDSCAPE AND PLANTING PLANS SHALL BE STABILIZED WITH DECOMPOSED GRANITE. REMAINING DISTURBED AREAS SHALL BE STABILIZED WITH DECOMPOSED GRANITE UNLESS OTHERWISE INDICATED.

INSPECTION & CERTIFICATION

- PLANT IDENTIFICATION TAGS MUST BE ATTACHED TO PLANTS OR STAKED WITH THE PLANTING BED UNTIL INITIAL INSPECTION BY THE PLAN PREPARER/ARCHITECT.

- INSTALLATION INSPECTION: NOTIFY THE LANDSCAPE ARCHITECT/ARCHITECT OF THE INSTALLATION SCHEDULE SO THAT THE REQUIRED INSPECTION(S) CAN BE ARRANGED.

MAINTENANCE & GUARANTEE

- PLANT ESTABLISHMENT AND MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM SUBSTANTIAL COMPLETION. CONTRACTOR SHALL SUBMIT A PROPOSED MAINTENANCE SCHEDULE TO THE OWNER & LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO COMPLETION OF THE PLANT INSTALLATION.

- CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE YEAR AFTER INSTALLATION IS COMPLETE AND APPROVED.

- MAINTENANCE SHALL CONSIST OF WATERING, WEEDING, PRUNING, RESTORING PLANT SAUCERS, RESETTING PLANTS TO PROPER GRADES OR VERTICAL POSITION, ADJUSTING OR REPAIRING TREE STABILIZATION DEVICES, MONITORING AND TREATMENT OF DISEASE/INSECT INFESTATION AND PERFORMING OTHER OPERATIONS AS REQUIRED TO ESTABLISH HEALTHY, VIABLE PLANTS.

- PROVIDE WATER AS NEEDED TO SUPPLEMENT IRRIGATION DURING THE MAINTENANCE PERIOD. WATER TREES AND SHRUBS DEEPLY AND THOROUGHLY TO PROMOTE DEEP ROOT GROWTH.

- PLANT MATERIALS WITH MORE THAN 25% OF THE CROWN DEAD, DIEBACK OF THE CENTRAL LEADER OR IN A DISEASED OR UNHEALTHY CONDITION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AS ORIGINALLY SPECIFIED.

- TREE STAKES, GUYS AND WIRES MUST BE REMOVED AT THE END OF ONE YEAR.

- PRIOR TO FINAL INSPECTION, REPLENISH STONE MULCH TO BRING IT LEVEL WITH THE TOP OF LANDSCAPE EDGING AND REGRADE AS NEEDED TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING.

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: KKG
DRAWN BY: KKG
CHECKED BY: SHP
DATE: 05/07/2020

STV Incorporated
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OmniTrans

PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
LANDSCAPE -
PLANTING NOTES

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO L-502
SHEET NO 24 OF 30

## HARDSCAPE SCHEDULE

| KEY | QTY | PRODUCT/DESCRIPTION | SIZE | FINISH COLOR | MANUFACTURER | MFG INFORMATION/CONTACT INFO | LEAD TIME | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| H-01 | AS SHOWN | MEXICAN BEACH PEBBLE | 1" - 2" | CHARCOAL | SOUTHWEST BOULDER & STONE | WWW.SOUTHWESTBOULDER.COM | | |
| H-02 | AS SHOWN | MEXICAN BEACH PEBBLE | 6" - 9" | CHARCOAL | SOUTHWEST BOULDER & STONE | WWW.SOUTHWESTBOULDER.COM | | |
| H-03 | AS SHOWN | DECOMPOSED GRANITE | N/A | GRAPHITE GRAY | SOUTHWEST BOULDER & STONE | WWW.SOUTHWESTBOULDER.COM | | |
| H-04 | AS SHOWN | BOULDERS | 3' X 5' | CARBON FROST | SOUTHWEST BOULDER & STONE | WWW.SOUTHWESTBOULDER.COM | | ARCHITECT/OWNER TO APPROVE SELECTION OF BOULDERS. |
| H-05 | AS SHOWN | ALUMINUM LANDSCAPE EDGING | $\frac{3}{16}$" X 8" | BLACK ANODIZED | SURE-LOC ALUMINUM COMPANY | WWW.SURELOCEDGING.COM | | OR APPROVED EQUAL. INSTALLATION TO BE COMPLETED PER MFG'S SPECIFICATIONS. |

## PLANT SCHEDULE (*)

| KEY | QTY | BOTANICAL NAME | COMMON NAME | NATIVE | SIZE | ROOT | SPACING | ATTRIBUTES | BLOOM TIME | WATER USAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| DECIDUOUS TREES | | | | | | | | | | |
| PC | 3 | Prosopis chilensis | Thornless Chilean Mesquite | N | 10' H | 36" BOX | AS SHOWN | Provide specimen trees of similar form and size. Provide multi-stem form (3-4 stems). Fast growing deciduous tree with deep green foliage and multi-stemmed trunk. | Spring | 2 |
| SHRUBS | | | | | | | | | | |
| Clj | 22 | Callistemon viminalis 'Little John' | Little John Dwarf Bottlebush | Y | 4' | #5 CONT | 6' O.C. | Evergreen shrub with pale bluish-green leaves and dark scarlet flowers. | Winter-Spring | 2 |
| Ld | 5 | Lavandula dentata var. candicans | French Lavender | Y | 3' | #5 CONT | 4.5' O.C. | Dense, rounded shrub with narrow green leavex and blue-purple flowers | Spring | 2 |
| Ro | 17 | Rosmarinus officinalis 'Prostratus' | Creeping Rosemary | Y | 2' | #5 CONT | 5' O.C. | Low growing evergreen shrub. Well suited for planting on slopes. | Winter | 2 |
| Sl | 17 | Salvia leucantha 'Midnight' | Midnight Mexican Bush Sage | Y | 3' | #5 CONT | 5' O.C. | Olive-gree foliage with purple flowers and stems. | Summer-Fall | 2 |
| Swg | 13 | Salvia clevelandii 'Winnifred Gilman' | Winifred Gilman Sage | Y | 3' | #5 CONT | 5' O.C. | Evergreen pale-green foliage. Fragarant leaves and flowers. Blue flowers. | Mid-Spring | 1 |
| HERBACEOUS PLANTS | | | | | | | | | | |
| am | 16 | Achillea 'Moonshine' | Moonshine Yarrow | Y | N/A | #3 CONT | 3' O.C. | Gray-green foliage. Bright yellow flowers. | Mid-Spring - Summer | 2 |
| ec | 15 | Eilobium canum | California Fuchsia | Y | N/A | #3 CONT | 3' O.C. | Low growing perennial with gray-green leaves. Orange-red flowers. | Mid-Summer - Fall | 1 |
| hp | 14 | Hesperaloe parviflora 'Pink Parade' | Pink Parade Red Yucca | Y | N/A | #3 CONT | 5' O.C. | Evergreen foliage with coral-red flowers. | Spring - Summer | 1 |
| kv | 9 | Kniphofia uvaria 'Christmas Cheer' | Christmas Cheer Red Hot Poker | Y | N/A | #3 CONT | 3' O.C. | Clumping perennial with dramatic red flower spikes. | Late Fall | 3 |
| pa | 31 | Perovskia atriplicifolia 'Little Spire' | Little Spire Russian Sage | Y | N/A | #3 CONT | 3' O.C. | Pale green leaves produce a soft color and texture. Small lavendar-blue flowers. | Late Spring - Summer | 3 |
| vl | 13 | Verbena lilacina' De La Mina' | De La Mina Verbena | Y | N/A | #3 CONT | 3' O.C. | Attracts butterflies. Deep purple flowers. | Spring - Summer | 2 |

Water Usage: 1 - Low, 2 - Low, 3 - Moderate, 4 - High, 5 - High (*)

(*) Source: Chino Basin Water Conservation District, www.inlandvalleygardenplanner.org

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DATE: 05/07/2020

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OmniTrans

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WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
LANDSCAPE -
PLANT AND HARDSCAPE SCHEDULES

PROJECT NO 4017599
SCALE AS NOTED
DRAWING NO L-503
SHEET NO 25 OF 30

## LEGEND DESCRIPTION

V — SANITARY VENT PIPING
IW — INDUSTRIAL WASTE PIPING
PIPE TURNING DOWN
PIPE TURNING UP
CONNECTION FROM ABOVE
CONNECTION TO BELOW
PIPE SIZE REDUCER
TRENCH DRAIN
FCO — FLOOR CLEANOUT
VTR — VENT THRU ROOF
EW / 1 — EQUIPMENT NAME / EQUIPMENT NUMBER
1 / PC-01 — DETAIL NUMBER / DRAWING NUMBER

## ABBREVIATIONS

| | |
|---|---|
| AC | AIR COMPRESSOR |
| ACD | ACCESS DOOR |
| AD | AIR DRYER, AREA DRAIN |
| AFF | ABOVE FINISHED FLOOR |
| AFG | ABOVE FINISHED GROUND |
| ANSI | AMERICAN NATIONAL STANDARDS INSTITUTE |
| ASTM | AMERICAN SOCIETY FOR TESTING MATERIAL |
| ATF | AUTOMATIC TRANSMISSION FLUID |
| ATP | AUTOMATIC TRAP PRIMER |
| BET | BETWEEN |
| BFP | BACKFLOW PREVENTER |
| BH | BOX HYDRANT |
| BHP | BRAKE HORSEPOWER |
| BLDG | BUILDING |
| CA | COMPRESSED AIR |
| CAP | CAPACITY |
| CB | CATCH BASIN |
| CLG | CEILING |
| CO | CLEAN OUT, COMPRESSOR OIL |
| CONC | CONCRETE |
| COND | CONDENSATE, CONDENSING, CONDITIONED |
| CONN | CONNECT CONNECTED |
| CONT | CONTINUATION |
| CW | COLD WATER |
| DD | DECK DRAIN |
| DIA | DIAMETER |
| DL | DEVELOPED LENGTH |
| DN | DOWN |
| DR | DRAIN |
| DS | DOWN SPOUT |
| DTR | DOWN THRU ROOF |
| DWG | DRAWING |
| EC | ENGINE COOLANT |
| ELEV | ELEVATION |
| EO1 | ENGINE OIL - 15W/40 |
| EO2 | ENGINE OIL - 40WT |
| EW | EMERGENCY EYE WASH |
| EWH | ELECTRIC WATER HEATER |
| F | DEGREES FAHRENHEIT |
| FCO | FLOOR CLEANOUT |
| FF | FINISH FLOOR |
| FLR | FLOOR |
| FS | FLOOR SINK |
| FU | FIXTURE UNIT |
| G | LOW PRESSURE NATURAL GAS |
| GA | GAUGE |
| GAL | GALLON(S) |
| GM | GAS METER |
| GO | GEAR OIL |
| GPH | GALLONS PER HOUR |
| GPM | GALLONS PER MINUTE |
| GV | GATE VALVE |
| HI | HIGH |
| HOA | HAND-OFF-AUTO |
| HP | HORSE POWER |
| HVA | HOSE VALVE, ANGLE |
| HW | HOT WATER |
| HWS | HOT WATER SUPPLY |
| IE | INVERT ELEVATION |
| INSUL | INSULATION |
| IND | INDUSTRIAL |
| INV | INVERT |
| IPS | IRON PIPE SIZE |
| KS | KITCHEN SINK |
| L | LAVATORY |
| LA | LAVATORY ACCESSIBLE |
| LPG | LOW PRESSURE GAS |
| LR | LONG RADIUS |
| LVL | LEVEL |
| LVPS | LOW VOLTAGE POWER SUPPLY |
| MAV | MANUAL AIR VENT |
| MAX | MAXIMUM |
| MBH | THOUSANDS BTU PER HOUR |
| MIN | MINIMUM |
| MH | MANHOLE |
| MP | MEDIUM PRESSURE NATURAL GAS |
| MS | MOP SINK |
| MO | MOTOR OIL |
| N | NEW |
| NC | NORMALLY CLOSED |
| NIC | NOT IN CONTRACT |
| NO | NORMALLY OPEN |
| NTS | NOT TO SCALE |
| OD | OVERFLOW DRAIN |
| PCO | PLUG CLEANOUT |
| PH | PHASE |
| PLUMB | PLUMBING |
| PRV | PRESSURE REDUCING VALVE, PRESSURE REGULATOR |
| PS | POSITION SWITCH |
| PSI | POUNDS PER SQUARE INCH |
| PSIG | POUNDS PER SQUARE INCH GAUGE |
| PT | PRESSURE TRANSDUCER |
| RD | ROOF DRAIN |
| RM | ROOM |
| RPZ | REDUCED PRESSURE ZONE |
| REQ'D | REQUIRED |
| SAN | SANITARY |
| SF | SQUARE FEET |
| SD | STORM DRAIN |
| SOV | SHUT-OFF VALVE |
| SPWG | STATIC PRESSURE WATER GAUGE |
| SS | SANITARY |
| TD | TRENCH DRAIN |
| TDL | TOTAL DEVELOPED LENGTH |
| TEMP | TEMPERATURE |
| TO | TRANSMISSION OIL |
| TW | TEMPERED WATER |
| TYP | TYPICAL |
| UDG | UNDER GROUND |
| UR | URINAL |
| URA | URINAL ACCESSIBLE |
| US | UTILITY SINK |
| UTR | UP TO ROOF |
| V | VENT, VOLT |
| VB | VACUUM BREAKER |
| VEL | VELOCITY |
| VLV | VALVE |
| VTR | VENT THROUGH ROOF |
| W | WASTE |
| W/ | WITH |
| WCA | WATER CLOSET ACCESSIBLE |
| WCO | WALL CLEANOUT |
| WG | WATER GAUGE |
| WH | WATER HEATER |
| WHA | WATER HAMMER ARRESTOR |

## PLUMBING FIXTURE SCHEDULE

| TAG NO. | DESCRIPTION | CONNECTION SIZE (IN) SUPPLY CW | SUPPLY HW | IND. WASTE | VENT | REMARKS |
|---|---|---|---|---|---|---|
| FCO 1 | FLOOR CLEANOUT: ZURN #Z1400 EXTRA HEAVY-DUTY ADJUSTABLE, DURA-COATED CAST IRON BODY WITH GAS AND WATERTIGHT ABS TAPERED THREAD PLUG AND ROUND SCORIATED CAST IRON EXTRA HEAVY DUTY SECURED TOP. | - | - | 4" | - | - |
| TD 1 | TRENCH DRAIN: ZURN #Z507 MEDIUM DUTY DRAIN, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, SEEPAGE PAN AND COMBINATION MEMBRANE FLASHING CLAMP AND FRAME FOR MEDIUM DUTY CAST IRON DEEP FLANGE SLOTTED GRATE. | - | - | 4" | 2" | DRAIN TO BE LOCATED AT BOTTOM OF CONCRETE TRENCH. FOR TRENCH GRATING INFORMATION, SEE CIVIL DRAWINGS. |

## CLARIFIER TANK SCHEDULE

| SYMBOL | LOCATION | SERVING | MANUFACTURER (OR APPROVED EQUAL) | MODEL | TYPE | CAPACITY (GPM) | TOTAL VOLUME (GALLONS) | SIZE LENGTH | SIZE WIDTH | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| CL 1 | SITE | FUEL FARE & VACUUM BLDG. WASH/STEAM BLDG. MAINTENANCE BLDG. | JENSEN PRECAST | KCL750 | CONCRETE | 75 | 750 | 8'-1" | 4'-0" | COMPLETE WITH CONCRETE EXTENSION RINGS, AND JENSEN PRECAST SAMPLE BOX MODEL 2432-Z W/ PIPE CONNECTORS OR APPROVED EQUAL. DESIGNED FOR H-20 TRAFFIC WHEEL LOAD. |

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: JM
DRAWN BY: JM
CHECKED BY: LY
DATE: 05/07/2020

REGISTERED PROFESSIONAL ENGINEER — LIU YANG — No. M32160 — Exp. 9-30-2018 — MECHANICAL — STATE OF CALIFORNIA

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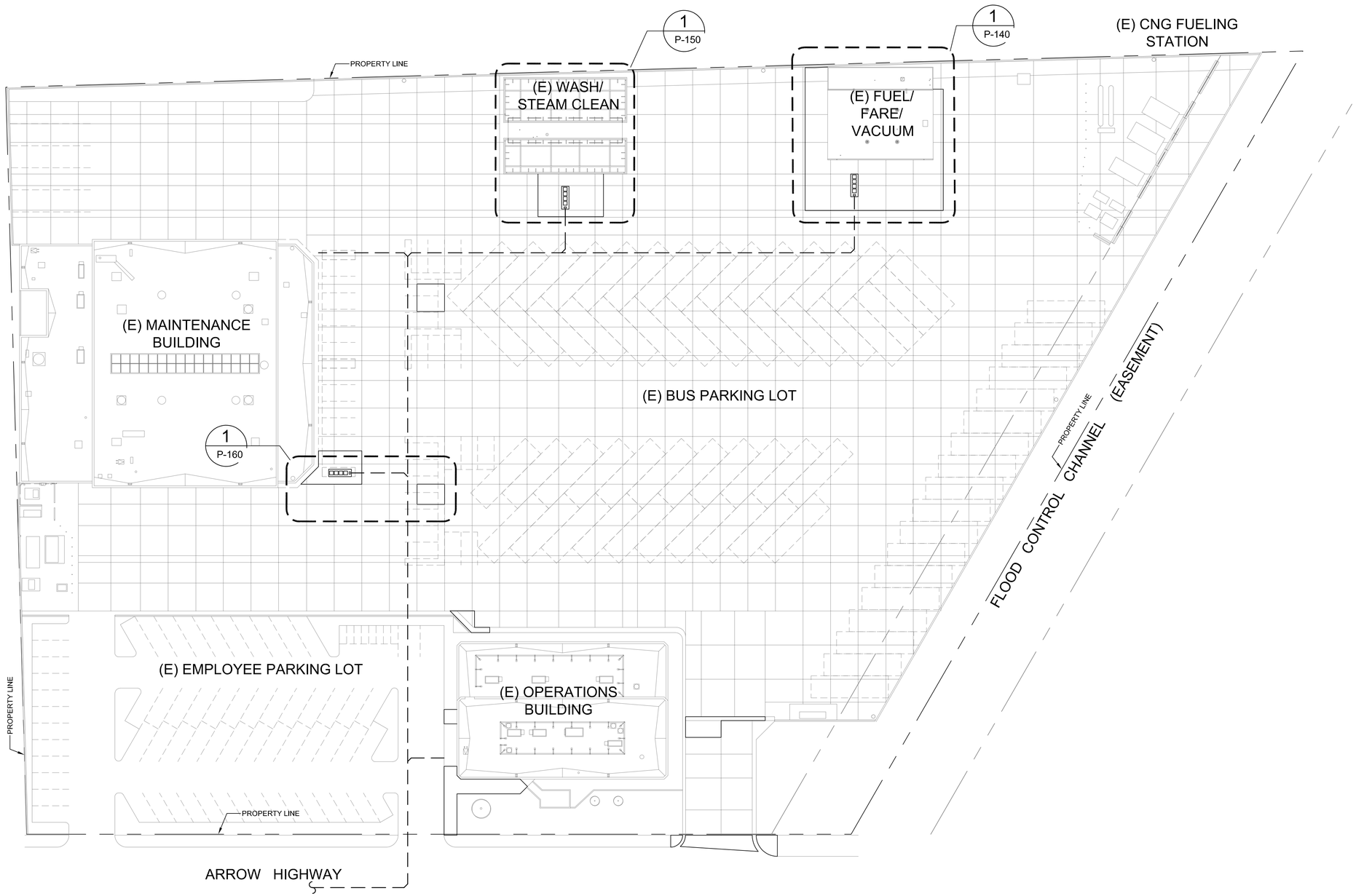
OmniTrans

PROJECT ADDRESS
WEST VALLEY VMF
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
PLUMBING LEGEND, NOTES, AND SCHEDULES

PROJECT NO 4017599
SCALE NONE
DRAWING NO P-001
SHEET NO 26 OF 30




GENERAL NOTES:

1 REFER TO CIVIL SITE PLAN AND PLUMBING PLANS FOR LOCATION OF SEWER LINES AND ASSOCIATED PIPES.

## SITE PLAN

1" = 30' - 0"

1
P-100

30 0 30 60

1" = 30'-0"

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: JM
DRAWN BY: JM
CHECKED BY: LY
DATE: 05/07/2020

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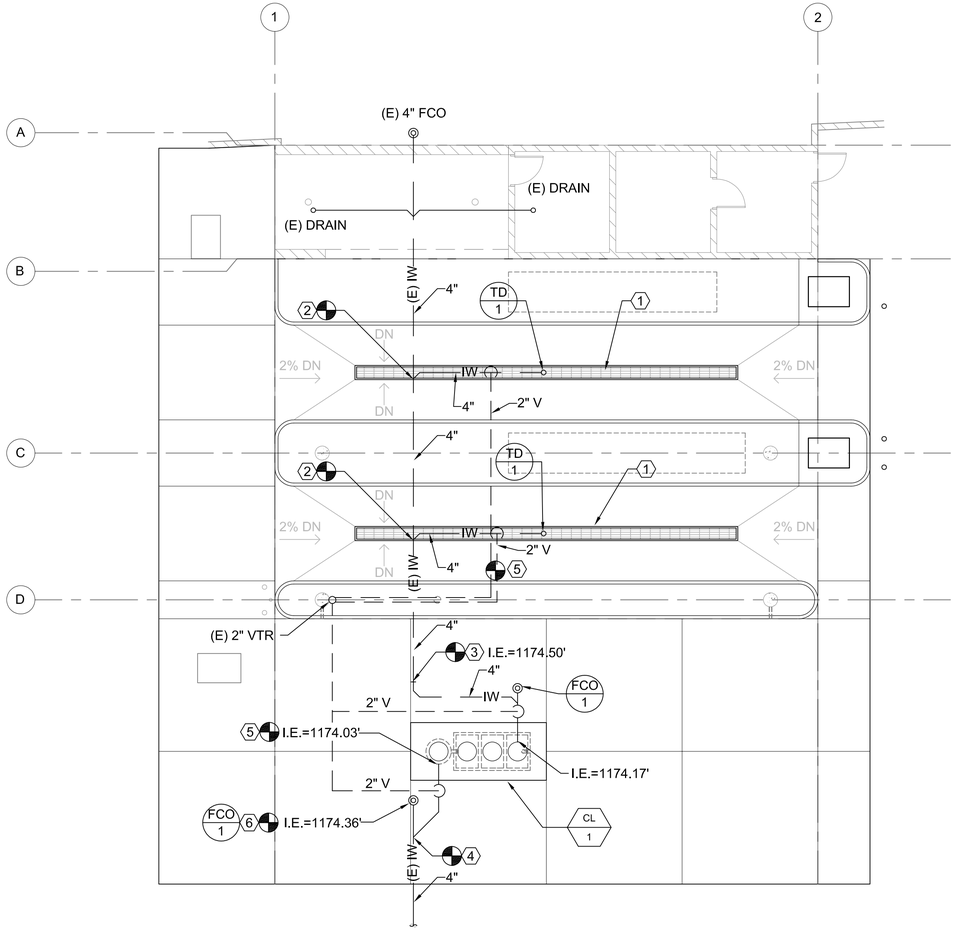
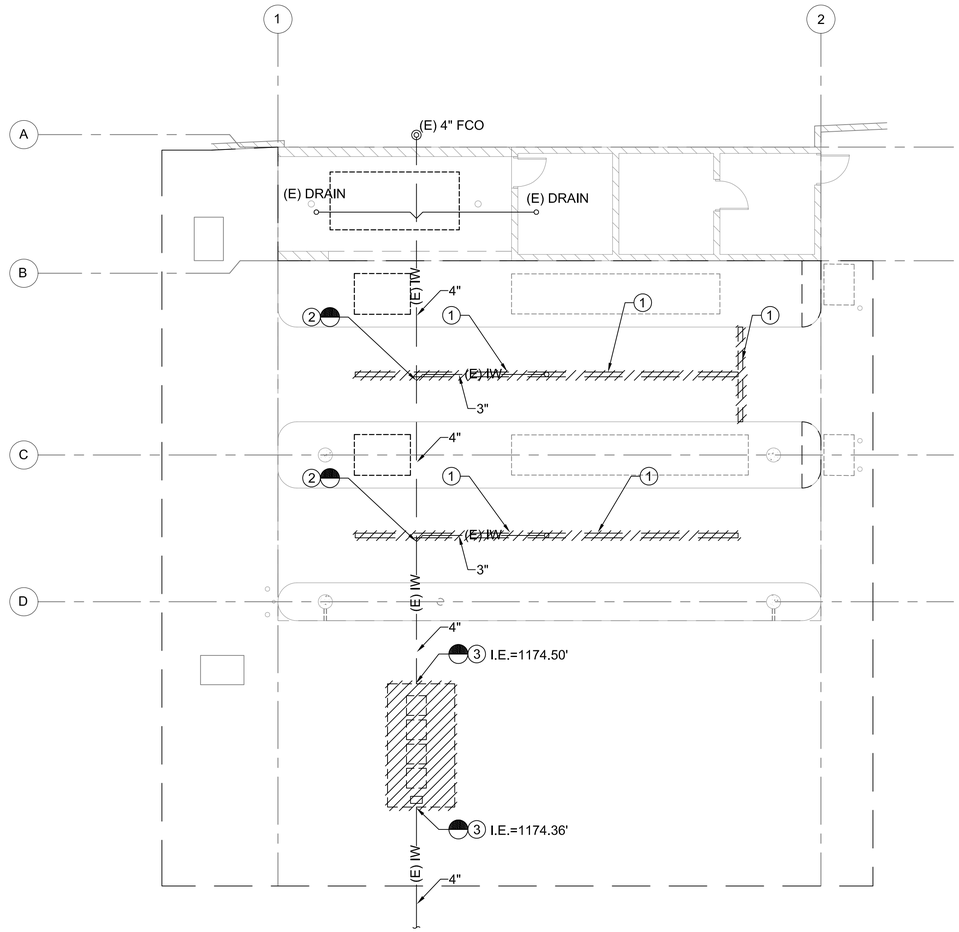
PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
PLUMBING SITE PLAN

PROJECT NO 4017599
SCALE 1" = 30' - 0"
DRAWING NO P-100
SHEET NO 27 OF 30




DEMOLITION KEYNOTES:

1. REMOVE (E) TRENCH GRATES, DRAINS, AND (E) IW PIPING.
2. REMOVE (E) 3" IW PIPING BRANCH BACK TO (E) 4" IW MAIN.
3. REMOVE (E) CLARIFIERAND SAMPLE BOX. CAP AND PREPARE (E) IW PIPING FOR RE-CONNECTION.

REMODEL KEYNOTES:

1. NEW TRENCH DRAINS AND GRATES IN PLACE. SEE CIVIL DWGS FOR DETAILS AND INFORMATION.
2. CONNECT NEW 4" IW PIPING TO (E) 4" IW MAIN.
3. PROVIDE AND INSTALL NEW CLARIFIER AND SAMPLE BOX. MAKE CONNECTIONS BETWEEN CAPPED PIPE END AND INLET OF CLARIFIER.
4. ADJUST OUTLET PIPING TO CONNECT TO (E) 4" IW MAIN.
5. RECONNECT TO (E) VENT LINE. VERIFY POC IN FIELD.
6. PROVIDE AND INSTALL NEW 4" FLOOR CLEANOUT.

## DEVELOPMENT PLAN - FUEL / SERVICE ISLAND

2 / P-140

1/8" = 1' - 0"

8 0 8 16

1/8"=1'-0"

## DEMOLITION PLAN - FUEL / SERVICE ISLAND

1 / P-140

1/8" = 1' - 0"

8 0 8 16

1/8"=1'-0"

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

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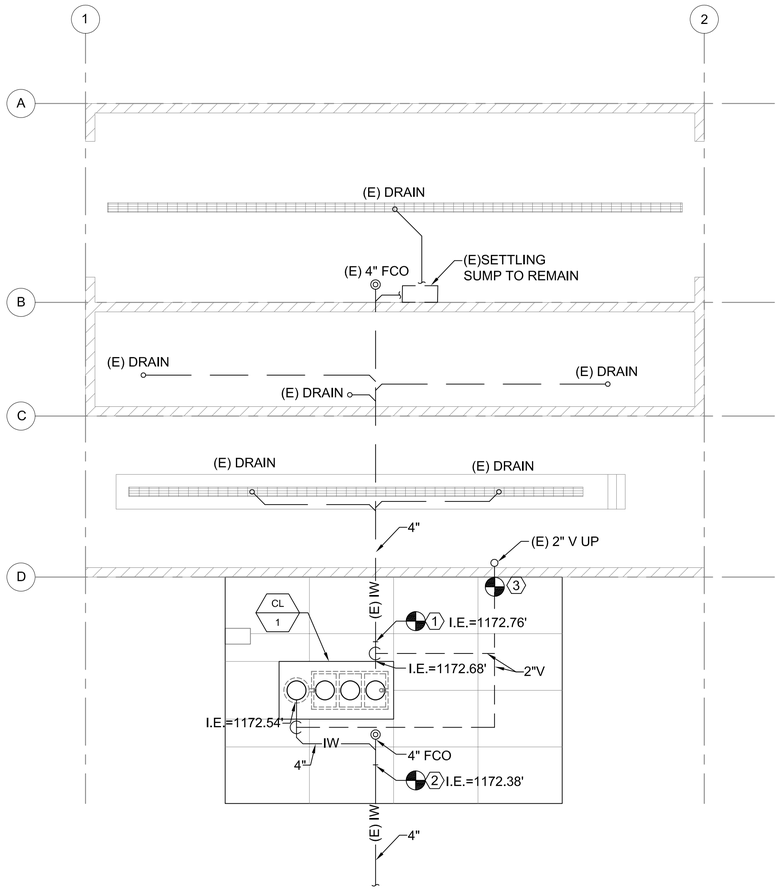
SHEET TITLE
PLUMBING PLANS
FUEL / SERVICE ISLAND

PROJECT NO 4017599
SCALE 1/8"=1'-0"
DRAWING NO P-140
SHEET NO 28 OF 30




## DEVELOPMENT PLAN - WASH / CLEAN BUILDING PLAN

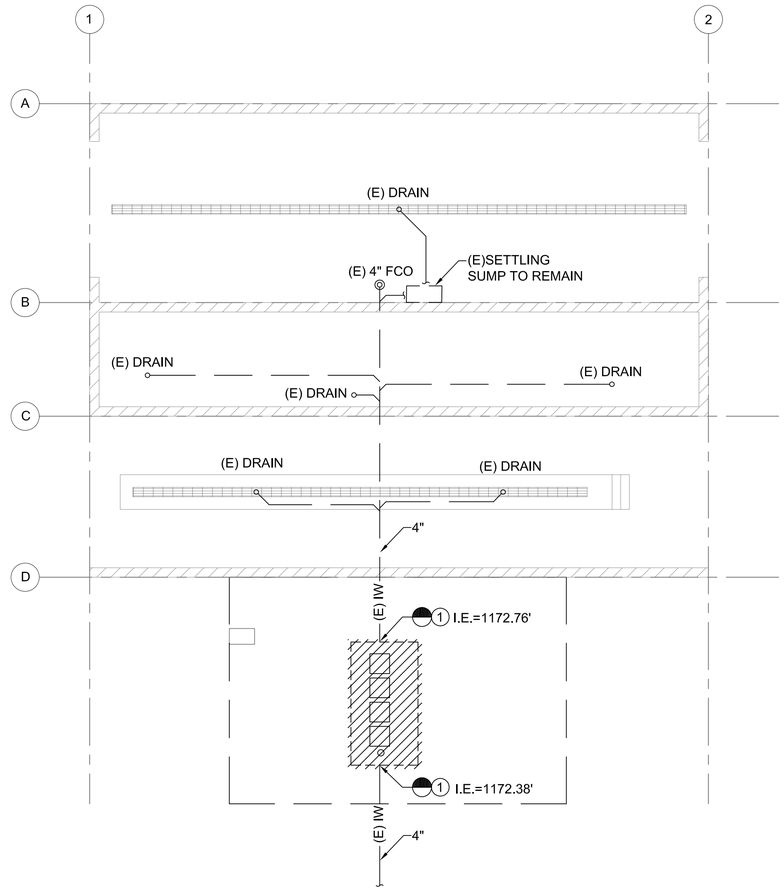
1/8" = 1' - 0"

2 P-150

N

8 0 8 16

1/8"=1'-0"




## DEMOLITION PLAN - WASH / CLEAN BUILDING PLAN

1/8" = 1' - 0"

1 P-150

N

8 0 8 16

1/8"=1'-0"

DEMOLITION KEYNOTES:

1. REMOVE (E) CLARIFIER AND SAMPLE BOX. CAP AND PREPARE (E) IW PIPING FOR RE-CONNECTION.

REMODEL KEYNOTES:

1. PROVIDE AND INSTALL NEW CLARIFIER AND SAMPLE BOX. MAKE CONNECTIONS BETWEEN CAPPED PIPE END AND INLET OF CLARIFIER.
2. ADJUST OUTLET PIPING TO CONNECT TO (E) 4" IW MAIN.
3. RECONNECT TO (E) VENT LINE. VERIFY POC IN FIELD.

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: JM
DRAWN BY: JM
CHECKED BY: LY
DATE: 05/07/2020

REGISTERED PROFESSIONAL ENGINEER — LIU YANG — Lic. M32100 Exp. 6-30-2018 — MECHANICAL — STATE OF CALIFORNIA

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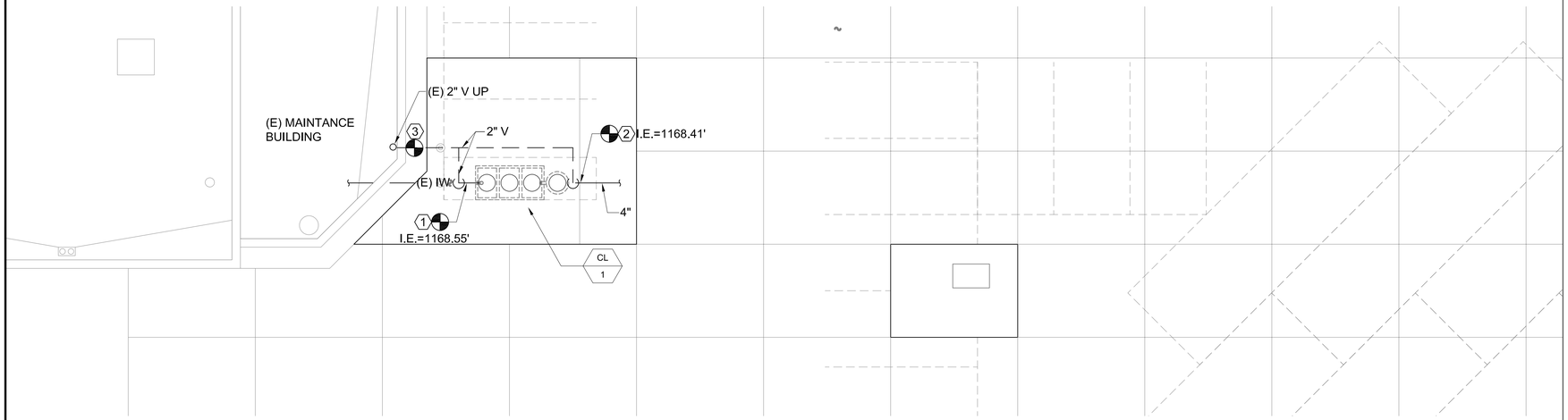
4748 ARROW HWY
MONTCLAIR, CA 91763

PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
PLUMBING PLANS
WASH/CLEAN BUILDING

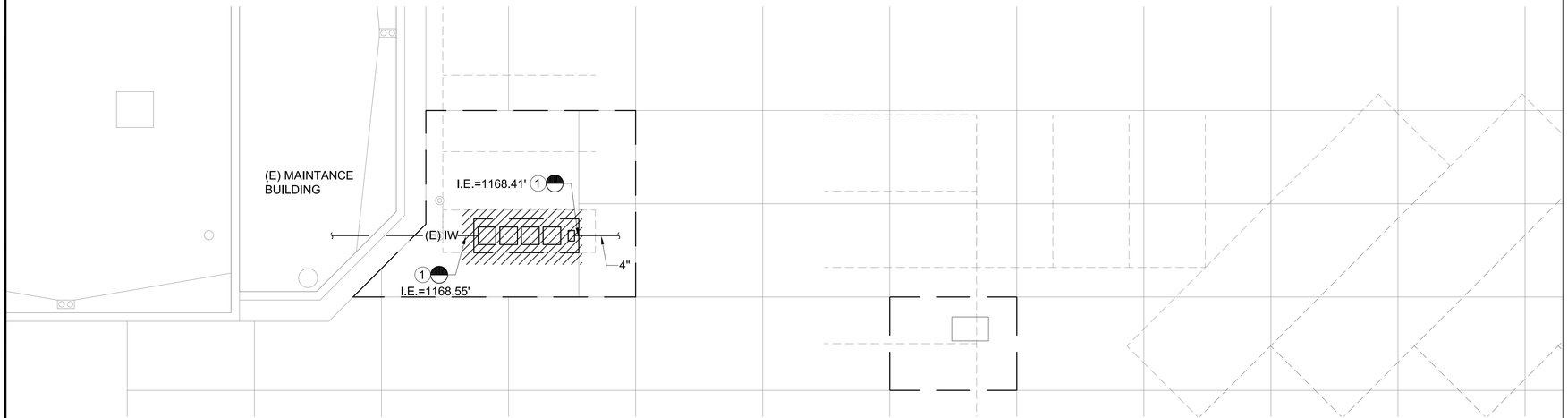
PROJECT NO 4017599
SCALE 1/8"=1'-0"
DRAWING NO P-150
SHEET NO 29 OF 30




## DEVELOPMENT PLAN - CLARIFIER AT EAST SIDE OF MAINTENCE BUILDING

2
P-160

1/8" = 1' - 0"




## DEMOLITION PLAN - CLARIFIER AT EAST SIDE OF MAINTENCE BUILDING

1
P-160

1/8" = 1' - 0"

DEMOLITION KEYNOTES:

1. REMOVE (E) CLARIFIER AND SAMPLE BOX. CAP AND PREPARE (E) IW PIPING FOR RE-CONNECTION.

REMODEL KEYNOTES:

1. PROVIDE AND INSTALL NEW CLARIFIER AND SAMPLE BOX. MAKE CONNECTIONS BETWEEN CAPPED PIPE END AND INLET OF CLARIFIER.
2. ADJUST OUTLET PIPING TO CONNECT TO (E) 4" IW MAIN.
3. RECONNECT TO (E) VENT LINE. VERIFY POC IN FIELD.

8 0 8 16
1/8"=1'-0"

N

| REV | DATE | BY | DESCRIPTION |
|---|---|---|---|
| 3 | 05/07/20 | JDY | CONFORMED SET |

DESIGNED BY: JM
DRAWN BY: JM
CHECKED BY: LY
DATE: 05/07/2020

REGISTERED PROFESSIONAL ENGINEER LIU YANG Lic. M32160 Exp. 9-30-2018 MECHANICAL STATE OF CALIFORNIA

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PROJECT TITLE
CONCRETE REPAIRS WV

SHEET TITLE
PLUMBING PLANS - CLARIFIER REPLACEMENT AT PARKING STALLS

PROJECT NO 4017599
SCALE 1/8"=1'-0"
DRAWING NO P-160
SHEET NO 30 OF 30