

**CITY OF IMPERIAL**

**“AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT”**

***Bid No. 2024-07***

**ADDENDUM No. 2**

08/07/2024

TO THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

Bidders are advised that the contract documents and specifications for the above referenced contract are hereby amended in the following manner and the following manner only:

This Addendum answers bidder's questions:

1. Is it possible to postpone the BID opening date to allow contractors to work a little longer on the proposals?

**Yes; the Potential Respondents are advised that the new Bid Opening date is as follows: 3:00 P.M. on Wednesday, August 21, 2024.**

2. Is there any conflict with existing vegetation?

**No. However, if the contractor encounters any conflicts with existing vegetation, its removal should be included in the Bid Item No. 8 “Clearing and Grubbing”.**

3. On Sheet 30 of the Improvement Plans, there is a Booster Pump Note, stating that contractor shall provide a Bid alternate for the Booster Pump Assembly. If there is a need for a Booster Pump, it should be included in the Bid Sheet as a separate Item. Please advise.

**The alternate Booster Pump is item # 80 of the Revised Proposal Bid Sheet.**

4. Is there an Engineer's Cost Estimate for this Project?

**The Engineer's Cost Estimate for this project is of \$6,400,000.00.**

5. The specifications mention the use of recycled Class II Base, will the conformity of the material be held to contract compliance or operating range?

**Contractor may utilize recycled Class II Base as long as meets Caltrans specifications.**

6. Are there any sites which the City can provide to store material?

**The Water Plant might be available for storing some construction materials upon prior coordination with Public Services Department, which is mandatory.**

7. Will the contract be awarded to one primary contractor?

**Yes, the contract will be awarded to only one primary contractor.**

8. What is the DBE percentage goal of this project?

**The DBE Percentage Goal is 20%.**

9. Is this project requiring state and federal wages?

**The project calls for California Prevailing Wages.**

10. Who's funding this project?

**ARPA Funds and California Department of Housing and Community Development (HCD).**

11. When does traffic control must be submitted?

**Traffic Control Plans must be submitted, for review and comments, or approval if applies, 10 days prior to the commencement of works.**

12. Does the school need to be notified before works on Worthington Road/Barioni Street?

**Yes, notice to all adjacent schools must be given at least 5 working days prior to the commencement of works.**

13. With the purpose of facilitating the correct evaluation of the project for construction cost purposes, minor changes in the BID documents were made, including the revision of the Proposal Bid Sheet. Therefore, the Potential Respondents are instructed to use the REVISED Bid Documents and Proposal Bid Sheet dated July 23, 2024 (Rev 2) identified as Exhibit "A" which are attached herewith.

Please acknowledge receipt of this addendum by signing and returning a copy of the Acceptance of Notice by fax to (760) 355-4718. Each bidder must acknowledge receipt of this addendum in the noted space below and on the signature page of the Bid Sheet Proposal.

**Include a copy of this addendum with your Bid Proposal Package. It is the Contractor's responsibility to notify its sub-contractors about changes based all addendums.**



Date 8/8/24

By: Othon Mora  
Community Development Director

**ACCEPTANCE OF NOTICE**

Receipt of the ADDENDUM No. 2 is hereby acknowledged by

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

\_\_\_\_\_  
Date

By \_\_\_\_\_  
Type or Print Name & Signature

\_\_\_\_\_  
Title

**EXHIBIT "A"**

**CITY OF IMPERIAL**  
**Imperial, California**

CONTRACT DOCUMENTS AND  
SPECIFICATIONS FOR

**AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT**

**BID NO. 2024-07**

CITY OF IMPERIAL  
COMMUNITY DEVELOPMENT DEPARTMENT  
400 South Imperial Avenue  
Suite 101  
Imperial, California 92251  
(760) 355-1152

**July 23, 2024 (Rev 2)**

# CITY OF IMPERIAL

## TABLE OF CONTENTS

### AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1 PROJECT

BID NO. 2024-07

|   |    |
|---|----|
| TABLE OF CONTENTS .....   | 2  |
| NOTICE INVITING SEALED BIDS .....   | 10 |
| INSTRUCTIONS TO BIDDERS .....   | 12 |
| BID PROPOSAL DOCUMENTS .....  | 42 |
| BID PROPOSAL.....   | 43 |
| BIDDER'S INFORMATION.....   | 45 |
| CONTRACTOR'S LICENSING STATEMENT.....   | 46 |
| LIST OF SUBCONTRACTORS.....   | 47 |
| REFERENCES.....   | 48 |
| DESIGNATION OF SURETIES.....  | 48 |
| BID BOND .....  | 49 |
| NON-COLLUSION AFFIDAVIT.....  | 51 |
| DESIGNATION/CERTIFICATION OF ASPHALT-RUBBER BINDER APPLICATOR(S) .....                                | 58 |
| PROPOSAL BID SHEET.....   | 61 |
| VERIFICATION OF COMPLIANCE WITH ECONOMIC SANCTIONS IN RESPONSE TO<br>RUSSIA'S ACTIONS IN UKRAINE..... | 68 |
| BID PROPOSAL.....   | 69 |
| CONTRACT DOCUMENTS .....  | 70 |
| CONSTRUCTION SERVICES AGREEMENT.....  | 71 |
| CONTRACT PERFORMANCE BOND.....  | 84 |
| <b>PAYMENT BOND</b> .....   | 87 |
| GENERAL LIABILITY ENDORSEMENT .....   | 90 |
| AUTOMOBILE LIABILITY ENDORSEMENT.....   | 93 |

|  |            |
|--|------------|
| WORKER'S COMPENSATION/EMPLOYERS LIABILITY ENDORSEMENT.....   | 96         |
| GENERAL SPECIFICATIONS.....  | 98         |
| SCOPE OF WORK .....  | 98         |
| LOCATION OF WORK .....   | 98         |
| TIME OF COMPLETION .....   | 98         |
| TRAFFIC REQUIREMENTS .....   | 98         |
| UTILITY REQUIREMENTS.....  | 98         |
| FLOW AND ACCEPTANCE OF WATER .....   | 99         |
| REMOVAL OF WATER / DEWATERING .....  | 99         |
| TRENCH EXCAVATION AND SHORING.....   | 100        |
| STANDARD SPECIFICATIONS .....  | 100        |
| WAGE RATES AND LABOR CODE REQUIREMENTS .....   | 101        |
| PART I - GENERAL PROVISIONS.....   | 102        |
| SECTION 1 - TERMS, DEFINITIONS, ABBREVIATIONS AND SYMBOLS.....                                       | 102        |
| SECTION 2 - SCOPE AND CONTROL OF THE WORK .....  | 102        |
| SECTION 3 - CHANGES IN WORK .....  | 103        |
| SECTION 4 - CONTROL OF MATERIALS .....   | 104        |
| SECTION 5 - UTILITIES.....   | 104        |
| SECTION 6 - PROSECUTION, PROGRESS, AND ACCEPTANCE OF THE WORK.....                                   | 104        |
| SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR.....  | 105        |
| SECTION 8 - MEASUREMENT AND PAYMENT.....   | 111        |
| PART II – CONSTRUCTION MATERIALS .....   | 112        |
| PART III – STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION<br>("GREENBOOK") 2024 Edition ..... | 112        |
| <b>1.0 GENERAL.....</b>  | <b>113</b> |
| <b>2.0 MOBILIZATION/DEMOBILIZATION.....</b>  | <b>113</b> |
| <b>3.0 PROJECT IDENTIFICATION SIGNS .....</b>  | <b>114</b> |
| <b>4.0 STORMWATER MANAGEMENT AND DISCHARGE CONTROL .....</b>   | <b>114</b> |
| <b>4.1 Stormwater Management and Discharge Control .....</b>   | <b>114</b> |
| <b>4.1.1 General.....</b>  | <b>114</b> |
| <b>4.1.2 Dust Control.....</b>   | <b>115</b> |

|       |   |     |
|-------|---|-----|
| 4.1.3 | Water Control .....   | 115 |
| 4.1.4 | Pollution Control.....  | 116 |
| 4.1.5 | Erosion Control .....   | 117 |
| 4.1.6 | National Pollutant Discharge Elimination System (NPDES) .....           | 118 |
| 5.0   | CONSTRUCTION STAKING .....  | 119 |
| 6.0   | SURVEY MONUMENT PRESERVATION.....                                       | 120 |
| 7.0   | TEMPORARY TRAFFIC CONTROL.....  | 121 |
| 8.0   | MAINTANCE AND PROTECTION OF EXISTING IMPROVEMENTS.....                  | 126 |
| 9.0   | TREE REMOVAL .....  | 127 |
| 10.0  | DEMOLITION, CLEARING AND GRUBBING .....                                 | 127 |
| 11.0  | EARTHWORK.....  | 131 |
| 12.0  | CLASS 2 AGGREGATE BASE .....  | 134 |
| 13.0  | ASPHALT CONCRETE .....  | 135 |
| 13.1  | General.....  | 135 |
| 13.2  | Tack Coat .....   | 137 |
| 13.3  | Stress Relieving Pavement Mat (Engineering Paving Mat Interlayer) ..... | 137 |
| 13.4  | Hot Mix Asphalt Dike.....   | 140 |
| 14.0  | COLD MILL.....  | 140 |
| 15.0  | SLURRY SEAL.....  | 141 |
| 16.0  | ADJUST MANHOLES AND UTILITIES TO GRADE.....                             | 141 |
| 17.0  | WATER SERVICE .....   | 142 |
| 18.0  | PCC SURFACE IMPROVEMENTS.....   | 143 |
| 18.1  | General.....  | 143 |
| 19.0  | TRENCH EXCAVATION, PIPE SUBGRADE, AND TRENCH BACKFILL .....             | 145 |
| 20.0  | RCP STORM DRAIN .....   | 147 |
| 21.0  | REINFORCED CONCRETE STRUCTURES .....                                    | 148 |
| 22.0  | REINFORCED CONCRETE UNDERDRAIN AND RIP RAP PAD.....                     | 150 |
| 23.0  | TRAFFIC STRIPING, PAVEMENT MARKERS, AND ROADSIDE SIGN .....             | 152 |
| 23.1  | General.....  | 152 |
| 23.2  | Thermoplastic Traffic Striping and Pavement Markings .....              | 152 |
| 23.3  | Raised Pavement Markers.....  | 153 |

|       |   |                                     |
|-------|---|-------------------------------------|
| 23.4  | Traffic Signs .....   | 153                                 |
| 23.5  | Traffic Sign Size .....   | 153                                 |
| 23.6  | Break-Away Perforated Square Tube Steel Support System .....          | 154                                 |
| 23.7  | Foundations .....   | 154                                 |
| 24.0  | <b>RECTANGULAR RAPID FLASHING BEACON (RRFB) ASSEMBLY SYSTEM .....</b> | <b>155</b>                          |
| 24.1  | General.....  | 155                                 |
| 25.0  | <b>PEDESTRIAN HYBRID BEACON .....</b>                                 | <b>158</b>                          |
| 25.1  | General.....  | 158                                 |
| 25.2  | Foundations .....   | 159                                 |
| 25.3  | Traffic Signal Standards .....  | 159                                 |
| 25.4  | Vehicle Signal Faces, Signal Heads, and Mounting Assemblies .....     | 160                                 |
| 25.5  | Pedestrian Signal Head and Housing .....                              | 161                                 |
| 25.6  | Pedestrian Push Button System .....                                   | 162                                 |
| 25.7  | Safety Lighting .....   | 162                                 |
| 25.8  | Conduit.....  | 163                                 |
| 25.9  | Conductors and Wiring.....  | 163                                 |
| 25.10 | Bonding and Grounding .....   | 164                                 |
| 25.11 | Pull Boxes .....  | 164                                 |
| 25.12 | Controller Cabinet .....  | 165                                 |
| 25.13 | Battery Backup System Cabinets.....                                   | 167                                 |
| 25.14 | Emergency Vehicle Preemption .....                                    | 172                                 |
| 25.15 | Electrical Service Pedestal .....                                     | 173                                 |
| 25.16 | Wireless Radio System (Signal Interconnect) .....                     | 174                                 |
| 25.17 | Ethernet Switch .....   | 177                                 |
| 25.18 | Advanced Solar-Powered Flashing Beacon Assembly.....                  | 178                                 |
| 25.19 | Blank-Out Signs.....  | 180                                 |
| 25.20 | Traffic Signs and Components .....                                    | 182                                 |
| 26.0  | <b>LANDSCAPE AND IRRIGATION.....</b>                                  | <b>183</b>                          |
| 26.1  | General.....  | 183                                 |
| 26.2  | General.....  | <b>Error! Bookmark not defined.</b> |
| 26.3  | Plants.....   | 183                                 |



|                |   |     |
|----------------|---|-----|
| <b>26.3.1</b>  | <b>Submittals</b> .....   | 183 |
| <b>26.3.2</b>  | <b>Quality Assurance</b> .....  | 185 |
| <b>26.3.3</b>  | <b>Delivery, Storage, and Handling</b> .....  | 188 |
| <b>26.3.4</b>  | <b>Project Conditions</b> .....   | 189 |
| <b>26.3.5</b>  | <b>Warranty</b> .....   | 190 |
| <b>26.3.6</b>  | <b>Maintenance Service</b> .....  | 192 |
| <b>26.3.7</b>  | <b>Rejection and Substitution</b> .....   | 192 |
| <b>26.3.8</b>  | <b>Site Observation</b> .....   | 192 |
| <b>26.4</b>    | <b>Plant Products</b> .....   | 193 |
| <b>26.4.1</b>  | <b>Plant Material</b> .....   | 193 |
| <b>26.4.2</b>  | <b>Inorganic Soil Amendments</b> .....  | 195 |
| <b>26.4.4</b>  | <b>Fertilizer (For bidding purposes only – follow recommendations from soil test results)</b> ..... | 197 |
| <b>26.4.5</b>  | <b>Mycorrhizal Soil Conditioner and Humid Acids</b> .....   | 198 |
| <b>26.4.6</b>  | <b>Planting Soils</b> .....   | 199 |
| <b>26.4.7</b>  | <b>Mulches</b> .....  | 201 |
| <b>26.4.8</b>  | <b>Filter Fabric</b> .....  | 201 |
| <b>26.4.9</b>  | <b>Pesticides</b> .....   | 201 |
| <b>26.4.10</b> | <b>Tree Stabilization Materials</b> .....   | 202 |
| <b>26.4.11</b> | <b>Aeration Tubes</b> .....   | 202 |
| <b>26.4.12</b> | <b>Root Barrier</b> .....   | 203 |
| <b>26.4.13</b> | <b>Miscellaneous Products</b> .....   | 203 |
| <b>26.5</b>    | <b>Execution</b> .....  | 204 |
| <b>26.5.1</b>  | <b>Examination</b> .....  | 204 |
| <b>26.5.2</b>  | <b>Soil Test</b> .....  | 204 |
| <b>26.5.3</b>  | <b>Weed Control</b> .....   | 205 |
| <b>26.5.4</b>  | <b>Preparation and Layout</b> .....   | 205 |
| <b>26.5.5</b>  | <b>Protection of Existing Plant Material</b> .....  | 206 |
| <b>26.5.6</b>  | <b>Soil Preparation</b> .....   | 206 |
| <b>26.5.7</b>  | <b>Pre Plant Weed Control</b> .....   | 207 |
| <b>26.5.8</b>  | <b>Excavation for Trees and Shrubs</b> .....  | 208 |

|         |   |     |
|---------|---|-----|
| 26.5.9  | Percolation Testing .....                         | 209 |
| 26.5.10 | Tree, Shrub, Ground Cover and Vine Planting ..... | 209 |
| 26.5.11 | Aeration Tubes .....                              | 211 |
| 26.5.12 | Tree, Shrub, and Vine Pruning.....                | 211 |
| 26.5.13 | Tree Stabilization.....                           | 211 |
| 26.5.14 | Root-Barrier Installation .....                   | 211 |
| 26.5.15 | Plantin Area Mulching .....                       | 212 |
| 26.5.16 | Plant Maintenance.....                            | 212 |
| 26.5.17 | Pesticide Application .....                       | 213 |
| 26.5.18 | Cleanup and Protection .....                      | 213 |
| 26.5.19 | Disposal .....                                    | 213 |
| 26.6    | Irrigation .....                                  | 213 |
| 26.6.1  | Quality Assurance.....                            | 214 |
| 26.6.2  | Submittals .....                                  | 214 |
| 26.6.3  | Existing Conditions .....                         | 216 |
| 26.6.4  | Inspection .....                                  | 217 |
| 26.6.5  | Storage and Handling .....                        | 218 |
| 26.6.6  | Cleanup and Disposal .....                        | 218 |
| 26.6.7  | Turnover Items.....                               | 218 |
| 26.6.8  | Completion .....                                  | 221 |
| 26.6.9  | Guarantee .....                                   | 222 |
| 26.7    | Irrigation Materials.....                         | 223 |
| 26.7.1  | Summary.....                                      | 223 |
| 26.7.2  | Pipe .....  | 223 |
| 26.7.3  | Metal Pipe and Fittings.....                      | 223 |
| 26.7.4  | Plastic Pipe and Fittings.....                    | 223 |
| 26.7.5  | Bell and Gasket Fittings.....                     | 224 |
| 26.7.6  | Backflow Prevention Units.....                    | 224 |
| 26.7.7  | Irrigation Booster Pump (Bid Alternate) .....     | 225 |
| 26.7.8  | Valves.....                                       | 225 |
| 26.7.9  | Valve Boxes.....                                  | 226 |

|                               |  |     |
|-------------------------------|--|-----|
| 26.7.10                       | Automatic Controller .....                           | 227 |
| 26.7.11                       | Electrical .....                                     | 227 |
| 26.7.12                       | Low Voltage Control Wiring .....                     | 227 |
| 26.7.13                       | Irrigation Heads and Point Source Drip Emitters..... | 227 |
| 26.7.14                       | Drip Irrigation Equipment.....                       | 228 |
| 26.7.15                       | Miscellaneous Equipment .....                        | 228 |
| 26.8                          | Irrigation Execution .....                           | 228 |
| 26.8.1                        | Site Conditions.....                                 | 228 |
| 26.8.2                        | Trenching .....                                      | 230 |
| 26.8.3                        | Thrust Blocks.....                                   | 230 |
| 26.8.4                        | Backfill.....  | 230 |
| 26.8.5                        | Piping .....   | 231 |
| 26.8.6                        | Controller .....                                     | 231 |
| 26.8.7                        | Controller Wiring.....                               | 232 |
| 26.8.8                        | Valves.....  | 232 |
| 26.8.9                        | Valve Boxes.....                                     | 232 |
| 26.8.10                       | Irrigation Heads and Point Source Drip Emitters..... | 232 |
| 26.8.11                       | Backflow Prevention Units .....                      | 232 |
| 26.8.12                       | Miscellaneous Equipment .....                        | 233 |
| 26.8.13                       | Flushing the System .....                            | 233 |
| 26.8.14                       | Adjusting the System .....                           | 233 |
| 26.8.15                       | Testing and observation .....                        | 233 |
| 26.8.16                       | Maintenance .....                                    | 234 |
| 26.8.17                       | Completion Cleaning.....                             | 234 |
| Appendix A                    | .....  | 235 |
| CALIFORNIA STATE              | .....  | 235 |
| GENERAL PREVAILING WAGE RATES | .....  | 235 |
| Appendix B                    | .....  | 236 |
| FEDERAL PREVAILING WAGE       | .....  | 236 |
| APPENDIX C                    | .....  | 237 |
| CONSTRUCTION PROJECT PLANS    | .....  | 237 |



**CITY OF IMPERIAL**

**NOTICE INVITING SEALED BIDS  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT  
BID NO. 2024-07**

**PUBLIC NOTICE IS HEREBY GIVEN** that the City of Imperial, as CITY, invites sealed bids for the above stated project and will receive such bids in the offices of the City Clerk at 420 S. Imperial Avenue, Imperial, California 92251 up to the hour of 3:00 P.M. on Wednesday, July 31, 2024, at which time they will be publicly opened and read aloud. A bid summary will then be prepared and posted. A Pre-Bid meeting will be conducted at 10:00 A.M. on Tuesday, July 16, 2024 at the City of Imperial Community Development Department located at 400 S. Imperial Ave., Suite 101; Imperial, California 92251 to be followed by a Field Walk-through at the project site.

The work to be done consists of furnishing all materials, equipment, tools, labor, and incidentals as required by the contract documents, including, but not limited to the following activities: Mill and overlay in parts of streets as detailed in the plans, installation of ¾" asphalt leveling course, installation of asphalt-rubber aggregate membrane (ARAM), installation of gap-graded asphalt rubber hot mix (ARHM), slurry seal, removal and replacement of concrete curb & gutter, sidewalks, ADA ramps, spandrels, driveways and cross gutters. Installation of 18" concrete pipe collar, concrete headwall, type G-2 inlet with grate. Furnishing and installation of new water service. Installation of thermoplastic striping, installation of Rectangular Flashing Beacon Assembly System and Pedestrian Hybrid Beacon, and furnishing and installation of landscape and irrigation. Includes road traffic control around the construction zones.

The scope of work includes, prior to the start of construction, the coordination between the City of Imperial, the County of Imperial and the Contractor.

Bid packages (USB's) will be available on Tuesday, July 09, 2024 at the City of Imperial Community Development Department located at 400 S. Imperial Avenue, Suite 101; Imperial, California 92251 upon payment of \$85.00 non-refundable fee (\$100.00 if mailed). Only those firms who have purchased the bid documents will be provided any addendums that may be issued for this project prior to the bid opening date.

Any contract entered into pursuant to this notice will incorporate the provisions of State Labor Code of the State of California. Compliance with the higher State prevailing rates of wages and apprenticeship employment standards established by the State director of Industrial Relations will be required. Affirmative action to ensure against discrimination in employment practices on the basis of race, color, national origin, ancestry, sex, or religion will also be required.

This project has a specific contract Disadvantaged Businesses Enterprises (DBE) Contract Goal of 17%, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered areas. Said DBE Goal is applicable to all contractor's construction work (whether or not it is Federally funded or assisted) performed in the covered area. If the Contractor performs construction work in a geographical area outside of the covered area, it shall apply to the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its Federally involved and non-Federally involved construction. The Contractor's compliance with Executive Order 11246 and the regulations in 41.

CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60- 4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from the solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform through the duration of the contract, and in each trade, and the Contractor shall make a good faith effort to employ women and minority individuals evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

Each bid must be accompanied by a guaranty of cash, certified check, cashier's check or bid bond made payable to the City of Imperial for an amount equal to at least ten percent (10%) of the bid.

Such guaranty to be forfeited should the bidder to whom the contract is awarded fails to enter the contract. All guaranties to be returned after the contract is awarded. In conformance with the State of California Public Contract Code Section 22300, the contractor may substitute securities for any funds withheld by the City to ensure performance under the contract. At request and expense of the contractor, securities equivalent to the amount withheld shall be deposited with the City or with a State or Federally chartered bank as the escrow agent who shall pay such funds to the contractor upon notification by the City of contractor's satisfactory completion of contract. The type of securities deposited, and the method of release shall be approved by the City Attorney's office.

As used in this notice, and in the contract resulting from this solicitation, the "covered area" is in the City of Imperial in Imperial County, State of California.

The contract documents call for monthly payments based upon the engineer's estimate of the work completed. The City of Imperial will retain five (5%) percent of each progress payment as security for completion of the balance of the work. At the request and expense of the successful bidder, the City will pay the amounts so retained upon compliance with the requirements of Public Contract Code Section 22300 and the provisions of the contract documents pertaining to Substitution of Securities.

Bids must be prepared on the approved proposal forms in conformance with the Instructions to Bidders and submitted in a sealed envelope plainly marked on the outside:

**ATTN: CITY CLERK  
SEALED BID FOR:  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT  
BID NO. 2024-07**

The Proposal should be delivered no later than 3:00 P.M. on Wednesday, July 31, 2024, addressed as follows:

**City of Imperial, City Hall – City Clerk  
420 S. Imperial Avenue, Imperial, CA 92251**

Questions concerning the proposal should be directed to Jesus Villegas, Project Manager via email: [jvillegas@imperial.ca.gov](mailto:jvillegas@imperial.ca.gov). Questions should be received no later than 1:00 P.M on Tuesday, July 23, 2024.

Clarification desired by a proposer shall be requested in writing with sufficient time to allow for a response prior to the date RFPs are due. Oral explanation or instructions shall not be considered binding on behalf of the City.

Any modifications to this solicitation will be issued by the City as a written addendum. The City will not consider proposals received after the specified time and date. This bid proposal does not commit the City of Imperial to award a contract or pay any costs associated with the preparation of a Proposal.

The City of Imperial reserves the right to reject any or all bids, to award each item separately, delete portions of the work, and/or waive any informality on any bid. No bid may be withdrawn for 45 days after the time set for the opening thereof. Failure by the successful bidder to enter into a contract with the City or to deliver goods and/or services in accordance with the bid may result in a declaration by the City that the bidder is not a responsible bidder, and elimination from consideration in future bidding.

No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1 (a)]. No contractor or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5. This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. Any bid submitted by a contractor or subcontractor not properly licensed and not registered with the Department of Industrial Relations shall be considered non-responsive and will be rejected.

At the time of contract award, the prime contractor shall possess a Class "A" contractor's license and/or any combination of "C" specialty contractor's license(s) sufficient to perform the work.

**CITY OF IMPERIAL**  
**INSTRUCTIONS TO BIDDERS**  
**FOR**  
**AHSC-ARPA/HWY 86 BEAUTIFICATION**  
**PHASE 1 PROJECT**  
**BID NO. 2024-07**

**PROPOSAL FORMS**

Bids shall be submitted in writing on the Bid Proposal forms provided by the CITY, including, all forms "Required Federal Contract Provisions" must be filled and initialed. All information requested therein must be clearly and legibly set forth in the manner and form indicated. The CITY will not consider any bid proposal not meeting these requirements and/or not submitting all forms requested herein.

**PROPOSAL GUARANTEE (BID BOND)**

Proposals must be accompanied by a proposal guarantee consisting of a certified check or bid bond payable to the CITY in the amount of (10%) of the total amount Bid. Any proposal not accompanied by such a guarantee will not be considered. If a bidder to whom a contract is awarded fails or refuses to execute the contract documents or furnish the required insurance policies and bonds as set forth in those documents, the proposal guarantee shall be forfeited to the CITY. The proposal guarantees of all bidders will be held until the successful bidder has properly executed all contract documents.

**NON-COLLUSION AFFIDAVIT**

Bidder shall declare that the only persons or parties interested in the proposal as principals are those named therein; that no officer, agent, or employee of the CITY is personally interested, directly or indirectly, in the proposal; that the proposal is made without connection to any other individual, firm, or corporation making a bid for the same work; and that the proposal is in all respects fair and without collusion or fraud. The Non-Collusion Affidavit shall be executed and submitted with the proposal.

**PROPOSAL BID SHEET**

Bidders shall give unit prices for each and all of the items set forth. No aggregate bids will be considered. The bidder shall set forth for each item of work, in clearly legible figures, a unit item price and a total for the item in the respective spaces provided for this purpose. The quantities listed in the Bid sheets are supplied to give an indication of the general scope of work, but the accuracy of figures is not guaranteed, and the bidder shall make his own estimates from the drawings. In case of a variation between the unit price and the totals shown by the bidder, the unit price will be considered to be the bid.

No bidder may withdraw his proposal for a period of forty-five (45) days after the time set for opening thereof. However, the CITY will return all proposal guarantees within ten (10) days after the award of the contract or rejection of the bids, as the case may be, to the respective bidders whose proposals they accompany.

**DELIVERY OF PROPOSAL**

Proposals may be mailed or delivered by messenger. However, it is the bidder's responsibility alone to ensure delivery of the proposal to the hands of the CITY's designated official prior to the bid opening hour stipulated in the "Notice Inviting Sealed Bids." Late proposals will not be considered.

**WITHDRAWAL OF PROPOSALS**

A proposal may be withdrawn by a written request signed by the bidder. Such requests must be delivered to the CITY's designated official prior to the bid opening hour stipulated in the "Notice Inviting Sealed Bids". The withdrawal of a proposal will

not prejudice the right of the bidder to submit a new proposal, providing there is time to do so. Proposals may not be withdrawn after said hour without forfeiture of the proposal guarantee.

#### IRREGULAR PROPOSALS

Unauthorized conditions, limitations, or provisions attached to a proposal will render it irregular and may cause its rejection. The completed proposal forms shall be without interlineations, alterations, or erasures. Alternative proposals will not be considered unless specifically requested. No oral, telegraphic, or telephonic proposal, modification, or withdrawal will be considered.

#### TAXES

No mention shall be made in the proposal of Sales Tax, Use Tax, or any other tax, as all unit prices and bid amounts will be deemed and held to include any such taxes, which may be applicable.

#### DISQUALIFICATION OF BIDDERS

In the event that any bidder acting as a prime contractor has an interest in more than one proposal, all such proposals will be rejected, and the bidder will be disqualified.

This restriction does not apply to subcontractors or suppliers who may submit quotations to more than one bidder, and while doing so, may also submit a formal proposal as a prime contractor.

No contract will be executed unless the bidder is licensed in accordance with the provisions of the State Business and Professions Code.

#### INTERPRETATION OF PLANS AND DOCUMENTS

If any person contemplates submission of a bid for the proposed contract and is in doubt as to the true meaning of any part of the services to be performed, he may submit to the Engineer of the CITY a written request for an interpretation or correction thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation or correction of the proposed documents shall be made only by addendum duly issued and copy of such addendum will be mailed or delivered to each person receiving a set of such documents.

The Engineer will not be responsible for any other explanation or interpretations of the proposed documents.

#### ADDENDA OR BULLETINS

All bidders are advised as to the possibility of issuance of addenda affecting the items, scope or quantity of the work required for this project. Each bidder shall be fully responsible for informing himself as to whether or not any such addenda have been issued. The effect of all addenda to the Contract Documents shall be considered in the bid and said addenda shall be made a part of the contract documents and shall be returned with them. Failure to cover in his bid any such addenda issued may render his bid irregular and may result in its rejection by the CITY.

#### LEGAL RESPONSIBILITIES

All proposals must be submitted, filed, made, and executed in accordance with State and Federal laws relating to bids for contracts of this nature whether the same are expressly referred to herein or not.

Any Bidder submitting a proposal shall by such action thereby agree to each and all of the terms, conditions, provisions, and requirements set forth, contemplated, and referred to in the Contract Documents, and to full compliance therewith.



## AWARD OF CONTRACT

Following a review of the bids, the CITY shall determine whether to award the contract or to reject all bids. The award of contract, if made, will be to the lowest responsible Bidder as determined solely by the CITY. At the time of contract award, the successful Bidder shall hold a Class A Contractors License, as required to perform the work, issued by the State of California.

Additionally, the CITY reserves the right to reject any or all proposals, to accept any bid or portion thereof, to waive any irregularity, and to take the bids under advisement for the period of time stated in the "Notice Inviting Sealed Bids", all as may be required to provide for the best interests of the CITY. In no event will an award be made until all necessary investigations are made as to the responsibility and qualifications of the Bidder to whom the award is contemplated.

No bidder may withdraw his proposal for a period of forty-five (45) days after the time set for opening thereof. However, the CITY will return all proposal guarantees within ten (10) days after the award of the contract and execution of the contract documents or rejection of the bids, as the case may be, to the respective bidders whose proposals they accompany.

## LABOR CODE

Pursuant to the provisions of Section 1773 of the Labor Code of the State of California (herein referred to as Labor Code), the CITY has obtained the general provisions rate of per diem wages and the general prevailing rate for holiday and overtime work in this locality for each craft, classification or type of workman needed to execute the contract from the Director of the Department of Industrial Relations. These rates are on file with the Clerk of the CITY.

Travel and subsistence payments to each workman needed to execute the work shall be made as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Section 1773.8 of the Labor Code.

The Contractor shall comply with the provisions of Section 1774 of the Labor Code. Failure to comply with the subject section will subject the Contractor to penalty and forfeiture provisions of Section 1775 of the Labor Code.

Pursuant to the provisions of Section 1770 of the Labor Code, the general prevailing rate of wages has been ascertained (which rate includes employer payments for health and welfare, vacation, pension and similar purposes) applicable to the work to be done, for straight time, overtime, Saturday, Sunday and holiday work. The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of workmen concerned.

The CITY will not recognize any claim for additional compensation because of the payment by the Contractor of any wage rate in excess of the prevailing wage rate set forth in the contract. The possibility of wage increases is one of the elements to be considered by the Contractor in determining his bid and will not under any circumstances be considered as the basis of a claim against the CITY on the contract.

The CONTRACTOR and subcontractors shall comply with Section 1777.6 of the Labor Code which stipulates that it shall be unlawful to refuse to accept otherwise qualified employees as registered apprentices solely on the grounds of race, religious creed, color, national origin, ancestry, sex, or age, of such employee, except as provided in Section 3077 of the Labor Code.

## WORKMAN'S COMPENSATION CERTIFICATE

Section 3700 of the Labor Code requires that every employer shall secure the payment of

compensation by either being insured against liability to pay compensation with one or more insurers or by securing a certificate of consent to self-insure from the State Director of Industrial Relations.

In accordance with this section and with Section 1861 of the Labor Code, the contractor shall sign a Compensation Insurance Certificate, which is included with the Contract Agreement, and submit same to City along with the other required contract documents, prior to performing any work. Reimbursement for this requirement shall be considered as included in the various items of work.

#### CLAYTON ACT AND CARTWRIGHT ACT

Section 4551 of the State Government Code specifies that in executing a public works contract with the CITY to supply goods, services or materials, the Contractor or Subcontractor offers and agrees to assign to the CITY all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 commencing with Sec. 16700) of Part 2 of Division 7 of the Business and Professions Code, arising from purchase of goods, services or materials pursuant to the contract or subcontract. This assignment shall become effective when the CITY tender's final payment to the Contractor without further acknowledgment by the parties.

#### SUBSTITUTION OF SECURITIES

In conformance with the State of California Public Contract Code Section 22300, the contractor may substitute securities for any funds withheld by the CITY to ensure performance under the contract.

At the request and expense of the contractor, securities equivalent to the amount withheld shall be deposited with the City or with a State or Federally chartered bank as the escrow agent who shall pay such funds to the contractor upon notification by CITY of Contractor's satisfactory completion of the contract.

The type of securities deposited, and the method of release shall be approved by the City Attorney's office.

#### SUBLETTING AND SUBCONTRACTING

Pursuant to the Subletting and Subcontracting Fair Practices Act (commencing with Section 4100 of the Government Code), bidders are required to list in their proposal the name and location of place of business of each subcontractor who will perform work or labor or render services in or about the construction of the work or improvement or a subcontractor who specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the Plans and Specifications in excess of 1/2 of 1% of this prime contractor's total bid. Failure to list a subcontractor for a portion of the work means that the prime contractor will do that portion of the work. It is the Agency's intent for the Subletting and Subcontracting Fair Practices Act to apply to all phases of the work.

#### CITY BUSINESS LICENSE

The Contractor shall obtain a City of Imperial Business License prior to the City's issuing the Notice to Proceed.

The annual fee for the Business License is one-hundred dollars (\$100.00).

#### QUALITY ASSURANCE

The Agency uses a Quality Assurance Program (QAP) to ensure a material is produced to comply with the Contract.

You may examine the records and reports of tests the Agency performs if they are available at the job site.

Schedule work to allow time for QAP.

#### BUY AMERICA

Furnish steel and iron materials to be incorporated into the work with certificates of compliance. Steel and iron materials must be produced in the U.S. except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)].
2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or \$2,500, materials produced outside the U.S. may be used.

Production includes:

1. Processing steel and iron materials, including smelting or other processes that alter the

physical form or shape (such as rolling, extruding, machining, bending, grinding, and drilling) or chemical composition.

2. Coating application, including epoxy coating, galvanizing, and painting, that protects or enhances the value of steel and iron materials.

VERIFICATION OF COMPLIANCE WITH ECONOMIC SANCTIONS IN RESPONSE  
TO RUSSIA'S ACTIONS IN UKRAINE

Per California Executive Order N-6-22, the City of Imperial is required to assure that all contractors doing business with the City of Imperial are in compliance with economic sanctions imposed by the U.S. government in response to Russia's actions in Ukraine, as well as sanctions imposed under state law, if any.

## DISADVANTAGE BUSINESS

### ENTERPRISE (DBE)

Under 49 CFR 26.13(b):

The contractor, subrecipient 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 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.

Take necessary and reasonable steps to ensure that DBEs have opportunity to participate in the contract (49 CFR 26).

To ensure equal participation of DBEs provided in 49 CFR 26.5, the Agency shows a goal for DBEs. Make work available to DBEs and select work parts consistent with available DBE subcontractors and suppliers.

Meet the DBE goal shown elsewhere in these special provisions or demonstrate that you made adequate good faith efforts to meet this goal.

It is your responsibility to verify that the DBE firm is certified as DBE at date of bid opening. For a list of DBEs certified by the California Unified Certification Program, go to: [http://www.dot.ca.gov/hq/bep/find\\_certified.htm](http://www.dot.ca.gov/hq/bep/find_certified.htm).

All DBE participation will count toward the California Department of Transportation's federally mandated statewide overall DBE goal.

Credit for materials or supplies you purchase from DBEs counts towards the goal in the following manner:

- 100 percent counts if the materials or supplies are obtained from a DBE manufacturer.
- 60 percent counts if the materials or supplies are obtained from a DBE regular dealer.
- Only fees, commissions, and charges for assistance in the procurement and delivery of materials or supplies count if obtained from a DBE that is neither a manufacturer nor regular dealer. 49 CFR 26.55 defines "manufacturer" and "regular dealer."

You receive credit towards the goal if you employ a DBE trucking company that performs a commercially useful function as defined in 49 CFR 26.55(d)(1) through (4) and (6).

#### a. DBE Commitment Submittal

Submit the Exhibit 15-G *Local Agency Bidder DBE Commitment (Construction Contracts)* form, included in the Bid book. If the form is not submitted with the bid, remove the form from the Bid book before submitting your bid.

If the DBE Commitment form is not submitted with the bid, the apparent low bidder, the 2nd low bidder, and the 3rd low bidder must complete and submit the DBE Commitment form to the Agency. DBE Commitment form must be received by the Agency no later than 4:00 p.m. on the 4th business day after bid opening.

Other bidders do not need to submit the DBE Commitment form unless the Agency requests it. If the Agency requests you to submit a DBE Commitment form, submit the completed form within 4 business days of the request.

Submit written confirmation from each DBE stating that it is participating in the contract. Include confirmation with the DBE Commitment form. A copy of a DBE's quote will serve as written confirmation that the DBE is participating in the contract.

If you do not submit the DBE Commitment form within the specified time, the Agency will find your bid nonresponsive.

#### b. Good Faith Efforts Submittal

If you have not met the DBE goal, complete and submit the DBE Information - Good Faith Efforts, Exhibit 15-G, form with the bid showing that you made adequate good faith efforts to meet the goal. Only good faith efforts directed towards obtaining participation by DBEs will be considered. If good faith efforts documentation is not submitted with the bid, it must be received by the Agency no later than 4:00 p.m. on the 4th business day after bid opening.

If your DBE Commitment form shows that you have met the DBE goal or if you are required to submit the DBE Commitment form, you must also submit good faith efforts documentation within the specified time to protect your eligibility for award of the contract in the event the Agency finds that the DBE goal has not been met.

Good faith efforts documentation must include the following information and supporting documents, as necessary:

1. Items of work you have made available to DBE firms. Identify those items of work you might otherwise perform with your own forces and those items that have been broken down into economically feasible units to facilitate DBE participation. For each item listed, show the dollar value and percentage of the total contract. It is your responsibility to demonstrate that sufficient work to meet the goal was made available to DBE firms.
2. Names of certified DBEs and dates on which they were solicited to bid on the project. Include the items of work offered. Describe the methods used for following up initial solicitations to determine with certainty if the DBEs were interested, and the dates of the follow-up. Attach supporting documents such as copies of letters, memos, facsimiles sent, telephone logs, telephone billing statements, and other evidence of solicitation. You are reminded to solicit certified DBEs through all reasonable and available means and provide sufficient time to allow DBEs to respond.
3. Name of selected firm and its status as a DBE for each item of work made available. Include name, address, and telephone number of each DBE that provided a quote and their price quote. If the firm selected for the item is not a DBE, provide the reasons for the selection.
4. Name and date of each publication in which you requested DBE participation for the project. Attach copies of the published advertisements.
5. Names of agencies and dates on which they were contacted to provide assistance in contacting, recruiting, and using DBE firms. If the agencies were contacted in writing, provide copies of supporting documents.
  6. List of efforts made to provide interested DBEs with adequate information about the plans, specifications, and requirements of the contract to assist them in responding to a solicitation. If you have provided information, identify the name of the DBE assisted, the nature of the information provided, and date of contact. Provide copies of supporting documents, as appropriate.
  7. List of efforts made to assist interested DBEs in obtaining bonding, lines of credit, insurance, necessary equipment, supplies, and materials, excluding supplies and equipment that the DBE subcontractor purchases or leases from the prime contractor or its affiliate. If such assistance is provided by you, identify the name of the DBE assisted, nature of the assistance offered, and date assistance was provided. Provide copies of supporting documents, as appropriate.
8. Any additional data to support demonstration of good faith efforts.

The Agency may consider DBE commitments of the 2nd and 3rd bidders when determining whether the low bidder made good faith efforts to meet the DBE goal.

c. Exhibit 15-G - Local Agency Bidder DBE Information (Construction Contracts)

Complete and sign Exhibit 15-G *Local Agency Bidder DBE Commitment (Construction Contracts)* included in the contract documents regardless of whether DBE participation is reported.

Provide written confirmation from each DBE that the DBE is participating in the Contract. A copy of a DBE's quote serves as written confirmation. If a DBE is participating as a joint venture partner, the Agency encourages you to submit a copy of the joint venture agreement.)

d. Subcontractor and Disadvantaged Business Enterprise Records

Use each DBE subcontractor as listed on Exhibit 12-B Bidder's List of Subcontractors (*DBE and Non- DBE*) and Exhibit 15-G *Local Agency Bidder DBE Commitment (Construction Contracts)* form unless you receive authorization for a substitution.

The Agency requests the Contractor to:

1. Notify the Construction Manager of any changes to its anticipated DBE participation
2. Provide this notification before starting the affected work
3. Maintain records including:
  - Name and business address of each 1<sup>st</sup>-tier subcontractor
  - Name and business address of each DBE subcontractor, DBE vendor, and DBE trucking company, regardless of tier
  - Date of payment and total amount paid to each business

If you are a DBE contractor, include the date of work performed by your own forces and the corresponding value of the work.

Before the 15th of each month, submit a Monthly DBE Trucking Verification form.

If a DBE is decertified before completing its work, the DBE must notify you in writing of the decertification date. If a business becomes a certified DBE before completing its work, the business must notify you in writing of the certification date. Submit the notifications. On work completion, complete a Disadvantaged Business Enterprises (DBE) Certification Status Change, Exhibit 17-O, form. Submit the form within 30 days of contract acceptance.

Upon work completion, complete Exhibit 17-F *Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors*. Submit it within 90 days of contract acceptance. The Agency will withhold \$10,000 until the form is submitted. The Agency releases the withhold upon submission of the completed form.

e. Performance of Disadvantaged Business Enterprises

DBEs must perform work or supply materials as listed in the Exhibit 15-G *Local Agency Bidder DBE Commitment (Construction Contracts)* form, included in the Bid.

Do not terminate or substitute a listed DBE for convenience and perform the work with your own forces or obtain materials from other sources without authorization from the Agency.

The Agency authorizes a request to use other forces or sources of materials if it shows any of the following justifications:

1. Listed DBE fails or refuses to execute a written contract based on plans and specifications for the project.
2. You stipulated that a bond is a condition of executing the subcontract and the listed DBE fails to meet your bond requirements.
3. Work requires a contractor's license and listed DBE does not have a valid license under Contractors License Law.
4. Listed DBE fails or refuses to perform the work or furnish the listed materials.
5. Listed DBE's work is unsatisfactory and not in compliance with the contract.
6. Listed DBE is ineligible to work on the project because of suspension or debarment.
7. Listed DBE becomes bankrupt or insolvent.
8. Listed DBE voluntarily withdraws with written notice from the Contract
9. Listed DBE is ineligible to receive credit for the type of work required.

10. Listed DBE owner dies or becomes disabled resulting in the inability to perform the work on the Contract.
11. Agency determines other documented good cause.

Notify the original DBE of your intent to use other forces or material sources and provide the reasons. Provide the DBE with 5 days to respond to your notice and advise you and the Agency of the reasons why the use of other forces or sources of materials should not occur. Your request to use other forces or material sources must include:

1. One or more of the reasons listed in the preceding paragraph
2. Notices from you to the DBE regarding the request
3. Notices from the DBEs to you regarding the request

If a listed DBE is terminated or substituted, you must make good faith efforts to find another DBE to substitute for the original DBE. The substitute DBE must perform at least the same amount of work as the original DBE under the contract to the extent needed to meet the DBE goal.

The substitute DBE must be certified as a DBE at the time of request for substitution.

Unless the Agency authorizes (1) a request to use other forces or sources of materials or (2) a good faith effort for a substitution of a terminated DBE, the Agency does not pay for work listed on the Exhibit 15-G *Local Agency Bidder DBE Commitment (Construction Contracts)* form unless it is performed or supplied by the listed DBE or an authorized substitute.

**REQUIRED CONTRACT PROVISIONS - FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract

## Funds for Lobbying ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

**I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.



## **II. NONDISCRIMINATION**

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic

and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

#### **6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining

agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor 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 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 contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### **1. Minimum wages**

a. All laborers and mechanics 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 (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.d. 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 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 classification and wage rates conformed under paragraph 1.b. 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.

b. (1) 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:

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

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

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

(2) 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.

(3) 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 Wage and Hour Administrator for determination. The Wage and Hour 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.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) 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.

c. 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.

d. 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.

## ***2. Withholding***

The contracting agency 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, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, 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***

a. 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. 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.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee ( e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) 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:

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

(ii) 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;

(iii) 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.

(3) 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 3.b.(2) of this section.

(4) 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.



c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, 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 FHWA may, after written notice to the contractor, the contracting agency or the State DOT, 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**

##### **a. Apprentices (programs of the USDOL).**

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, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, 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 Office of Apprenticeship Training, Employer and Labor Services 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 subcontractor's 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 determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, 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.

##### **b. Trainees (programs of the USDOL).**

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 who 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.

c. 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.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**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 Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 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.**

a. 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).

b. 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).

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

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. 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 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 clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), 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 section, in the sum of \$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 section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contacting agency 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 moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in

this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## **VII. SAFETY: ACCIDENT PREVENTION**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and

Safety Standards Act (40 U.S.C.3704).

### **VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

### **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

### **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

#### ***1. Instructions for Certification – First Tier Participants:***

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers to any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in

addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

\* \* \* \* \*

**2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**3. Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower

Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

\* \* \* \* \*

***Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:***

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.



**FEMALES AND MINORITY GOALS**

To comply with Section II, "Nondiscrimination," of "Required Contract Provisions Federal-Aid Construction Contracts," the following are goals for female and minority utilization goals for Federal-aid construction contracts and subcontracts that exceed \$10,000:

The nationwide goal for female utilization is 6.9 percent.

The goals for minority utilization [45 Fed Reg 65984 (10/3/1980)] are as follows:

**MINORITY UTILIZATION GOALS**

| Economic Area |   | Goal (Percent) |
|---------------|---|----------------|
| 174           | Redding CA:<br>Non-SMSA (Standard Metropolitan Statistical Area) Counties:<br>CA Lassen; CA Modoc; CA Plumas; CA Shasta; CA Siskiyou; CA Tehama | 6.8            |
| 175           | Eureka, CA<br>Non-SMSA Counties:<br>CA Del Norte; CA Humboldt; CA Trinity   | 6.6            |
| 176           | San Francisco-Oakland-San Jose, CA:<br>SMSA Counties:<br>7120 Salinas-Seaside-Monterey, CA  | 28.9           |
|               | CA Monterey   | 25.6           |
|               | 7360 San Francisco-Oakland<br>CA Alameda; CA Contra Costa; CA Marin; CA San Francisco; CA San   | 19.6           |
|               | 7400 San Jose, CA<br>CA Santa Clara, CA   | 14.9           |
|               | 7485 Santa Cruz,<br>CA Santa Cruz   | 9.1            |
|               | 7500 Santa Rosa<br>CA Sonoma  | 17.1           |
|               | 8720 Vallejo-Fairfield-Napa, CA<br>CA Napa; CA Solano<br>Non-SMSA Counties:<br>CA Lake; CA Mendocino; CA San Benito                             | 23.2           |
| 177           | Sacramento, CA:<br>SMSA Counties:<br>6920 Sacramento, CA<br>CA Placer; CA Sacramento; CA Yolo   | 16.1           |
|               | Non-SMSA Counties<br>CA Butte; CA Colusa; CA El Dorado; CA Glenn; CA Nevada; CA Sierra;<br>Sutter; CA Yuba                                      | 14.3           |

|     |   |      |
|-----|---|------|
| 178 | Stockton-Modesto, CA:   |      |
|     | SMSA Counties:  | 12.3 |
|     | 5170 Modesto,<br>CACAS Stanislaus   | 24.3 |
|     | 8120 Stockton,<br>CACAS San<br>Joaquin  | 19.8 |
|     | Non-SMSA Counties<br>CA Alpine; CA Amador; CA Calaveras; CA Mariposa; CA Merced; CA<br>Tuolumne |      |
| 179 | Fresno-Bakersfield,   |      |
|     | CASMSA Counties:  | 19.1 |
|     | 0680 Bakersfield,<br>CACAS Kern   | 26.1 |
|     | 2840 Fresno,<br>CACAS Fresno  | 23.6 |
|     | Non-SMSA Counties:<br>CA Kings; CA Madera; CA Tulare  |      |
| 180 | Los Angeles, CA:  |      |
|     | SMSA Counties:  | 11.9 |
|     | 0360 Anaheim-Santa Ana-Garden Grove,<br>CACAS Orange  | 28.3 |
|     | 4480 Los Angeles-Long Beach,<br>CACAS Los Angeles   | 21.5 |
|     | 6000 Oxnard-Simi Valley-Ventura,<br>CACAS Ventura   | 19.0 |
|     | 6780 Riverside-San Bernardino-Ontario, CA<br>CA Riverside; CA San Bernardino                    | 19.7 |
|     | 7480 Santa Barbara-Santa Maria-Lompoc,<br>CACAS Santa Barbara                                   | 24.6 |
|     | Non-SMSA Counties<br>CA Inyo; CA Mono; CA San Luis Obispo                                       |      |
| 181 | San Diego, CA:  |      |
|     | SMSA Counties   | 16.9 |
|     | 7320 San Diego,<br>CACAS San Diego  | 18.2 |
|     | Non-SMSA<br>CountiesCA<br>Imperial  |      |

For each July during which work is performed under the contract, you and each nonmaterial-supplier subcontractor with a subcontract of \$10,000 or more must complete Form FHWA PR-1391 (Appendix C to 23 CFR 230). Submit the forms by August 15.

## TITLE VI

### FEMALES AND MINORITY GOALS

During the performance of this Agreement, the contractor, for itself, its assignees and successors in interest (hereinafter collectively referred to as Contractor) agrees as follows:

- (1) Compliance with Regulations: CONTRACTOR shall comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the REGULATIONS), which are herein incorporated by reference and made a part of this agreement.
- (2) Nondiscrimination: CONTRACTOR, with regard to the work performed by it during the AGREEMENT, shall not discriminate on the grounds of race, color, sex, national origin, religion, age, or disability in the selection and retention of sub-applicants, including procurements of materials and leases of equipment. CONTRACTOR shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the Regulations.
- (3) Solicitations for Sub-agreements, Including Procurements of Materials and Equipment: In all solicitations either by competitive bidding or negotiation made by CONTRACTOR for work to be performed under a Sub-agreement, including procurements of materials or leases of equipment, each potential sub-applicant or supplier shall be notified by CONTRACTOR of the CONTRACTOR'S obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
- (4) Information and Reports: CONTRACTOR shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the California Department of Transportation or FHWA to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of CONTRACTOR is in the exclusive possession of another who fails or refuses to furnish this information, CONTRACTOR shall so certify to the California Department of Transportation or the FHWA as appropriate, and shall set forth what efforts CONTRACTOR has made to obtain the information.
- (5) Sanctions for Noncompliance: In the event of CONTRACTOR's noncompliance with the nondiscrimination provisions of this agreement, the California Department of Transportation shall impose such agreement sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:
  - (a) withholding of payments to CONTRACTOR under the Agreement within a reasonable period of time, not to exceed 90 days; and/or
  - (b) cancellation, termination or suspension of the Agreement, in whole or in part.
- (6) Incorporation of Provisions: CONTRACTOR shall include the provisions of paragraphs (1) through (6) in every sub-agreement, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

CONTRACTOR shall take such action with respect to any sub-agreement or procurement as the California Department of Transportation or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance, provided, however, that, in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a sub-applicant or supplier as a result of such direction, CONTRACTOR may request the California Department of Transportation enter into such litigation to protect the interests of the State, and, in addition, CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States

## USE OF THE UNITED STATES – FLAG VESSELS

The CONTRACTOR agrees-

1. To utilize 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.
2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading 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 paragraph (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
3. To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

## **BID PROPOSAL DOCUMENTS**

# CITY OF IMPERIAL

## BID PROPOSAL

For

### AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1 PROJECT

BID NO. 2024-07

TO CITY OF IMPERIAL, as CITY:

In accordance with CITY's "Notice Inviting Sealed Bids", the undersigned BIDDER hereby proposes to furnish all materials, equipment, tools, labor, and incidentals required for the above stated project as set forth in the Contract Documents, and to perform all work in the manner and time prescribed.

BIDDER declares that this proposal is based upon careful examination of the work site, Plans, Specifications, Instructions to Bidders, and Contract Documents. If this proposal is accepted for award, BIDDER agrees to enter into a contract with the CITY at the unit and/or lump sum prices set forth in the following Proposal Bid Sheet. BIDDER understands that failure to enter into a contract in the manner and time prescribed will result in forfeiture to the CITY of the Bid Bond accompanying this proposal.

BIDDER understands that a bid is required for the entire work that the estimated quantities set forth in the Proposal Bid Sheet are solely for the purpose of comparing bids, and that final compensation under the contract will be based upon the actual quantities of work satisfactorily completed. It is agreed that the unit and/or lump sum prices bid include all appurtenant expenses, taxes, royalties, and fees. In the case of discrepancies in the amounts bid, unit prices shall govern over extended amounts.

BIDDER agrees and acknowledges that he is aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for workman's compensation or to undertake self-insurance in accordance with the provisions of that code, and that the BIDDER will comply with such provisions of that code before commencing the performance of this Contract if awarded it.

BIDDER certifies that in all previous contracts or subcontracts, all reports which may have been due under the requirements of any agency, State, or Federal equal employment opportunity orders have been satisfactorily filed, and that no such reports are currently outstanding.

BIDDER declares that the only persons or parties interested in this proposal as principals are those named herein; that no officer, agent, or employee of the CITY is personally interested, directly or indirectly, in this proposal; that this proposal is made without connection to any other individual, firm, or corporation making a bid for the same work; and that this proposal is in all respects fair and without collusion or fraud.

BIDDER certifies that affirmative action has been taken to seek out and consider disadvantaged business enterprises for those portions of the work to be subcontracted, and that such affirmative actions have been carefully documented, that said documentation is open to inspection, and that said affirmative action will remain in effect for the life of any contract awarded hereunder. Furthermore, BIDDER certifies that affirmative action will be taken to meet all equal employment opportunity requirements of the contract documents.

DATED: \_\_\_\_\_, 2024

BIDDER: \_\_\_\_\_

BIDDER'S ADDRESS:

BY: \_\_\_\_\_

\_\_\_\_\_

TITLE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

TELEPHONE #: \_\_\_\_\_

FAX #: \_\_\_\_\_

**BIDDER 'S INFORMATION**

BIDDER certifies that the following information is true and correct:

Bidder's Name \_\_\_\_\_

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

Telephone \_\_\_\_\_

State Contractor's License No. and Class \_\_\_\_\_

Original Date Issued \_\_\_\_\_ Expiration Date \_\_\_\_\_

The following are the names, titles, addresses, and phone numbers of all individuals, firm members, partners, joint ventures, and/or corporate officers having a principal interest in this proposal:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The dates of any voluntary or involuntary bankruptcy judgments against any principal having an interest in this proposal are as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

All current and prior DBA's, alias, and/or fictitious business names for any principal having an interest in this proposal are as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**CONTRACTOR'S LICENSING STATEMENT**

The undersigned is licensed in accordance with the laws of the State of California providing for the registration of Contractors.

Contractor's License Number: \_\_\_\_\_

Name of Individual Contractor (Print or type): \_\_\_\_\_

Signature of Owner: \_\_\_\_\_

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

**Or**

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

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

Name: \_\_\_\_\_ Title: \_\_\_\_\_

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

**Or**

Name of Corporation: \_\_\_\_\_

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

Corporation organized under the laws of the State of \_\_\_\_\_

\_\_\_\_\_  
Signature of President of Corporation

\_\_\_\_\_  
Signature of Secretary of Corporation

**LIST OF SUBCONTRACTORS**

BIDDER proposes to subcontract certain portions of the work, and to procure materials and equipment from suppliers and vendors as follows:

| Name Under Which<br>Subcontractor<br>Is Licensed | Specific<br>License of<br>No. | Address<br>Office<br>Mill/Shop | Percent<br>of Total<br>Contract | Description<br>of Subcontract |
|--|-------------------------------|--------------------------------|---------------------------------|-------------------------------|
|  |                               |                                |                                 |                               |
|  |                               |                                |                                 |                               |
|  |                               |                                |                                 |                               |
|  |                               |                                |                                 |                               |
|  |                               |                                |                                 |                               |
|  |                               |                                |                                 |                               |
|  |                               |                                |                                 |                               |
|  |                               |                                |                                 |                               |
|  |                               |                                |                                 |                               |

**REFERENCES**

The following are the names, addresses, and phone numbers for three public agencies for which BIDDER has performed similar work within the past two years:

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**DESIGNATION OF SURETIES**

The following are the names, addresses, and phone numbers for all brokers and sureties from whom BIDDER intends to procure insurance and bonds:

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# CITY OF IMPERIAL

## BID BOND

### AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1 PROJECT

BID NO. 2024-07

KNOW ALL MEN BY THESE PRESENTS that \_\_\_\_\_

as BIDDER, and \_\_\_\_\_

as SURETY, are held and firmly bound unto the CITY OF IMPERIAL, as CITY, in the penal sum of \_\_\_\_\_ dollars (\$ \_\_\_\_\_), which is ten percent (10%) of the total amount bid by BIDDER to the CITY for the above stated project, for the payment of which sum, BIDDER and SURETY agree to be bound, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH that, whereas BIDDER is about to submit a bid to CITY for the above stated project, if said bid is rejected, or if said bid is accepted and a contract is awarded and entered into by BIDDER in the manner and time specified, then this obligation shall be null and void, otherwise it shall remain in full force and effect in favor of AGENCY.

WITNESS our hands this \_\_\_\_ day of \_\_\_\_\_, 2024.

(seal)

\_\_\_\_\_  
CONTRACTOR (CORPORATION) – TYPE

By: \_\_\_\_\_  
President

By \_\_\_\_\_  
Secretary/Treasurer

*NOTE: SIGNATURE OF CORPORATE OFFICIALS MUST BE NOTARIZED.*

Subscribed and sworn to before me  
this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

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

\_\_\_\_\_  
SURETY'S NAME-TYPE

\_\_\_\_\_  
Mailing Address \_\_\_\_\_

By: \_\_\_\_\_  
Name

Title \_\_\_\_\_

*NOTE: SIGNATURE OF SURETY MUST BE NOTARIZED.*

Subscribed and sworn to before me  
this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

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

(seal)

**NON-COLLUSION AFFIDAVIT**

STATE OF CALIFORNIA                    )  
  ) SS  
COUNTY OF \_\_\_\_\_)

\_\_\_\_\_ being first duly sworn deposes and says that he is \_\_\_\_\_ (sole owner, a partner, president, etc.) of \_\_\_\_\_ the party making the foregoing bid; that such bid is not made in the interest of or behalf of any undisclosed person, partnership, company, association, organization or corporation, that such bid is genuine and not collusive or a sham, that said bidder has not directly or indirectly induced or solicited any other bidder to put in a sham bid, or that anyone shall refrain from bidding, that said bidder has not in any manner, directly or indirectly sought by agreements, communication or conference with anyone to fix the bid price of said bidder or of any other bidder, or to fix the overhead, profit, or cost element of such bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract; that all statements contained in such bid are true, and further, that said bidder has not, directly or indirectly submitted his bid price, or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee in connection, organization, bid depository, or to any member or persons as have a partnership or other financial interest with said bidder in his general business.

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

Title: \_\_\_\_\_

Subscribed and sworn to before me  
this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

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

# EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

## EXHIBIT 12-E

The bidder \_\_\_\_\_, proposed subcontractor(s) \_\_\_\_\_, hereby certifies that he/she has, \_\_\_ has not \_\_\_\_\_, participated in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, or 11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

**Note:** The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

**DEBARMENT AND SUSPENSION CERTIFICATION**  
**EXHIBIT 12-E**

TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The bidder, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, manager:

- Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
- Has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years;
- Does not have a proposed debarment pending; and
- Has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Notes: Providing false information may result in criminal prosecution or administrative sanctions. The above certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

NAME OF CONTRACTOR \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_



**NON-LOBBYING CERTIFICATION FOR FEDERAL  
AID CONTRACTS - EXHIBIT 12-E**

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such subrecipients shall certify and disclose accordingly.

NAME OF CONTRACTOR \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

# DISCLOSURE OF LOBBYING ACTIVITIES

COMPLETE THIS FORM TO DISCLOSE LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

|   |  |  |
|---|--|--|
| <p><b>1. Type of Federal Action:</b></p> <p><input type="checkbox"/> a. contract<br/> <input type="checkbox"/> b. grant<br/> <input type="checkbox"/> c. cooperative agreement<br/> <input type="checkbox"/> d. loan<br/> <input type="checkbox"/> e. loan guarantee<br/> <input type="checkbox"/> f. loan insurance</p>  | <p><b>2. Status of Federal Action:</b></p> <p><input type="checkbox"/> a. bid/offer/application<br/> <input type="checkbox"/> b. initial award<br/> <input type="checkbox"/> c. post-award</p>   | <p><b>3. Report Type:</b></p> <p><input type="checkbox"/> a. initial<br/> <input type="checkbox"/> b. material change</p> <p style="text-align: right;"><b>For Material Change Only:</b></p> <p style="text-align: right;">year _____ quarter _____<br/> date of last report _____</p> |
| <p><b>4. Name and Address of Reporting Entity</b></p> <p><input type="checkbox"/> Prime                      <input type="checkbox"/> Subawardee<br/> Tier _____, if known</p> <p style="text-align: center;">Congressional District, if known</p>  | <p><b>5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:</b></p> <p style="text-align: center;">Congressional District, if known</p>  |  |
| <p><b>6. Federal Department/Agency:</b></p>   | <p><b>7. Federal Program Name/Description:</b></p> <p style="text-align: right;">CFDA Number, if applicable _____</p>  |  |
| <p><b>8. Federal Action Number, if known:</b></p>   | <p><b>9. Award Amount, if known:</b></p>   |  |
| <p><b>10. a. Name and Address of Lobby Entity</b><br/> (If individual, last name, first name, MI)</p>   | <p><b>b. Individuals Performing Services</b> (including address if different from No. 10a)<br/> (last name, first name, MI)</p>  |  |
| (attach Continuation Sheet(s) if necessary)   |  |  |
| <p><b>11. Amount of Payment (check all that apply)</b></p> <p>\$ _____ <input type="checkbox"/> actual                      <input type="checkbox"/> planned</p>  | <p><b>13. Type of Payment (check all that apply)</b></p> <p><input type="checkbox"/> a. retainer<br/> <input type="checkbox"/> b. one-time fee<br/> <input type="checkbox"/> c. commission<br/> <input type="checkbox"/> d. contingent fee<br/> <input type="checkbox"/> e. deferred<br/> <input type="checkbox"/> f. other, specify _____</p> |  |
| <p><b>12. Form of Payment (check all that apply):</b></p> <p><input type="checkbox"/> a. cash<br/> <input type="checkbox"/> b. in-kind; specify: nature _____<br/> value _____</p>  |  |  |
| <p><b>14. Brief Description of Services Performed or to be performed and Date(s) of Service, including officer(s), employee(s), or member(s) contacted, for Payment Indicated in Item 11:</b></p> <p style="text-align: center;">(attach Continuation Sheet(s) if necessary)</p>  |  |  |
| <p><b>15. Continuation Sheet(s) attached:</b>                      Yes                      No</p>  |  |  |
| <p><b>16. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying reliance was placed by the tier above when his transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semiannually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.</b></p> |  |  |
|   |  | <p>Signature: _____<br/> Print Name: _____<br/> Title: _____<br/> Telephone No.: _____ Date: _____</p>   |

Federal Use Only:

Authorized for Local Reproduction  
Standard Form - LLL

Standard Form LLL Rev. 09-12-97

## INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime federal recipient, at the initiation or receipt of covered federal action or a material change to previous filing pursuant to title 31 U.S.C. Section 1352. The filing of a form is required for such payment or agreement to make payment to lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress an officer or employee of Congress or an employee of a Member of Congress in connection with a covered federal action. Attach a continuation sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered federal action for which lobbying activity is and/or has been secured to influence, the outcome of a covered federal action.
2. Identify the status of the covered federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last, previously submitted report by this reporting entity for this covered federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be a prime or subaward recipient. Identify the tier of the sub awardee, e.g., the first sub awardee of the prime is the first tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in Item 4 checks "Sub awardee" then enter the full name, address, city, State and zip code of the prime federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organization level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the federal program name or description for the covered federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans and loan commitments.
8. Enter the most appropriate federal identifying number available for the federal action identification in item 1 (e.g., Request for Proposal (RFP) number, Invitation for Bid (IFB) number, grant announcement number, the contract grant. or loan award number, the application/proposal control number assigned by the federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered federal action where there has been an award or loan commitment by the Federal agency, enter the federal amount of the award/loan commitments for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influenced the

covered federal action.

(b) Enter the full names of the individual(s) performing services and include full address if different from 10 (a). Enter Last Name, First Name and Middle Initial (MI).

11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.
14. Provide a specific and detailed description of the services that the lobbyist has performed or will be expected to perform and the date(s) of any services rendered. Include all preparatory and related activity not just time spent in actual contact with federal officials. Identify the federal officer(s) or employee(s) contacted or the officer(s) employee(s) or Member(s) of Congress that were contacted.
15. Check whether or not a continuation sheet(s) is attached.
16. The certifying official shall sign and date the form, print his/her name title and telephone number.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, D.C. 20503.

**CITY OF IMPERIAL**

**AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT**

**BID NO. 2024-07**

**THIS FORM MUST BE FULLY COMPLETED AND INCLUDED WITH THE BID DOCUMENTS OR THE BID SHALL BE NON-RESPONSIVE.**

**DESIGNATION/CERTIFICATION OF ASPHALT-RUBBER BINDER APPLICATOR(S)**  
BIDDER proposes to have Asphalt-Rubber **BINDER** for **ARAM** (application) applied by:

---

**Name/Address**

This section shall be completed even if the bidder plans to apply Asphalt-Rubber binder with its own equipment and labor forces. Name above must be actual company applying Asphalt-Rubber binder on the roadway.

Bidder shall attach to this form copies of all required air pollution control district or air quality management district current final permit to operate (PTO) documents (not temporary, experimental, research, expired, and/or authority to construct (ATC)) which allow the operation of the specific equipment to be used to control emissions during the application of Asphalt-Rubber binder on the roadway (the Application). The Application, in a manner conforming with these projects specifications, has been indisputably determined to be in non-compliance with California air quality regulations limiting opacity of emissions, unless a permitted emission control device is used during the Application to directly remove emission occurring during the Application. It is for that device, which may be described as an air filter, custom air pollution control system, portable air pollution control, opacity control unit, emission control unit, consisting of collection hood and 3-stage oil mist filter system, or other similar description for which a copy of a current final PTO must be provided from the local air pollution control district or air quality management district.

If the bidder fails to fully complete this portion of the bid and provide the foregoing documentation, the bid is non-responsive and shall be rejected.

**CERTIFICATION UNDER PENALTY OF PERJURY**

**I certify under penalty of perjury under the law of the State of California that I have read and understand the requirements contained in this form. I further certify that all information provided in response to this form is true and accurate to the best of my knowledge and belief.**

---

Print Name, Title

Signature of Bidder

Date

**DESIGNATION/CERTIFICATION OF ASPHALT-RUBBER AND AGGREGATE  
MEMBRANE CONTRACTOR AND/OR SUBCONTRACTOR(S).**

**THIS FORM MUST BE INCLUDED AND FULLY COMPLETED WITH THE BID OR  
THE BID SHALL BE CONSIDERED NON-RESPONSIVE**

**Bidder proposes to have the ARAM installed by:**

---

**(Insert name of contractor/sub-contractor above)**

This section shall be completed even if the apparent low bidder plans to produce and install ARAM with its own forces. Name of contractor and/or subcontractor(s) shall be the actual company(ies) applying the binder and aggregate.

For any bid to be considered responsive, performance criteria must be demonstrated on five separate projects performed by the same contractor or subcontractor(s) designated above, and with equivalent aggregate and binder proposed for the ARAM in this bid. Five years shall have elapsed since completion of the ARAM surface installation on each project, and the projects shall be located in Southern California in areas or regions which have documented National Weather Service maximum air temperatures of above 105°F during June, July, August, and September for a minimum of 40 days on a three year average annual basis. To be considered a valid representative project, bidder must submit the name of the project, owner agency, agency representative's name and phone number, and a list of streets with limits totaling at least 1 mile (based on full width) in length for each project and the date the project was actually performed. A project will be considered a valid representative project if asphalt emulsion spray application was originally placed with or without an application of sand, within 15 calendar days of the application of ARAM. Any other cover coat or course on the ARAM will cause the ARAM to be considered invalid as a representative project. ARAM on all projects must show insignificant raveling (loss of rock) and insignificant flushing (binder migration to the surface) at the time of inspection between the bid date and the date of award of the current project by the Agency soliciting bids for this current project. Bidder shall verify any proposed representative projects prior to listing a subcontractor(s) with such projects, or the bid shall be considered non-responsive. If the Bidder cannot list in the space provided five projects that meet the criteria specified herein that were performed by the proposed ARAM contractor or subcontractor(s), the bid shall be considered non-responsive.

## REPRESENTATIVE ARAM PROJECTS

**THIS FORM MUST BE INCLUDED AND  
FULLY COMPLETED WITH THE BID  
OR  
THE BID SHALL BE CONSIDERED NON-RESPONSIVE**

---

Name of Project No.1: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Agency \_\_\_\_\_ Agency Contact: \_\_\_\_\_

Phone: \_\_\_\_\_ Approx. Length of ARAM (Full Width): \_\_\_\_\_

---

Name of Project No.2: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Agency \_\_\_\_\_ Agency Contact: \_\_\_\_\_

Phone: \_\_\_\_\_ Approx. Length of ARAM (Full Width): \_\_\_\_\_

---

Name of Project No.4: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Agency \_\_\_\_\_ Agency Contact: \_\_\_\_\_

Phone: \_\_\_\_\_ Approx. Length of ARAM (Full Width): \_\_\_\_\_

---

Name of Project No.4: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Agency \_\_\_\_\_ Agency Contact: \_\_\_\_\_

Phone: \_\_\_\_\_ Approx. Length of ARAM (Full Width): \_\_\_\_\_

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Name of Project No.5: \_\_\_\_\_ Date Completed: \_\_\_\_\_

Agency \_\_\_\_\_ Agency Contact: \_\_\_\_\_

Phone: \_\_\_\_\_ Approx. Length of ARAM (Full Width): \_\_\_\_\_

---

Signature of Bidder

Title

Date

**Rev 2**  
**08/07/2024**

**CITY OF IMPERIAL**

**PROPOSAL BID SHEET**

**Page 1 of 6**

FOR  
**AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT**

**BID NO. 2024-07**

| ITEM | QUANTITY | UNIT | ITEM                                     | UNIT COST | AMOUNT |
|------|----------|------|--|-----------|--------|
| 1    | 1        | LS   | Mobilization/Demobilization              | \$        | \$     |
| 2    | 1        | LS   | Erosion Control                          | \$        | \$     |
| 3    | 1        | LS   | Construction Staking                     | \$        | \$     |
| 4    | 1        | LS   | Survey Monument Preservation             | \$        | \$     |
| 5    | 1        | LS   | Temporary Traffic Control                | \$        | \$     |
| 6    | 1        | LS   | Utility Coordination                     | \$        | \$     |
| 7    | 1        | LS   | Geotechnical Testing and Quality Control | \$        | \$     |
| 8    | 1        | LS   | Clearing and Grubbing                    | \$        | \$     |
| 9    | 8,100    | LF   | Sawcut                                   | \$        | \$     |
| 10   | 5        | EA   | Remove and Dispose of Tree               | \$        | \$     |
| 11   | 35       | LF   | Remove and Dispose Fence                 | \$        | \$     |
| 12   | 5        | LF   | Remove and Dispose Storm Drain Pipe      | \$        | \$     |
| 13   | 7,600    | SF   | Remove and Dispose Concrete and Base     | \$        | \$     |
| 14   | 1,180    | LF   | Remove and Dispose Curb and Gutter       | \$        | \$     |
| 15   | 29,500   | SF   | Remove and Dispose HMA and Base Course   | \$        | \$     |
| 16   | 1,030    | LF   | Remove and Dispose Asphalt Dike          | \$        | \$     |



**Rev 2**  
**08/07/2024**

**PROPOSAL BID SHEET Page 2 of 6**  
**BID NO. 2024-07**

|    |         |     |  |    |    |
|----|---------|-----|--|----|----|
| 17 | 5       | EA  | Adjust Manhole to Grade  | \$ | \$ |
| 18 | 2       | EA  | Adjust Pullbox to Grade  | \$ | \$ |
| 19 | 5       | EA  | Adjust Water Valve to Grade  | \$ | \$ |
| 20 | 3       | EA  | Adjust Water Meter to Grade  | \$ | \$ |
| 21 | 1,130   | LF  | Construct PCC Curb and Gutter per City of Imperial Standard Detail 400 | \$ | \$ |
| 22 | 1,225   | LF  | Construct PCC Barrier Curb per City of Imperial Standard Detail No 401 | \$ | \$ |
| 23 | 55      | LF  | Construct Type A3-6 Pin on Curb per Caltrans Standard Plan A87A        | \$ | \$ |
| 24 | 580     | LF  | Construct HMA Dike Type A per Caltrans Standard Plan A87B              | \$ | \$ |
| 25 | 20,700  | SF  | Construct PCC Sidewalk per City of Imperial Standard Detail 407-A      | \$ | \$ |
| 26 | 1       | EA  | Construct Type A PCC ADA Passageway per Caltrans Standard Plan A88B    | \$ | \$ |
| 27 | 1       | EA  | Construct Type B PCC ADA Passageway per Caltrans Standard Plan A88B    | \$ | \$ |
| 28 | 17      | EA  | Construct PCC ADA Curb Ramp (All Types)                                | \$ | \$ |
| 29 | 575     | SF  | Construct PCC Spandrel per City of Imperial Standard Detail 410        | \$ | \$ |
| 30 | 270     | SF  | Construct PCC Concrete Cross Gutter                                    | \$ | \$ |
| 31 | 1,550   | SF  | Construct PCC Median Infill  | \$ | \$ |
| 32 | 4,350   | SF  | Construct PCC Driveway (All Types)                                     | \$ | \$ |
| 33 | 2,790   | TON | Construct Hot Mix Asphalt (Thickness Per Plan)                         | \$ | \$ |
| 34 | 112,760 | SF  | Construct 1.5" Asphalt Rubber Hot Mix (ARHM) Pavement                  | \$ | \$ |

**Rev 2**  
**08/07/2024**

**PROPOSAL BID SHEET Page 3 of 6**  
**BID NO. 2024-07**

|    |         |    |   |    |    |
|----|---------|----|---|----|----|
| 35 | 112,760 | SF | Construct 3/8" Asphalt Rubber Aggregate Membrane (ARAM)   | \$ | \$ |
| 36 | 86,000  | SF | Construct Leveling Course   | \$ | \$ |
| 37 | 5,950   | CY | Construct Class 2 Aggregate Base (Under HMA and PCC)  | \$ | \$ |
| 38 | 86,000  | SF | 1.5" Cold Mill  | \$ | \$ |
| 39 | 2,700   | SY | Furnish and Install Paving Fabric   | \$ | \$ |
| 40 | 11,621  | CY | Unclassified Excavation   | \$ | \$ |
| 41 | 1       | EA | Construct Sidewalk Underdrain with Rip Rap Pad  | \$ | \$ |
| 42 | 305     | LF | Furnish and Install 18" RCP Storm Drain, 1350-D   | \$ | \$ |
| 43 | 9       | EA | Construct 18" Concrete Pipe Collar  | \$ | \$ |
| 44 | 9       | EA | Construct Straight Headwall per Caltrans Standard Plan D89B   | \$ | \$ |
| 45 | 1       | EA | Construct Type G-2 Inlet With Grate per Caltrans Standard Plan D73-B and D77-A  | \$ | \$ |
| 46 | 1       | LS | Furnish and Install New Water Service (Lateral and Meter)   | \$ | \$ |
| 47 | 1       | LS | Furnish and Install Signing and Marking   | \$ | \$ |
| 48 | 1       | LS | Furnish and Install Rectangular Flashing Beacon (RRFB) Assembly System  | \$ | \$ |
| 49 | 23,157  | SY | Place Type II Slurry Seal   | \$ | \$ |
| 50 | 1       | LS | Furnish and Install Solar Power Rectangular Flashing Beacon (RRFB) Assembly System (Barioni Boulevard @ H Street) Complete and In Place | \$ | \$ |
| 51 | 1       | EA | Furnish and Install Type 19-4-100 Pole & Foundation   | \$ | \$ |
| 52 | 1       | EA | Furnish and Install Type 24-4-100 Pole & Foundation   | \$ | \$ |
| 53 | 2       | EA | Furnish and Install Type 1A (10') Pole & Foundation   | \$ | \$ |
| 54 | 1       | EA | Furnish and Install Type 15TS Pole & Foundation   | \$ | \$ |

**Rev 2**  
**08/07/2024**

**PROPOSAL BID SHEET Page 4 of 6**  
**BID NO. 2024-07**

|    |    |    |   |    |    |
|----|----|----|---|----|----|
| 55 | 4  | EA | Furnish and Install Type 15-FBS Pole & Foundation               | \$ | \$ |
| 56 | 1  | EA | Furnish and Install Push Button Post (Type 2) & Foundation      | \$ | \$ |
| 57 | 3  | EA | Furnish and Install (LED) Luminaire                             | \$ | \$ |
| 58 | 8  | EA | Furnish and Install Vehicle Head (1-Section, 12")               | \$ | \$ |
| 59 | 6  | EA | Furnish and Install Vehicle Head (3-Section, 12")               | \$ | \$ |
| 60 | 4  | EA | Furnish and Install MAS Mount                                   | \$ | \$ |
| 61 | 2  | EA | Furnish and Install SP-1-T Mount                                | \$ | \$ |
| 62 | 1  | EA | Furnish and Install TV-1-T Mount                                | \$ | \$ |
| 63 | 4  | EA | Furnish and Install Pedestrian Signal Head                      | \$ | \$ |
| 64 | 4  | EA | Furnish and Install Pedestrian Push Button (APS)                | \$ | \$ |
| 65 | 2  | EA | Furnish and Install Emergency Vehicle Preemption (EVP)          | \$ | \$ |
| 66 | 1  | EA | Furnish and Install Type 332L Cabinet & Foundation              | \$ | \$ |
| 67 | 1  | EA | Furnish and Install 2070LX Controller with Omni Software        | \$ | \$ |
| 68 | 1  | EA | Furnish and Install Type III-CF Service Cabinet and Foundation  | \$ | \$ |
| 69 | 16 | EA | Furnish and Install Traffic Sign on Signal Standard/Mast Arm    | \$ | \$ |
| 70 | 1  | EA | Furnish and Install R3-1 Blank-Out Sign                         | \$ | \$ |
| 71 | 4  | EA | Furnish and Install Wireless Beacon Control Assembly            | \$ | \$ |
| 72 | 1  | LS | Furnish and Install Wireless Radio System (Signal Interconnect) | \$ | \$ |
| 73 | EA | 1  | Furnish and Install Ethernet Switch                             | \$ | \$ |
| 74 | LS | 1  | Furnish and Install Conductor Wire (All Wires)                  | \$ | \$ |

**Rev 2**  
**08/07/2024**

**PROPOSAL BID SHEET Page 5 of 6**  
**BID NO. 2024-07**

|    |    |     |   |                            |           |
|----|----|-----|---|----------------------------|-----------|
| 75 | EA | 6   | Furnish and Install (No. 5) Pull Box                    | \$                         | \$        |
| 76 | EA | 1   | Furnish and Install (No. 6) Pull Box                    | \$                         | \$        |
| 77 | LF | 470 | Furnish and Install 3" PVC Conduit (Trench In Pavement) | \$                         | \$        |
| 78 | EA | 1   | Furnish and Install Battery Backup System (Complete)    | \$                         | \$        |
| 79 | LS | 1   | Establish Electrical Connection                         | \$                         | \$        |
| 80 | LS | 1   | Furnish and Install Booster Pump Assembly               | \$                         | \$        |
|    |    |     |   |                            |           |
|    |    |     |   | <b>Total Bid Proposal:</b> | <b>\$</b> |

**CITY OF IMPERIAL**  
**PROPOSAL BID SHEET Page 6 of 6**  
FOR  
**AHSC-ARPA/HWY 86 BEAUTIFICATION**  
**PHASE 1 PROJECT**

BID NO. 2024-07

**NOTE 1: THE ESTIMATED QUANTITIES INDICATED ABOVE ARE APPROXIMATE. THE ENGINEER WILL NOT ASSUME RESPONSIBILITY FOR THE QUANTITIES ILLUSTRATED IN THE PROJECT PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE QUANTITIES.**

**NOTE 2: THE LOWEST RESPONSIVE BID WILL BE BASED ON THE LOWEST TOTAL BID PROPOSAL.**

TOTAL AMOUNT OF BID PROPOSAL (NUMBERS) \_\_\_\_\_

TOTAL AMOUNT OF BID PROPOSAL (WORDS) \_\_\_\_\_

\_\_\_\_\_  
Note: The estimated quantities listed in the Proposal Bid Sheet(s) are supplied to give an indication of the general scope of the work, but the accuracy of these figures is not guaranteed, and the bidder shall make his own estimates from the drawings. In case of a variation between the unit price and the totals shown by the bidder, the unit price will be considered to be the bid.

\_\_\_\_\_  
Bidder's Name and Telephone Number

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**VERIFICATION OF COMPLIANCE WITH ECONOMIC SANCTIONS IN RESPONSE  
TO RUSSIA’S ACTIONS IN UKRAINE**

Per California Executive Order N-6-22, the City of Imperial is required to assure that all contractors doing business with the City of Imperial are in compliance with economic sanctions imposed by the U.S. government in response to Russia’s actions in Ukraine, as well as sanctions imposed under state law, if any. Please execute this document to verify your current compliance with Executive Order N-6-22 and to ensure that this project will be in compliance with Executive Order N-6-22.

**NOTICE:** Having conducted a good faith review, I attest that the person/entity submitting this bid is in compliance with the economic sanctions imposed by the U.S. government in response to Russia’s actions in Ukraine, as well as sanctions imposed under state law, if any. Further, I attest that I am aware of Executive Order N-6-22 and agree monitor the project to ensure the project remains in compliance with Executive Order N-6-22.

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BIDDER

*Note that responses may be subject to disclosure under the California Public Records Act. Accordingly, it is within the discretion of the respondent to determine what information to provide. Additionally, please do not include any confidential information or disclosures that could pose security risks.*

**BID PROPOSAL**

IN WITNESS WHEREOF, BIDDER executes and submits this bid proposal with the names, titles, hands, and seals of all forenamed principals this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

Bidder: \_\_\_\_\_

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

Title: \_\_\_\_\_

Subscribed and sworn to this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

NOTARY PUBLIC \_\_\_\_\_

AGENCY acknowledges this proposal was received and opened at the time and in the place specified, and that it was accompanied by the required guarantee in the amount of ten percent (10%) of the total bid.

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

Title: \_\_\_\_\_



## **CONTRACT DOCUMENTS**

## CITY OF IMPERIAL

### CONSTRUCTION SERVICES AGREEMENT

This CONSTRUCTION SERVICES AGREEMENT ("Agreement"), is made and effective \_\_\_\_\_, by and between City of Imperial, a municipal corporation ("AGENCY"), and [insert contractor name], a [sole proprietorship, partnership, limited liability partnership, corporation] ("CONTRACTOR"). In consideration of the mutual covenants and conditions set forth herein, the parties agree as follows:

#### **I. SCOPE OF WORK**

The CONTRACTOR shall perform within the time set forth in this Agreement and shall furnishing all materials, equipment, tools, labor and incidentals as required by the Plans, Specifications and Contract Documents. The work to be performed includes, but not limited to the following activities for this contract:

Removal of existing asphalt in poor conditions, grind and overlay in parts of streets as needed, installation of ¾" asphalt leveling course, installation of asphalt-rubber aggregate membrane (ARAM), installation of gap-graded asphalt rubber hot mix (ARHM), slurry seal, removal and replacement of fire hydrants, removal and replacement of sanitary sewer manholes, installation of Storm Drain System (12" Dia. ADS HP Storm Drain Pipe, PCC Junction Boxes & PCC Catch Basins), utility adjustments, removal and replacement of concrete curb & gutter, sidewalks and ADA ramps, installation of thermoplastic striping. Includes road traffic control around the construction zones. All work to be completed within existing City of Imperial public right of way. The grindings derived from the construction activity listed under Item "6" of the Proposal Bid Sheet, shall be disposed and "stockpiled" at the following location: City Shop & Wastewater Treatment Plant located at 701 E. 14th Street, Imperial, CA 92251.

The scope of work includes, prior to the start of construction, the coordination between the City of Imperial and the Contractor.

By entering into this Agreement, CONTRACTOR acknowledges that there may be other contractors on the site whose work will be coordinated with that of its own. CONTRACTOR expressly warrants and agrees that it will cooperate with other contractors and will do nothing to delay, hinder, or interfere with the work of other separate contractors, the AGENCY, the Construction Manager, the Architect, or utilities. CONTRACTOR also expressly agrees that, in the event its work is hindered, delayed, interfered with, or otherwise affected by a separate contractor, its sole remedy will be a direct action against the separate contractor. To the extent allowed by law, the CONTRACTOR will have no remedy, and hereby expressly waives any remedy against the AGENCY, the Construction Manager, or the Architect on account of delay, hindrance, interference or other events caused by a separate contractor.

#### **II. TIME FOR PROJECT COMPLETION**

All of CONTRACTOR's work on the Project shall be completed within durations established for the individual activities as set forth in the Project Construction Schedule. All work shall commence no later than ten (10) calendar days after receiving a written Notice to Proceed from the AGENCY or Construction Manager, if a Construction Manager is employed by AGENCY on the Project. CONTRACTOR shall refer to the

invitations for bids, and Project Plans and Specifications, all of which, as set forth below, are incorporated herein by reference, for contractual obligations regarding individual activity durations. The aggregate sum total work of all individual Prime Contractors to the AGENCY comprises the entire "Project" and shall be commenced and completed in conformance with the Project Construction Schedule.

The entire Project shall be completed within **Ninety (90) consecutive calendar days.**

**III. THE CONTRACT SUM**

The AGENCY shall pay to the CONTRACTOR for the performance of this Agreement, subject to any additions and deductions provided in the Project documents, the sum of \_\_\_\_\_ (\$\_\_\_\_.00).

**IV. PROGRESS PAYMENTS**

Based upon Applications for Payment submitted to the Architect by the CONTRACTOR and Certificates for Payment issued by the Architect, the AGENCY shall make progress payments on account of the Contract Sum to the CONTRACTOR as provided in the General Conditions.

This Agreement is subject to the provisions of Article 1.7 (commencing at Section 20104.50) of Division 2, Part 3 of the Public Contract Code regarding prompt payment of contractors by local governments. Article 1.7 mandates certain procedures for the payment of undisputed and properly submitted payment requests within 30 days after receipt, for the review of payment requests, for notice to Contractor of improper payment requests, and provides for the payment of interest on progress payment requests which are not timely made in accordance with that Article. This AGREEMENT hereby incorporates the provisions of Article 1.7 as though fully set forth herein.]

**V. RETENTION OF SECURITIES**

Public Contract Code Section 22300 permits the substitution of securities for any monies withheld by a public agency to ensure performance under a contract, at the request and expense of the CONTRACTOR.

**VI. INDEMNITY, DEFENSE AND HOLD HARMLESS AGREEMENT**

CONTRACTOR shall indemnify, defend with legal counsel approved by AGENCY, and hold harmless AGENCY, its officers, officials, employees and volunteers from and against all liability, loss, damage, expense, cost (including without limitation reasonable legal counsel fees, expert fees and all other costs and fees of litigation) of every nature arising out of or in connection with CONTRACTOR's negligence, recklessness or willful misconduct in the performance of work hereunder or its failure to comply with any of its obligations contained in this Agreement, except such loss or damage which is caused by the sole or active negligence or willful misconduct of the AGENCY. Should conflict of interest principles preclude a single legal counsel from representing both AGENCY and CONTRACTOR, or should AGENCY otherwise find CONTRACTOR's legal counsel unacceptable, then CONTRACTOR shall reimburse the AGENCY its costs of defense, including without limitation reasonable legal counsel fees, expert fees and all other costs

and fees of litigation. The CONTRACTOR shall promptly pay any final judgment rendered against the AGENCY (and its officers, officials, employees and volunteers) with respect to claims determined by a trier of fact to have been the result of the CONTRACTOR's negligent, reckless or wrongful performance. It is expressly understood and agreed that the foregoing provisions are intended to be as broad and inclusive as is permitted by the law of the State of California and will survive termination of this Agreement.

CONTRACTOR obligations under this section apply regardless of whether such claim, charge, damage, demand, action, proceeding, loss, stop notice, cost, expense, judgment, civil fine or penalty, or liability was caused in part or contributed to by an Indemnitee. However, without affecting the rights of AGENCY under any provision of this agreement, CONTRACTOR shall not be required to indemnify and hold harmless AGENCY for liability attributable to the active negligence of AGENCY, provided such active negligence is determined by agreement between the parties or by the findings of a court of competent jurisdiction. In instances where AGENCY is shown to have been actively negligent and where AGENCY'S active negligence accounts for only a percentage of the liability involved, the obligation of CONTRACTOR will be for that entire portion or percentage of liability not attributable to the active negligence of AGENCY.

**VII. PREVAILING WAGES**

- A. In accordance with the provisions of Labor Code §§1770 to 1781, the City Council of The City of Imperial has adopted the latest publication of the General Prevailing Wage Rates entitled, "State of California, Department of Transportation, Equipment Rental Rates and General Prevailing Wage Rates."
- B. The following Labor Code sections are hereby referenced and made a part of this Agreement:
  - 1. Section 1775 - Penalty for Failure to Comply with Prevailing Wage Rates.
  - 2. Section 1777.4 - Apprenticeship Requirements.
  - 3. Section 1777.5 - Apprenticeship Requirements.
  - 4. Section 1813 - Penalty for Failure to Pay Overtime.
  - 5. Sections 1810 and 1811 - Working Hour Restrictions.
  - 6. Section 1775 - Payroll Records.
  - 7. Section 1773.8 - Travel and Subsistence Pay.

**VIII. RECORD AUDIT**

In accordance with Government Code, Section 8546.7, records of both the AGENCY and the CONTRACTOR shall be subject to examination and audit by the Auditor General for a period of three (3) years after final payment.

**IX. FINAL PAYMENT**

Final payment, constituting the entire unpaid balance of the Agreement Sum, shall be paid by the AGENCY to the CONTRACTOR no sooner than thirty-five (35) days after a Notice of Completion has been recorded, unless otherwise stipulated in the Notice of Completion, provided the work has then been completed, the Agreement fully performed, and a final Certificate for Payment has been issued by the Architect.

**X. CONTRACTOR'S FAILURE TO PROCURE COMPLETION OF PROJECT**

In the event CONTRACTOR fails to furnish tools, equipment, or labor in the necessary quantity or quality, or fails to prosecute the work or any part thereof contemplated by this Agreement in a diligent and workmanlike manner, and if the CONTRACTOR for a period of three (3) calendar days after receipt of written demand from AGENCY or its designated representative to do so, fails to furnish tools, equipment, or labor in the necessary quantity or quality, and to prosecute its work and all parts thereof in a diligent and workmanlike manner, or after commencing to do so within said three (3) calendar days, fails to continue to do so; then the AGENCY may exclude the CONTRACTOR from the premises, or any portion thereof, and take possession of said premises or any portion thereof, together with all material and equipment thereon, and may complete the work contemplated by this Agreement or any portion of said work, either by furnishing the tools, equipment, labor or material necessary, or by letting the unfinished portion of said work, or the portion taken over by the AGENCY to another contractor or by a combination of such methods. In any event, the procuring of the completion of said work, or the portion thereof taken over by the AGENCY, shall be a charge against the CONTRACTOR, and may be deducted from any money due or becoming due to CONTRACTOR from the AGENCY, or the CONTRACTOR shall pay the AGENCY the amount of said charge, or the portion thereof unsatisfied. The sureties provided for under this Agreement shall become liable for payment should CONTRACTOR fail to pay in full any said cost incurred by the AGENCY.

**XI. INSURANCE**

Prior to the beginning of and throughout the duration of the Work, CONTRACTOR and its subcontractors shall maintain insurance in conformance with the requirements set forth below. CONTRACTOR will use existing coverage to comply with these requirements. If that existing coverage does not meet the requirements set forth herein, CONTRACTOR agrees to amend, supplement or endorse the existing coverage to do so.

CONTRACTOR acknowledges that the insurance coverage and policy limits set forth in this section constitute the minimum amount of coverage required. Any insurance proceeds available to CONTRACTOR or its subcontractors in excess of the limits and coverage identified in this Agreement and which is applicable to a given loss, claim or demand, will be equally available to AGENCY.

A. CONTRACTOR shall provide the following types and amounts of insurance:

Without limiting CONTRACTOR's indemnification of AGENCY, and prior to commencement of Work, CONTRACTOR shall obtain, provide and maintain at its own expense during the term of this Agreement, policies of insurance of the type and amounts described below and, in a form, satisfactory to AGENCY.

**General liability insurance.** CONTRACTOR shall maintain commercial general liability insurance with coverage at least as broad as Insurance Services Office form CG 00 01, in an amount not less than \$1,000,000 per occurrence, \$2,000,000 general aggregate, for bodily injury, personal injury, and property damage, and \$2,000,000 completed operations aggregate. The policy must include contractual liability that has not been amended. Any endorsement restricting standard ISO “insured contract” language will not be accepted.

**Automobile liability insurance.** CONTRACTOR shall maintain automobile insurance at least as broad as Insurance Services Office form CA 00 01 covering bodily injury and property damage for all activities of the CONTRACTOR arising out of or in connection with Work to be performed under this Agreement, including coverage for any owned, hired, non-owned or rented vehicles, in an amount not less than \$1,000,000 combined single limit for each accident.

**Umbrella or excess liability insurance.** [Optional depending on limits required] CONTRACTOR shall obtain and maintain an umbrella or excess liability insurance that will provide bodily injury, personal injury and property damage liability coverage at least as broad as the primary coverages set forth above, including commercial general liability, automobile liability, and employer’s liability. Such policy or policies shall include the following terms and conditions:

- A drop-down feature requiring the policy to respond in the event that any primary insurance that would otherwise have applied proves to be uncollectable in whole or in part for any reason;
- Pay on behalf of wording as opposed to reimbursement;
- Concurrency of effective dates with primary policies;
- Policies shall “follow form” to the underlying primary policies; and
- Insureds under primary policies shall also be insureds under the umbrella or excess policies.

**Workers’ compensation insurance.** CONTRACTOR shall maintain Workers’ Compensation Insurance (Statutory Limits) and Employer’s Liability Insurance (with limits of at least \$1,000,000) for CONTRACTOR’s employees in accordance with the laws of the State of California, Section 3700 of the Labor Code. In addition, CONTRACTOR shall require each subcontractor to similarly maintain Workers’ Compensation Insurance and Employer’s Liability Insurance in accordance with the laws of the State of California, Section 3700 for all of the subcontractor’s employees.

CONTRACTOR shall submit to AGENCY, along with the certificate of insurance, a Waiver of Subrogation endorsement in favor of AGENCY, its officers, agents, employees and volunteers.

**Pollution liability insurance.** Environmental Impairment Liability Insurance shall be written on a CONTRACTOR’s Pollution Liability form or other form acceptable to AGENCY providing coverage for liability arising out of sudden, accidental and gradual pollution and remediation. The policy limit shall be no less than \$1,000,000 dollars per claim and in the aggregate. All activities contemplated in this Agreement shall be specifically scheduled on the policy as “covered operations.” The policy shall provide

coverage for the hauling of waste from the project site to the final disposal location, including non-owned disposal sites.

**Builder's risk insurance.** Upon commencement of construction and with approval of AGENCY, CONTRACTOR shall obtain and maintain builder's risk insurance for the entire duration of the Project until only the AGENCY has an insurable interest. The Builder's Risk coverage shall include the coverages as specified below.

The named insureds shall be CONTRACTOR and AGENCY, including its officers, officials, employees, and agents. All Subcontractors (excluding those solely responsible for design Work) of any tier and suppliers shall be included as additional insureds as their interests may appear. CONTRACTOR shall not be required to maintain property insurance for any portion of the Project following transfer of control thereof to AGENCY. The policy shall contain a provision that all proceeds from the builder's risk policy shall be made payable to the AGENCY. The AGENCY will act as a fiduciary for all other interests in the Project.

Policy shall be provided for replacement value on an "all risk" basis for the completed value of the project. There shall be no coinsurance penalty or provisional limit provision in any such policy. Policy must include: (1) coverage for any ensuing loss from faulty workmanship, Nonconforming Work, omission or deficiency in design or specifications; (2) coverage against machinery accidents and operational testing; (3) coverage for removal of debris, and insuring the buildings, structures, machinery, equipment, materials, facilities, fixtures and all other properties constituting a part of the Project; (4) Ordinance or law coverage for contingent rebuilding, demolition, and increased costs of construction; (5) transit coverage (unless insured by the supplier or receiving contractor), with sub-limits sufficient to insure the full replacement value of any key equipment item; (6) Ocean marine cargo coverage insuring any Project materials or supplies, if applicable; (7) coverage with sub-limits sufficient to insure the full replacement value of any property or equipment stored either on or off the Site or any staging area. Such insurance shall be on a form acceptable to Agency to ensure adequacy of terms and sublimits and shall be submitted to the Agency prior to commencement of construction.

#### **Other provisions or requirements**

**Proof of insurance.** CONTRACTOR shall provide certificates of insurance to AGENCY as evidence of the insurance coverage required herein, along with a waiver of subrogation endorsement for workers' compensation. Insurance certificates and endorsements must be approved by AGENCY's risk manager prior to commencement of performance. Current certification of insurance shall be kept on file with AGENCY at all times during the term of this contract. AGENCY reserves the right to require complete, certified copies of all required insurance policies, at any time.

**Duration of coverage.** CONTRACTOR shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the Work hereunder by CONTRACTOR, his agents, representatives, employees or subcontractors. CONTRACTOR must maintain general liability and umbrella or excess liability insurance for as long as there is a statutory exposure to completed operations claims. AGENCY

and its officers, officials, employees, and agents shall continue as additional insureds under such policies.

**Primary/noncontributing.** Coverage provided by CONTRACTOR shall be primary and any insurance or self-insurance procured or maintained by AGENCY shall not be required to contribute with it. The limits of insurance required herein may be satisfied by a combination of primary and umbrella or excess insurance. Any umbrella or excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and non-contributory basis for the benefit of AGENCY before the AGENCY's own insurance or self-insurance shall be called upon to protect it as a named insured.

**Products/completed operations coverage.** Products/completed operations coverage shall extend a minimum of three (3) years after project completion. Coverage shall be included on behalf of the insured for covered claims arising out of the actions of independent contractors. If the insured is using subcontractors, the Policy must include work performed "by or on behalf" of the insured. Policy shall contain no language that would invalidate or remove the insurer's duty to defend or indemnify for claims or suits expressly excluded from coverage. Policy shall specifically provide for a duty to defend on the part of the insurer. The AGENCY, its officials, officers, agents, and employees, shall be included as additional insureds under the Products and Completed Operations coverage.

**Agency's rights of enforcement.** In the event any policy of insurance required under this Agreement does not comply with these requirements or is canceled and not replaced, AGENCY has the right but not the duty to obtain the insurance it deems necessary and any premium paid by AGENCY will be promptly reimbursed by CONTRACTOR or AGENCY will withhold amounts sufficient to pay premium from CONTRACTOR payments. In the alternative, AGENCY may cancel this Agreement.

**Acceptable insurers.** All insurance policies shall be issued by an insurance company currently authorized by the Insurance Commissioner to transact business of insurance or is on the List of Approved Surplus Line Insurers in the State of California, with an assigned policyholders' Rating of A- (or higher) and Financial Size Category Class VII (or larger) in accordance with the latest edition of Best's Key Rating Guide, unless otherwise approved by the AGENCY's risk manager.

**Waiver of subrogation.** All insurance coverage maintained or procured pursuant to this agreement shall be endorsed to waive subrogation against AGENCY, its elected or appointed officers, agents, officials, employees and volunteers or shall specifically allow CONTRACTOR or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. CONTRACTOR hereby waives its own right of recovery against AGENCY and shall require similar written express waivers and insurance clauses from each of its subconsultants.

**Enforcement of contract provisions (non estoppel).** CONTRACTOR acknowledges and agrees that any actual or alleged failure on the part of the AGENCY to inform CONTRACTOR of non-compliance with any requirement imposes no additional obligations on the AGENCY nor does it waive any rights hereunder.



**Requirements not limiting.** Requirements of specific coverage features, or limits contained in this Section are not intended as a limitation on coverage, limits or other requirements, or a waiver of any coverage normally provided by any insurance. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given issue and is not intended by any party or insured to be all inclusive, or to the exclusion of other coverage, or a waiver of any type. If the CONTRACTOR maintains higher limits than the minimums shown above, the AGENCY requires and shall be entitled to coverage for the higher limits maintained by the CONTRACTOR. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the AGENCY.

**Notice of cancellation.** CONTRACTOR agrees to oblige its insurance agent or broker and insurers to provide to AGENCY with a thirty (30) day notice of cancellation (except for nonpayment for which a ten (10) day notice is required) or nonrenewal of coverage for each required coverage.

**Additional insured status.** General liability policies shall provide or be endorsed to provide that AGENCY and its officers, officials, employees, agents, and volunteers shall be additional insureds under such policies. This provision shall also apply to any excess/umbrella liability policies.

**Prohibition of undisclosed coverage limitations.** None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to AGENCY and approved of in writing.

**Separation of insureds.** A severability of interests provision must apply for all additional insureds ensuring that CONTRACTOR's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the insurer's limits of liability. The policy(ies) shall not contain any cross-liability exclusions.

**Pass through clause.** CONTRACTOR agrees to ensure that its subconsultants, subcontractors, and any other party involved with the project who is brought onto or involved in the project by CONTRACTOR, provide the same minimum insurance coverage and endorsements required of CONTRACTOR. CONTRACTOR agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. CONTRACTOR agrees that upon request, all agreements with consultants, subcontractors, and others engaged in the project will be submitted to AGENCY for review.

**Agency's right to revise requirements.** The AGENCY reserves the right at any time during the term of the contract to change the amounts and types of insurance required by giving the CONTRACTOR a ninety (90) day advance written notice of such change. If such change results in substantial additional cost to the CONTRACTOR, the AGENCY and CONTRACTOR may renegotiate CONTRACTOR's compensation.

**Self-insured retentions.** Any self-insured retentions must be declared to and approved by AGENCY. AGENCY reserves the right to require that self-insured retentions be eliminated, lowered, or replaced by a deductible. Self-insurance will not be considered to comply with these specifications unless approved by AGENCY.

**Timely notice of claims.** CONTRACTOR shall give AGENCY prompt and timely notice of claims made or suits instituted that arise out of or result from CONTRACTOR's performance under this Agreement, and that involve or may involve coverage under any of the required liability policies.

**Additional insurance.** CONTRACTOR shall also procure and maintain, at its own cost and expense, any additional kinds of insurance, which in its own judgment may be necessary for its proper protection and prosecution of the Work.

## **XII. CONTRACTOR'S LICENSE**

CONTRACTOR must possess at the time of commencing work and throughout the Project duration, a Contractor's License, issued by the State of California, which is current and in good standing. CONTRACTOR shall ensure that any subcontractor working on the Project possesses at the time of commencing work and throughout the Project duration, a Contractor's License, issued by the State of California, which is current and in good standing.

## **XIII. REGISTRATION REQUIREMENTS**

Pursuant to Section 1771.1(a) of the Labor Code:

"A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded."

CONTRACTOR must be registered with the Department of Industrial Relations (DIR) of the State of California in order to be eligible to work on public works projects. CONTRACTOR must ensure registration with the DIR that is active and in good standing.

No contractor or subcontractor may be listed on a bid proposal for a public works project (submitted on or after March 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

No contractor or subcontractor may be awarded a contract for public work on a public works project (awarded on or after April 1, 2015) unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

The CONTRACTOR is not subject to public works requirements (including registration with the DIR) if the public works project is under \$1,000, unless the AGENCY knows that the same CONTRACTOR will be awarded total project costs in excess of \$1,000 for a given year.

**XIV. CORPORATION IN GOOD STANDING**

If CONTRACTOR is a corporation, the undersigned hereby represents and warrants that the corporation is duly incorporated and in good standing in the State of \_\_\_\_\_, and that \_\_\_\_\_ whose title is \_\_\_\_\_, is authorized to act for and bind the corporation.

**XV. PROVISIONS REQUIRED BY LAW**

Each and every provision of law and clause required by law to be inserted in this Agreement shall be deemed to be inserted herein and the Agreement shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not currently inserted, then upon application of either party the Agreement shall forthwith be physically amended to make such insertion or correction.

**XVI. SUBSURFACE HAZARDOUS MATERIALS**

- A. In the event trenches or other excavations extend deeper than four (4) feet below the surface, the CONTRACTOR shall promptly, and before the following conditions are disturbed, notify the AGENCY 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 the 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 the Work or the character provided for in the CONTRACT.
- B. Upon receipt of said notification the AGENCY will investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR's cost of or the time required for performance of any part of the work, the AGENCY will issue a change order under the procedures described in the General Conditions.
- C. In the event that a dispute arises between the AGENCY and the CONTRACTOR 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 Agreement, but shall proceed with all work to be performed under the Agreement. The CONTRACTOR

shall retain any and all rights provided either by Agreement or by law which pertain to the resolution of disputes and protests between the contracting parties.

**XVII. LIQUIDATED DAMAGES**

Pursuant to Government Code Section 53069.85, if work is not completed within the contract time or in strict accordance with the Project Schedule, it is understood, acknowledged and agreed that the AGENCY will suffer damage. It is therefore agreed that the CONTRACTOR shall pay to the AGENCY the sum of: \$1,000.00 for each and every calendar day of delay beyond the Contract Time, or beyond any completion schedule, construction schedule or Project milestones established in or pursuant to the Project Schedule, or beyond the time indicated in the Project Schedule for any individual Contract activity.

CONTRACTOR expressly understands, acknowledges and agrees that such liquidated damages can and shall be imposed if the CONTRACTOR does not meet each and every aspect of any activity schedule, completion schedule, construction schedule or Project milestones established in or pursuant to the Project Schedule. If the AGENCY accepts work or makes any payment under this Agreement after a default by reason of delays, the acceptance of such work and/or payment(s) shall in no respect constitute a waiver or modification of any provisions regarding Contract Time, a completion schedule, the Project Schedule or the accrual of liquidated damages. In the event the same is not paid, the CONTRACTOR further agrees that the AGENCY may deduct the amount thereof from any money due or that may become due the CONTRACTOR under the Agreement. This Article does not exclude recovery of damages under provisions of the Contract Documents and is expressly in addition to the AGENCY's ability to seek other damages.

CONTRACTOR is to refer to Section II of this AGREEMENT for Project Construction Schedule for duration of individual activities. Liquidated damages may be assessed if any individual activity duration exceeds the time indicated for that activity on the Project Construction Schedule.

**XVIII. CLAIM PROCEDURES UNDER PUBLIC CONTRACT CODE SECTION 9204**

CONTRACTOR shall comply with the procedure set forth in Public Contracts Code section 9204 for any claim, as that term is defined therein, for one or more of the following: 1) a time extension, including, without limitation, for relief from damages or penalties for delay, 2) payment of money or damages arising from work done pursuant to this Agreement, and/or 3) payment of an amount disputed by the AGENCY under this Agreement.

**XIX. COMPONENT PARTS OF THE CONTRACT**

This Agreement entered into consists of the following CONTRACT DOCUMENTS, all of which are component parts of the Agreement as if herein set out in full or attached hereto:

- 6.1 Invitation for Bids/Advertisement.
- 6.2 Proposal Requirements.
- 6.3 General Conditions
- 6.4 Supplemental General Conditions (State)
- 6.5 Specifications

- 6.6 Special Provisions
- 6.7 Proposal Bid Form
- 6.8 Bid Bond
- 6.9 Proposal Agreement
- 6.10 Agreement
- 6.11 Faithful Performance Bond
- 6.12 Labor and Material Bond
- 6.13 Workers' Compensation Insurance Certification
- 6.14 Subcontractor's Listing
- 6.15 Noncollusion Affidavit
- 6.16 Drug and Alcohol Testing Requirements
- 6.17 Corporate Certification or Partnership Information
- 6.18 Contractor's Certification of Qualification for License Classification

All of the above-named CONTRACT DOCUMENTS are intended to be complementary. Work required by one of the above-named CONTRACT DOCUMENTS and not by others shall be done as if required by all.

The Contract Documents may only be amended by Change Order as provided in section 1-20 of the General Conditions.

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

**XX. ENTIRE CONTRACT**

AGENCY and CONTRACTOR each bind itself, its partners, successors, assigns and legal representative to the other party hereto, its partners, successors, assigns and legal representative in respect of all covenants, agreements and obligations contained in the Contract Documents.

This Agreement constitutes the entire contract of the parties. No other agreements or contracts, whether oral or written, pertaining to the work to be performed, exists between the parties. This Agreement can be modified only by an amendment in writing, signed by both parties.

**CONTRACTOR**  
[Name of Contractor]

**AGENCY**  
City of Imperial

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

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

Title: \_\_\_\_\_

Dennis Morita, City Manager

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

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

ATTEST:

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

By: \_\_\_\_\_  
Katherine Turner, City Attorney

**CONTRACT PERFORMANCE BOND**

(CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the CITY OF IMPERIAL (sometimes referred to hereinafter as "Obligee") has awarded to \_\_\_\_\_ (hereinafter designated as the "Contractor"), an agreement for the work described as follows:

**AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT**

**BID NO. 2024-07**

(hereinafter referred to as the "Public Work"); and

WHEREAS, the work to be performed by the Contractor is more particularly set forth in that certain contract for the said Public Work dated \_\_\_\_\_ (hereinafter referred to as the "Contract"), which Contract is incorporated herein by this reference; and

WHEREAS, the Contractor is required by said Contract to perform the terms thereof and to provide a bond both for the performance and guaranty thereof.

NOW, THEREFORE, we, \_\_\_\_\_, the undersigned Contractor, as Principal, and \_\_\_\_\_

\_\_\_\_\_,  
a corporation organized and existing under the laws of the State of \_\_\_\_\_, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the City of Imperial in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), said sum being not less than one hundred percent (100%) of the total amount payable by the said Obligee under the terms of the said Contract, for which amount will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if the bounden Contractor, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and will and truly keep and perform the covenants, conditions and agreements in the said Contract and any alteration thereof made as therein provided, on his or its part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill the one year guarantee of all materials and workmanship; and indemnify and save harmless the Obligee, its officers and agents, as stipulated in said Contract, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

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

No final settlement between the Obligee and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.  
Contractor and Surety agree that if the Obligee is required to engage the services of an attorney in connection with enforcement of the bond, each shall pay Obligee's reasonable attorney's fees incurred, with or without suit, in addition to the above sum.

IN WITNESS WHEREOF, we have hereunto set our hands and seals  
this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

PRINCIPAL/CONTRACTOR:

\_\_\_\_\_

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

SURETY:

\_\_\_\_\_

By: \_\_\_\_\_  
Attorney-in-Fact

The rate of premium on this bond is \_\_\_\_\_ per thousand.

The total amount of premium charged: \$ \_\_\_\_\_

(The above must be filled in by corporate surety).

**IMPORTANT:** Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in Section 105 of the California Insurance Code, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, it must also appear on the Treasury Department's most current list (Circular 570 as amended). **THIS IS A REQUIRED FORM.**

Any claims under this bond may be addressed to:

(Name and Address of Surety)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Name and Address of agent or representative for service of process in California if different from above)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Telephone Number of Surety and agent or representative for service of process in California).

\_\_\_\_\_





**PAYMENT BOND**  
(CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the City of Imperial (sometimes referred to hereinafter as "Obligee") has awarded to (hereinafter designated as the "Contractor"), an agreement dated \_\_\_\_\_, described as follows:

**AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT**

**BID NO. 2024-07**

(hereinafter referred to as the "Contract"): and

WHEREAS, said Contractor is required to furnish a bond in connection with said Contract, and pursuant to Section 3247 of the California Civil Code;

NOW, THEREFORE, We, \_\_\_\_\_, the undersigned Contractor, as Principal; and \_\_\_\_\_, a corporation organized and existing under the laws of the State of \_\_\_\_\_, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the City of Imperial and to any and all persons, companies or corporations entitled to file stop notices under Section 3181 of the California Civil Code, in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), said sum being not less than one hundred percent (100%) of the total amount payable by the said Obligee under the terms of the said Contract, for which payment will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that, if said Contractor, his or its heirs, executors, administrators, successors or assigns, or Sub-contractors, shall fail to pay for any materials, provisions or other supplies, implements, machinery or power used in, upon for or about the performance of the Public Work contracted to be done, or to pay any person for any work or labor of any kind, or for bestowing skills or other necessary services thereon, or for amounts due under the Unemployment Insurance Code with respect to such work or labor, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of said Contractor and his Subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to such work and labor as required by the provisions of Section 3247 through 3252 of the Civil Code, the Surety or Sureties hereon will pay for same in an amount not exceeding the sum specified in this bond, otherwise the above obligation shall be void. In addition to the provisions hereinabove, it is agreed that this bond will inure to the benefit of any and all persons, companies and corporations entitled to serve stop notices under Section 3181 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

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

No final settlement between the Obligee and the Contractor hereunder shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

Contractor and Surety agree that if the Obligee is required to engage the services of an attorney in connection with the enforcement of this bond, each shall pay Obligee's reasonable attorney's fees incurred, with or without suit, in addition to the above sum.

IN WITNESS WHEREOF, we have hereunto set our hands and seal this \_\_\_\_\_ day of \_\_\_\_\_, 2024.

PRINCIPAL/CONTRACTOR:

\_\_\_\_\_

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

SURETY: \_\_\_\_\_

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

Attorney-in-Fact

**IMPORTANT:** Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in Section 105 of the California Insurance Code, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, it must also appear on the Treasury Department's most current list (Circular 570 as amended). **THIS IS A REQUIRED FORM.**

Any claims under this bond may be addressed to:

(Name and Address of Surety)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(Name and Address of agent or representative for service of process in California if different from above)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(Telephone Number of Surety and agent or representative for service of process in California).

\_\_\_\_\_

STATE OF CALIFORNIA )  
 ) ss.  
 COUNTY OF \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_, in the year 2024, before me, \_\_\_\_\_, a Notary Public in

and for said State personally appeared \_\_\_\_\_  
\_\_\_\_\_, known to me to be the person whose name is subscribed to the within  
instrument as the Attorney-in-Fact of the \_\_\_\_\_(Surety) and  
acknowledged to me that he subscribed the name of the \_\_\_\_\_  
\_\_\_\_\_(Surety) thereto and his own name as Attorney-in-Fact.

\_\_\_\_\_  
Notary Public in and for said State

(SEAL)

My Commission expires: \_\_\_\_\_

Note: A copy of the power of attorney to local representatives of the bonding company  
must be attached hereto.

**GENERAL LIABILITY ENDORSEMENT**

CITY OF IMPERIAL  
420 S. Imperial Ave.  
Imperial, CA 92251

**A. POLICY INFORMATION**

Endorsement # \_\_\_\_\_

1. Insurance Company: \_\_\_\_\_

Policy Number: \_\_\_\_\_

2. Policy Term: (From) \_\_\_\_\_ (To) \_\_\_\_\_

Endorsement Effective Date: \_\_\_\_\_

3. Named Insured: \_\_\_\_\_

4. Address of Named Insured: \_\_\_\_\_

\_\_\_\_\_

5. Limit of Liability Any One Occurrence/Aggregate:

\$ \_\_\_\_\_

6. Deductible or Self-Insured Retention (Nil unless otherwise specified):

\$ \_\_\_\_\_

7. Coverage is equivalent to:

Comprehensive General Liability form GL0002 \_\_\_\_\_

\_\_\_\_\_

Commercial General Liability "Occurrence" form CG0001 \_\_\_\_\_

\_\_\_\_\_

8. Bodily Injury and Property Damage Coverage is: \_\_\_\_\_  
"occurrence"

Note: The City of Imperial standard insurance requirements specify "occurrence" coverage. "Claims-made" coverage is not acceptable. If commercial general liability form or equivalent is used, the general aggregate must apply separately to this location/project or the general aggregate must be twice the occurrence limit.

9. Description of Project: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**B. POLICY AMENDMENTS**

This endorsement is issued in consideration of the policy premium. Notwithstanding

any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto, it is agreed as follows:

1. INSURED. As respects any work performed on the above-described Project, the City of Imperial, its elected or appointed officers, officials, employees, consulting engineers, and volunteers are included as insured with regard to damages and defense of claims arising from: (a) activities performed by or on behalf of the Named Insured, (b) products and completed operations of the Named Insured, or (c) premises owned, leased or used by the Named Insured.
2. CONTRIBUTION NOT REQUIRED. As respects: (a) work performed by the Named Insured on the above-described Project for or on behalf of the City of Imperial; or (b) products sold by the Named Insured to the City of Imperial for use on the Project; or (c) premises leased by the Named Insured from the City of Imperial, the insurance afforded by this policy shall be primary insurance as respects the City of Imperial, its elected or appointed officers, officials, employees, consulting engineers, or volunteers; or stand in an unbroken chain of coverage excess of the Named Insured schedule underlying primary coverage. In either event, any other insurance maintained by the City of Imperial, its elected or appointed officers, officials, employees, consulting engineers, or volunteers shall be in excess of this insurance and shall not contribute with it.
3. SCOPE OF COVERAGE. This policy, if primary, affords coverage at least as broad as:
  - (1) Insurance Services Office form number GL 0002 (Ed. 1/73), Comprehensive General Liability Insurance and Insurance Services Office form number GL 0404 Broad Form Comprehensive General Liability endorsement; or
  - (2) Insurance Services Office Commercial General Liability Coverage, "occurrence" form CG 0001; or
  - (3) If excess, affords coverage which is at least as broad as the primary insurance forms referenced in the preceding sections (1) and (2).
4. SEVERABILITY OF INTEREST. The insurance afforded by this policy applies separately to each insured who is seeking coverage or against whom a claim is made, or a suit is brought, except with respect to the Company's limit of liability.
5. PROVISIONS REGARDING THE INSURED'S DUTIES AFTER ACCIDENT OR LOSS. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to the City Imperial, its elected or appointed officer, officials, employees, consulting engineers or volunteers.
6. CANCELLATION NOTICE. The insurance afforded by this policy shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail return receipt requested has been given to the City of Imperial. Such notice shall be addressed as shown in the heading of this endorsement.

**C. INCIDENT AND CLAIM REPORTING PROCEDURE**

Incidents and claims are to be reported to the insurer at:

ATTN: \_\_\_\_\_  
(Title) (Department)

\_\_\_\_\_  
(Company)

\_\_\_\_\_  
(Street Address)

\_\_\_\_\_  
(City) (State) (Zip Code)

\_\_\_\_\_  
(Telephone Number)

**D. SIGNATURE OF INSURER OR AUTHORIZED REPRESENTATIVE OF THE INSURER**

I, \_\_\_\_\_, warrant that I have authority to bind the  
(print/type name) listed Insurance company and by my  
signature hereon do so bind this company.

\_\_\_\_\_  
SIGNATURE OF AUTHORIZED REPRESENTATIVE (Original Signature required on  
endorsement furnished to the City of Imperial)

ORGANIZATION: \_\_\_\_\_  
TITLE: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
TELEPHONE: \_\_\_\_\_

**AUTOMOBILE LIABILITY ENDORSEMENT**

CITY OF IMPERIAL  
420 S. Imperial Ave.  
Imperial, CA 92251

**A. POLICY INFORMATION**

Endorsement # \_\_\_\_\_

1. Insurance Company: \_\_\_\_\_  
Policy Number: \_\_\_\_\_
2. Policy Term: (From) \_\_\_\_\_ (To) \_\_\_\_\_  
Endorsement Effective Date: \_\_\_\_\_
3. Named Insured: \_\_\_\_\_
4. Address of Named Insured: \_\_\_\_\_
5. Limit of Liability Any One Occurrence/Aggregate  
\$ \_\_\_\_\_
6. Deductible or Self-Insured Retention (Nil unless otherwise specified):  
\_\_\_\_\_

**B. POLICY AMENDMENTS**

This endorsement is issued in consideration of the policy premium. Notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto, it is agreed as follows:

1. **INSURED.** The City of Imperial, its elected or appointed officers, officials, consulting engineers, employees and volunteers are included as insured with regard to damages and defense of claims arising from: the ownership, operation, maintenance, use, loading or unloading of any auto owned, leased, hired or borrowed by the Named Insured, regardless of whether liability is attributable to the Named Insured or a combination of the Named Insured and the City of Imperial, its elected or appointed officers, officials, employees, consulting engineers or volunteers.
2. **CONTRIBUTION NOT REQUIRED.** As respects work performed by the Named Insured for or on behalf of the City of Imperial, the insurance afforded by this policy shall:
  - (a) be primary insurance as respects the City of Imperial, its elected or



appointed officers, officials, employees, consulting engineers or volunteers;

or

(b) stand in an unbroken chain of coverage in excess of the Named Insured's primary coverage. In either event, any other insurance maintained by the City of Imperial, its elected or appointed officers, officials, employees or volunteers shall be in excess of this insurance and shall not contribute with it.

3. SCOPE OF COVERAGE. This policy, if primary, affords coverage to the Named Insured at least as broad as:

(1) Insurance Services Office form number CA 00001 (Ed. 1/78), Code 1 ("any auto") and endorsement CA 0025.

(2) If excess, affords coverage which is at least as broad as the primary insurance forms referenced in the preceding section (1).

4. SEVERABILITY OF INTEREST. The insurance afforded by this policy applies separately to each insured who is seeking coverage or against whom a claim is made, or a suit is brought, except with respect to the Company's limit of liability.

5. PROVISIONS REGARDING THE INSURED'S DUTIES AFTER ACCIDENT OR LOSS. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to the City of Imperial, its elected or appointed officer, officials, employees, consulting engineers or volunteers.

6. CANCELLATION NOTICE. The insurance afforded by this policy shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail return receipt requested has been given to the City of Imperial. Such notice shall be addressed as shown in the heading of this endorsement.

**C. INCIDENT AND CLAIM REPORTING PROCEDURE**

Incidents and claims are to be reported to the insurer at:

ATTN: \_\_\_\_\_  
(Title) (Department)

\_\_\_\_\_  
(Company)

\_\_\_\_\_  
(Street Address)

\_\_\_\_\_  
(City) (State) (Zip Code)

\_\_\_\_\_  
(Telephone)

**D. SIGNATURE OF INSURER OR AUTHORIZED REPRESENTATIVE OF THE INSURER**

I, \_\_\_\_\_, warrant that I have authority to bind the  
(print/type name) listed Insurance Company and by my  
signature hereon do so bind this company.

\_\_\_\_\_  
SIGNATURE OF AUTHORIZED REPRESENTATIVE (Original Signature required on  
endorsement furnished to the City of Imperial)

ORGANIZATION: \_\_\_\_\_  
TITLE: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
TELEPHONE: \_\_\_\_\_

**WORKER'S COMPENSATION/EMPLOYERS LIABILITY**  
**ENDORSEMENT**

CITY OF IMPERIAL  
420 S. Imperial Ave.  
Imperial, CA 92251

**A. POLICY INFORMATION**                      Endorsement # \_\_\_\_\_

1. Insurance Company: \_\_\_\_\_

Policy Number: \_\_\_\_\_

2. Effective Date of This Endorsement: \_\_\_\_\_

3. Named Insured: \_\_\_\_\_

4. Employer's Liability Limit (Coverage B) \_\_\_\_\_

**B. POLICY AMENDMENTS**

In consideration of the policy premium and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any other endorsement attached thereto, it is agreed as follows:

1. CANCELATION NOTICE. The insurance afforded by this policy shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail return receipt requested has been given to the City of Imperial. Such notice shall be addressed as shown in the heading of this endorsement.
2. WAIVER OF SUBGROGATION. The Insurance Company agrees to waive all rights of subrogation against the City of Imperial, its elected or appointed officers, officials, agents and employees for losses paid under the terms of this policy which arise from work performed by the Named Insured for the City of Imperial.

C. **SIGNATURE OF INSURER OR AUTHORIZED REPRESENTATIVE  
OF THE INSURER**

I, \_\_\_\_\_, warrant that I have authority to bind the  
(print/type name) listed Insurance company and by my  
signature hereon do so bind this company.

\_\_\_\_\_  
SIGNATURE OF AUTHORIZED REPRESENTATIVE (Original Signature required on  
endorsement furnished to the City of Imperial)

ORGANIZATION: \_\_\_\_\_

TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_

**CITY OF IMPERIAL**  
**GENERAL SPECIFICATIONS**  
FOR  
**AHSC-ARPA/HWY 86 BEAUTIFICATION**  
**PHASE 1 PROJECT**

**BID NO. 2024-07**

SCOPE OF WORK

The work to be done consists of furnishing all materials, equipment, tools, labor, and incidentals as required by the contract documents, which includes, but not limited to the following activities: Removal of existing asphalt in poor conditions, grind and overlay in parts of streets as needed, installation of ¾" asphalt leveling course, installation of asphalt-rubber aggregate membrane (ARAM), installation of gap-graded asphalt rubber hot mix (ARHM), slurry seal, removal and replacement of fire hydrants, removal and replacement of sanitary sewer manholes, installation of Storm Drain System (12" Dia. ADS HP Storm Drain Pipe, PCC Junction Boxes & PCC Catch Basins), utility adjustments, removal and replacement of concrete curb & gutter, sidewalks and ADA ramps, installation of thermoplastic striping. Includes road traffic control around the construction zones. All work to be completed within existing City of Imperial public right of way. The grindings derived from the construction activity listed under Item "6" of the Proposal Bid Sheet, shall be disposed and "stockpiled" at the following location: City Shop & Wastewater Treatment Plant located at 701 E. 14th Street, Imperial, CA 92251.

LOCATION OF WORK

1. Worthington Rd/Barioni St between Nance Rd and North "P" St.
2. Old SR-86 between 2<sup>nd</sup> St and 12<sup>th</sup> St..
3. "B" St between West 4<sup>th</sup> St and Worthington Rd.
4. West 7<sup>th</sup> St between South "D" St and South "E" St.
5. West 4<sup>th</sup> St between South "D" St and South "G" St.
6. South "E" St between West 3<sup>rd</sup> St and West 4<sup>th</sup> St.
7. South "F" St between West 3<sup>rd</sup> St and West 4<sup>th</sup> St.
8. South Imperial Ave between West 5<sup>th</sup> St and West 6<sup>th</sup> St.
9. West 6<sup>th</sup> St between South Imperial Ave and Old SR-86.

TIME OF COMPLETION

The Contractor shall complete all work in every detail within **Ninety (90) consecutive calendar days** after the date of the Notice to Proceed, exclusive of maintenance periods.

TRAFFIC REQUIREMENTS

All streets must remain open to public traffic. Temporary street and/or sidewalk closures may be made with the prior approval of the City Engineer.

UTILITY REQUIREMENTS

The Contractor is advised of the existence of the utility notification service provided by UNDERGROUND SERVICE ALERT (USA). USA member utilities will provide the Contractor with an approximate location of their substructures in the construction area

when the Contractor gives at least 48 hours notice to the Underground Service Alert by calling 1-800-422-4133. Contractor shall contact USA as specified and shall provide the City with proof of contact with USA upon request.

The Contractor shall notify the following agencies at least 48 hours in advance of excavating around any of their structures. The utility companies listed below can be contacted as indicated.

1. Imperial Irrigation District: Ignacio Romo, (760) 482-3426
2. Southern California Gas: Joe Montenegro, (760) 352-6100
3. SBC - Telephone Company: Mike Ormond, (760) 337-3358
4. Time Warner (cable TV): Keith Johnson, (760) 352-8835
5. County Public Works Department: Veronica Atondo, (442) 265-1818
6. City of Imperial Public Services: David Dale, (760) 355-3336
8. Community Development Director: Othon Mora, (760) 355-1152

The Contractor shall exercise extreme care to protect all existing utilities in place whether shown on the plans or not and shall assume full responsibility for all damage resulting from his operations. The Contractor shall coordinate with each utility company as to the requirements and methods for protection of their facilities during the construction period and shall be responsible for preparation and processing of any required plans or permits. The Contractor shall assume full responsibility to maintain uninterrupted service for all utilities, including temporary service connections. Payment for protection in place shall be deemed as included in the items of work as shown on the proposal bid sheet and no additional compensation will be allowed.

#### FLOW AND ACCEPTANCE OF WATER

It is anticipated that storm, surface or other waters may be encountered at various times and locations during the work herein contemplated. The Contractor, by submitting a bid, acknowledges that he has investigated the risk arising from such waters and has prepared his bid accordingly, and Contractor, by submitting a bid, assumes all of said risk.

The Contractor shall conduct his operations in such a manner that storm, or other waters may proceed uninterrupted along their existing street or drainage courses. Diversion of water for short reaches to protect construction in progress will be permitted if public and/or private properties, in the opinion of the Engineer, are not subject to the probability of damage. The Contractor shall obtain written permission from the applicable public agency or property owner before any diversion of water outside of street right of way will be permitted.

#### REMOVAL OF WATER / DEWATERING

The Contractor shall provide and maintain at all times during construction ample means and devices to promptly remove and properly dispose of all water entering the excavations or other parts of the work. Dewatering for the pipelines shall commence when ground water is first encountered and shall be continuous until such time as the excavated area or trenches are properly backfilled. Dewatering shall be accomplished by well points or some other method which will insure a preservation of final lines and grade of the bottoms of excavation, all subject to the approval of the Engineer.

Disposal of water from dewatering operations shall be the sole responsibility of the Contractor. Disposal methods shall conform to the Porter-Cologne Water Quality Control Act, 1974, the Federal Water Pollution Control Act Amendments of 1972, and the California Administrative Code, Title 23, Chapter 3.

Full compensation of dewatering shall be considered as included in the contract prices paid for the related items of work, and no additional compensation will be allowed, therefore.

#### TRENCH EXCAVATION AND SHORING

For any contract for public works for excavation of any trench or trenches five (5) feet or more in depth, the Agency shall require submission by the Contractor and acceptance by the awarding body or by a Registered Civil or Structural Engineer to whom authority to accept has been delegated, in advance of excavation, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. This plan shall be prepared by a Registered Civil or Structural Engineer.

Nothing in this Section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the safety standards set forth by the State of California Safety Requirements. Nothing in this Section shall be construed to impose tort liability on the awarding body or any of its employees.

#### STANDARD SPECIFICATIONS

The Standard Specifications of the Agency are contained in the latest edition of the STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, as written and promulgated by the Joint Cooperative Committee of the Southern California Chapter of the American Public Works Association and the Southern California District of the Associated General Contractors of California (The Greenbook).

Copies of these Standard Specifications are available from the publisher:

Building News, Incorporated  
P.O. Box 3031 Terminal Annex  
Los Angeles, California 90051  
(213) 202-7775  
<http://www.bnibooks.com>

The Standard Specifications set forth above will control the general provisions for this contract except as amended by the Plans, Special Provisions, or other contract documents.

The section numbers of the following Special Provisions coincide with those of the said Standard Specifications. Only those sections requiring amendment or elaboration, or specifying options, are called out.

In case of conflict between the Standard Specifications and the Special Provisions, the Special Provisions shall take precedence over and be used in lieu of such conflicting portions.

References in the Special Provisions to Standard Plans shall mean the Standard Plans of the City of Imperial or another governing agency as specified.

Where the Plans or Specifications describe portions of the work in general terms, but not in complete detail, it is understood that the item is to be furnished and installed complete and in place and that only the best general 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 do all the work involved in executing the contract.

## **WAGE RATES AND LABOR CODE REQUIREMENTS**

### **Wage Rates**

The Contractor and all Subcontractors shall be required to adhere to the higher of the Federal or State general prevailing rate of per diem wages as determined and published by Davis-Bacon or the State Director of the Department of Industrial Relations, pursuant to Sections 1770, 1773, and 1773.2 of the California Labor Code. Copies of these rates and the latest revisions thereto are on file in the Office of the Clerk of the Agency and are available for review upon request.

Attention is directed to the provisions of Sections 1774, 1775, 1776, 1777.5, and 1777.6 of the State Labor Code. Sections 1774 and 1775 require the Contractor and all subcontractors to pay not less than the highest of either the federal or state prevailing wage rates to all workmen employed in the execution of the contract and specify forfeitures and penalties for failure to do so. The minimum state wage rates to be paid are those determined by the State Director of the Department of Industrial Relations. Section 1776 requires the Contractor and all Subcontractors to keep accurate payroll records, specifies the contents thereof, their inspection and duplication procedures, and certain notices required of the Contractor pertaining to their location.

### **Apprentices**

Section 1777.5 requires the Contractor or Subcontractor employing tradesmen in any apprentice able occupation to apply to the Joint Apprenticeship Committee nearest the site of the public works project and which administers the apprenticeship program in that trade for a certificate of approval. The certificate will also fix the ratio of apprentices to journeymen to be used in the performance of the contract.

The Contractor is required to make contributions to funds established for the administration of apprenticeship programs if he employs registered apprentices or journeymen in any apprentice able trade and if other Contractors on the public works site are making such contributions.

Information relative to apprenticeship standards, contributions, wage schedules and other requirements may be obtained from the State Director of Industrial Relations or from the Division of Apprenticeship Standards.

### **Clayton Act and Cartwright Act**

Section 4551 of the State Government Code specifies that in executing a public works contract with the Agency to supply goods, services or materials, the Contractor or Subcontractors offers and agrees to assign to the Agency all rights, title and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 commencing with Sec. 16700) of Part 2 of Division 7 of the Business and Professions Code, arising from purchase of goods, services or materials pursuant to the contract or subcontract. This assignment shall become effective when the Agency tender's final payment to the contractor without further acknowledgment by the parties.



# CITY OF IMPERIAL SPECIAL PROVISIONS

For  
**AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1 PROJECT**

**BID NO. 2024-07**

MODIFICATIONS TO: STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

## **PART I - GENERAL PROVISIONS**

### **SECTION 1 - TERMS, DEFINITIONS, ABBREVIATIONS AND SYMBOLS**

1-1 **DEFINITIONS.**

|          |   |
|----------|---|
| City     | - City of Imperial                        |
| Board    | - City Council                            |
| Caltrans | - California Department of Transportation |
| County   | - County of Imperial                      |
| Engineer | - City Engineer                           |
| Federal  | - United States of America                |
| State    | - State of California                     |

### **SECTION 2 - SCOPE AND CONTROL OF THE WORK**

2-1 **AWARD AND EXECUTION OF CONTRACT.**

*Is amended as follows:*

Within ten (10) working days after the date of the Notice of Award, the Contractor shall execute and return the following contract documents to the Agency:

- ~ Contract Agreement
- ~ Faithful Performance Bond
- ~ Payment Bond
- ~ General Liability Endorsement
- ~ Automobile Liability Endorsement
- ~ Worker's Compensation/Employers Liability Endorsement

Failure to comply with the above will result in annulment of the award and forfeiture of the Proposal Guarantee.

The Contract Agreement shall not be considered binding upon the City until executed by the authorized City officials.

A corporation to which an award is made may be required, before the Contract Agreement is executed by the City, to furnish evidence of its corporate existence, of its right to enter into contracts in the State of California, and that the officers signing the contract and bonds for the corporation have the authority to do so.

2-2 **CONTRACT BONDS.**

*add the following:*

Both the Faithful Performance Bond and the Payment Bond shall each be for not

less than one hundred percent (100%) of the total contract amount. The Payment Bond shall remain in force until thirty-five (35) days after the date of recordation of the Notice of Completion. The Faithful Performance Bond will not be released until one year after said date.

2-3 PLANS AND SPECIFICATIONS.

2-3.1 General.

*the first paragraph is amended as follows:*

The Contractor shall maintain a control set of Plans and Specifications on the project site at all times. All final locations determined in the field, and any deviations from the Plans and Specifications, shall be marked in red on this control set to show the record conditions. Upon completion of all work, the Contractor shall return the control set to the Engineer. Final payment will not be made until this requirement is met.

**SECTION 3 - CHANGES IN WORK**

3-1 CHANGES INITIATED BY THE AGENCY

3-1.1 General.

*add the following:*

The term "Contract Price" as specified herein shall serve to mean the total dollar value of the Contractor's original bid for all of the various items of work combined and shall not be construed to mean the subtotal shown for any singular item of work.

3-2 EXTRA WORK

3-2.1 Payment

3-2.2 Markup.

*add the following as the first paragraph:*

The markups mentioned hereinafter shall include, but are not limited to, all costs for the services of superintendents, project managers, timekeepers, and other personnel not working directly on the change order and pickup or yard trucks used by the above personnel. These costs shall not be reported as labor or equipment elsewhere except when actually performing work directly on the change order and then shall not be reported at the labor classification of the work performed.

## **SECTION 4 - CONTROL OF MATERIALS**

### 4-1 MATERIALS AND WORKMANSHIP

#### 4-1.1 Test of Materials.

add the following:

#### TESTING LABORATORY SERVICES

All test which require the services of a laboratory to determine compliance with the Contract Documents shall be performed by an independent commercial testing laboratory acceptable to the Engineer.

Samples and test specimens will be delivered to the testing laboratory by testing laboratory personnel. The testing laboratory shall perform all laboratory tests within a reasonable time.

Contractor shall furnish all sample materials and cooperate in the sampling and field-testing activities, interrupting the Work when necessary. When sampling or testing activities are performed in the field by Engineer, Contractor shall furnish personnel and facilities to assist in the activities as required.

The City shall not retain any testing laboratory against which Contractor has reasonable objection, and if at any time during the construction process the services become unacceptable to Contractor, Contractor may request in writing that such services be terminated.

The request must be supported with evidence of improper testing. If the Engineer determines that sufficient cause exists, the Engineer shall terminate the services and engage a different testing laboratory.

#### TRANSMITTAL OF TEST REPORTS

Written reports of tests and engineering data furnished by Contractor for Engineer's review of materials and equipment proposed to be used in the Work shall be submitted as specified for Shop Drawings.

The testing laboratory retained by the Engineer will furnish three copies of a written report of each test performed by laboratory personnel. Two copies of each test report will be transmitted to the engineer and one copy to the Contractor within three working days after each test is completed.

## **SECTION 5 - UTILITIES**

### 5-1 LOCATION.

*add the following paragraph:*

The Contractor shall notify the utilities designated in the General Specifications at least 48 hours in advance of excavating around any of their structures.

## **SECTION 6 - PROSECUTION, PROGRESS, AND ACCEPTANCE OF THE WORK**

### 6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF WORK.

*is amended as follows:*

The Contractor's proposed Construction Schedule shall be submitted to the Engineer within ten (10) working days after the date of the Notice of Award of Contract. The schedule shall be supported by written statements from each supplier of materials or equipment indicating that all orders have been placed and acknowledged and setting forth the dates that each item will be delivered.

Prior to issuing the Notice to Proceed, the Engineer will schedule a pre-construction meeting with the Contractor to review the proposed Construction Schedule and delivery dates, arrange the utility coordination, discuss construction methods, and clarify inspection procedures.

The Contractor shall submit periodic Progress Reports to the Engineer by the tenth day of each month. The report shall include an updated Construction Schedule. Any deviations from the original schedule shall be explained. Progress payments will be withheld pending receipt of any outstanding reports.

6-2 TIME OF COMPLETION.

6-2.1 General.

*add the following:*

The time for completion shall be **Ninety (90) consecutive calendar days** from the issuance date of the Notice to Proceed.

6-2.2 Working Day.

*is amended as follows:*

The Contractor's activities shall be confined to the hours between 7:00 AM and 6:00 PM, Monday through Friday, excluding holidays. Deviation from these hours will not be permitted without the prior consent of the City of Imperial Planning and Development Department, except in emergencies involving immediate hazard to persons or property.

In the event of either a requested or emergency deviation, inspection service fees will be charged against the Contractor. The service fees will be calculated at overtime rates including benefits, overhead, and travel time. The service fees will be deducted from any amounts due the Contractor.

6-3 LIQUIDATED DAMAGES.

*the last sentence is amended as follows:*

For each consecutive calendar day in excess of the time specified, as adjusted in accordance with Subsection 6-6, for completion of the work the Contractor shall pay to the Agency, or have withheld from monies due it, the sum of \$1,000.00 per day.

## **SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR**

7-1 CONTRACTOR'S EQUIPMENT AND FACILITIES.

*add the following:*

A noise level limit of 86 dbA at a distance of fifty feet (50') shall apply to all

construction equipment on or related to the job whether owned by the Contractor or not. The use of excessively loud warning signals shall be avoided except in those cases required for the protection of personnel.

7-2 LABOR.

7-2.2 Laws.

*add the following:*

The Contractor, and all subcontractors, suppliers and vendors, shall comply with all Agency, State, and Federal orders regarding affirmative action to ensure equal employment opportunities and fair employment practices. Failure to file any report due under said orders will result in suspension of periodic progress payments.

The Contractor shall ensure unlimited access to the job site for all equal employment opportunity compliance officers.

7-3 LIABILITY INSURANCE.

*the entire Subsection is amended as follows:*

7-3.1 Indemnification.

The Contractor shall indemnify and save harmless the CITY OF IMPERIAL and the County of Imperial from all claims or suits for damages arising from his prosecution of the contract work, as more fully described in Subsection 7-3.2 "Contractor's Liability".

The Contractor shall maintain during the life of the contract a protective liability policy. The policy shall provide for not less than the following amounts;

|                 |             |   |
|-----------------|-------------|---|
| Bodily Injury   | \$ 500,000  | each person                                 |
|                 | \$1,000,000 | each accident                               |
|                 | \$1,000,000 | aggregate products and completed operations |
| Property Damage | \$ 250,000  | each accident                               |
|                 |             | Worker's Compensation Statutory             |

All liability insurance policies shall bear an endorsement or shall have attached a rider whereby it is provided that, in the event of expiration or proposed cancellation of such policies for any reason whatsoever, the Agency shall be notified by registered mail, return receipt requested, giving a sufficient time before the date thereof to comply with any applicable law or statute, but in no event less than 30 days before expiration or cancellation is effective. The following statement shall be included on the insurance certificate:

*"Additional Insured: The insurer agrees that the City and its City Council, and/or all City Council appointed groups, committees, boards and any other City Council appointed body, and/or elective and appointive officers, servants or employees of the City when acting as such are additional insured hereunder, for the acts of the insured, and such insurance shall be primary to any insurance of the City."*

The Contractor agrees to protect, defend and indemnify the CITY OF IMPERIAL against loss, damage or expense by reason of any suit, claims, demands,

judgments and causes of action caused by the Contractor, his employees, agents or any subcontractor or by any third party arising out of or in consequence of the performance of all or any operations covered by the Certificate of Insurance. The Contractor, at his option, may include such coverage under his Public Liability coverage.

#### 7-3.2 Contractor's Liability.

The CITY OF IMPERIAL, its City Council, or the Engineer shall not be answerable or accountable in any manner, for any loss or damage that may happen to the work or any part thereof; or for any of the materials or other things used or employed in performing the work; or for injury to any person or persons, either workmen or the public; or for damage to adjoining property from any because which might have been

prevented by the Contractor, or his workmen, or anyone employed by him; against all of which injuries or damages to persons and property the Contractor having control over such work must properly guard. The Contractor shall be responsible for

any damage to any person or property resulting from defects or obstructions at any time before its completion and final acceptance, and shall indemnify and save harmless the CITY OF IMPERIAL, its City Council, and the Engineer from all suits or actions of every name and description, brought for, or on account of, any injuries or damages received or sustained by any person or persons, or by the Contractor, his servants or agents, in the construction of the work or by or in consequence of any negligence in guarding the same, in improper materials used in its construction,

or by or on account of any act or omission of the Contractor or his agents, and so much of the money due the Contractor under and by virtue of the Contract as shall be considered necessary by the City may be retained by the City until disposition has been made of such suits or claims for damages aforesaid.

If, in the opinion of the Engineer, the precautions taken by the Contractor are not safe or adequate at any time during the life of the Contract, he may order the Contractor to take further precautions, and if the Contractor shall fail to do so, the Engineer may order the work done by others and charge the Contractor for the cost thereof, such cost to be deducted from any moneys due or becoming due the Contractor. Failure of the Engineer to order such additional precautions, however, shall not relieve the Contractor from his full responsibility for public safety.

#### 7-4 PERMITS.

*the first sentence is amended as follows:*

Prior to the start of any work, the Contractor shall take out the applicable Agency permits and make arrangements for Agency inspections. The Contractor and all subcontractors shall each obtain any and all other permits, licenses, inspections, certificates, or authorizations required by any governing body or public utility. Payment for this work shall be included in the bid items of work and no additional compensation will be allowed. The City of Imperial will waive the City's usual encroachment permit fees.

The Contractor and all subcontractors shall each obtain any and all other permits, licenses, inspections, certificates, or authorizations required by any governing

body or public utility. Payment for this work shall be included in the bid items of work and no additional compensation will be allowed.

## 7-5 PUBLIC CONVENIENCE AND SAFETY.

### 7-5.1 Traffic and Access.

*add the following:*

When entering or leaving roadways carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.

The Contractor shall notify all affected property owners of the proposed schedule a minimum of 48 hours, but not more than 72 hours, in advance of any limitation or closure of access to their property. Form of said notice shall be as approved by the Engineer and shall contain the date and time of the closure. In the event of delay, whether beyond the control of the Contractor or not, the Contractor shall notify all affected property owners as to the extent of the delay and his revised schedule. In the event of delay over 72 hours, the Contractor shall re-notify the property owners as described above. Payment for notification and coordination as per Section 7-10 as modified herein shall be included in the compensation paid for the various items of work and no additional compensation will be allowed.

### 7-5.2 Storage of Equipment and Materials in Public Streets.

*add the following:*

The Contractor shall assume full responsibility for any damage caused by stockpiling and shall repair same at his expense. The Contractor shall also be responsible for providing traffic control as required to protect the public from hazards caused by stockpiling within the right of way. Payment for the above, if any, will be deemed as included in the items of work and no additional compensation will be allowed.

The Contractor may, at his own expense, maintain and operate a work and storage area outside of the public right-of-way.

In such case the Contractor shall submit to Agency written authorization from the owners of the subject property prior to occupation. Occupation of site without written authorization shall be grounds for immediate suspension of work.

Location of site to be approved by Agency. Condition and operation of yard shall conform to these specifications. The Contractor shall assume full responsibility for all damage to the site resulting from his operations and shall repair and/or replace same, at his own expense, to the satisfaction of the owner of the subject property. The Contractor shall vacate site and return it to pre-project condition within five (5) working days following application for Notice of Completion. The Contractor shall obtain a written release from the property owner accepting the condition of the vacated site and releasing the Contractor from any further clean-up or restoration work and shall submit a copy of such release to Agency. The Notice of Completion will not be issued until said release is submitted.

7-5.3 Street Closures, Detours, and Barricades.  
*add the following:*

The Contractor shall maintain the minimum traffic requirements designated in the General Specifications. It shall be the Contractor's responsibility to furnish a detailed detour signing and barricade plan for Agency approval.

The Contractor shall be responsible for providing temporary access to all driveways at the end of each workday.

The Contractor shall provide and maintain all other signs, barricades, pedestals, flashers, delineators and other necessary facilities for the protection of the public within the limits of the construction area. He shall also post proper signs to notify the public regarding detours and the condition of the roadway, all in accordance with the provisions of the Vehicle Code and the current State of California Department of Transportation Manual of Warning Signs, Lights and Devices for Use in Performance of Work Upon Highways.

The Contractor shall furnish competent flagmen as are necessary to give adequate warning to traffic or to the public of any dangerous conditions to be encountered. Flagmen, while on duty and assigned to give warnings to the public of construction and of any dangerous conditions to be encountered as a result thereof, shall perform their duties and shall be provided with the necessary equipment in accordance with the current "Instructions to Flagmen," of the Department of Transportation. The equipment shall be furnished and kept clean and in good repair by the Contractor, at his expense.

Should the Contractor appear to be neglectful or negligent in furnishing warning and protective measures as provided, the Engineer may direct attention to the existence of a hazard and the necessary warning and protective measures shall be furnished and installed by the Contractor at his expense. Should the Engineer point out the inadequacy of warning and protective measures, such action on the part of the Engineer shall not relieve the Contractor from responsibility for public safety or abrogate his obligation to furnish any pay for these devices.

The Contractor shall distribute notices to all affected residents and businesses at the stated minimum time prior to the start of work:

Excavations, overlays and miscellaneous repairs – 36 hours

The Contractor shall also be required to post "Temporary No Parking" signs along the streets to be resurfaced during each working day, forty-eight (48) hours prior to resurfacing. The "NOTICES" and "Temporary No Parking" signs will be furnished by the Contractor.

The Contractor shall notify the following entities at least forty-eight (48) hours in advance of any street closure or restriction to access:

1. City of Imperial Engineering Division at 355-1152
2. Fire Department at (442) 265-3010
3. Imperial Police Dept. at 355-4327



4. Imperial County Sheriff's Dept.: (442) 265-2021
5. Imperial County Public Works Dept.: (442) 265-1818

Full compensation for conforming to this article shall be considered as included in the various items of work involved, and no additional compensation will be allowed, therefore.

7-5.4 Safety.

7-5.4.1 Safety Orders.  
*add the following:*

CONSTRUCTION SAFETY ORDERS

The Construction Safety orders of the State of California, Department of Industrial Relations, effective November 15, 1975, and as amended, shall be applicable to the work in this contract. The Contractor's special attention is directed to:

*\*\*Article 6\*\**

Excavations, Trenches and Earthwork

*\*\*Article 11\*\**

Traffic Control, Flagmen, Barriers and Warning signs; and

*\*\*Article 28 \*\**

Miscellaneous Construction Equipment prior to the start of work, the Contractor will be required to obtain a permit from the Office of the Division of Occupational Safety and Health. The office serving the Imperial area is at 7807 Convoy court, Suite 140, San Diego, California 92111, Telephone Number; (619) 637-5534.

The Contractor shall provide the City Engineer's office with a copy of the permit prior to the start of excavation, and the permit shall be maintained on the job site at any timework requiring trenching or shoring operations exist.

Where excavation of any trench 5 feet or more in depth is required, the Contractor shall submit to the City Engineer for approval, in writing, two weeks in advance of excavations, a detailed plan showing the design of shoring bracing, sloping, protection of existing utilities, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench. If such plan varies from shoring system standards established by the Construction Safety Order. The plan shall be prepared by a Registered Civil or Structural Engineer.

Copies of said regulations are available from the documents Section, P.O. box 20191, Sacramento, California 95820. The cost of furnishing labor, tools, equipment, services and items required thereby shall be borne by the Contractor as part of this contract work and he shall not be entitled to additional compensation for compliance with said regulations.

7-6 PAYROLL RECORDS.  
*add the following paragraph:*

Payroll records shall be submitted to the Agency by the tenth day of each month. Progress payments will be withheld pending receipt of any outstanding reports.

## **SECTION 8 - MEASUREMENT AND PAYMENT**

### **8-1 Partial and Final Payment.** *the last paragraph is amended as follows:*

The closure date for periodic progress payments will be five (5) working days prior to the first Monday of each month.

The final progress payment will not be released until the Contractor returns the control set of Plans and Specifications showing the as-built conditions.

The full five percent (5%) retention will be deducted from all payments. The final retention will be authorized for payment thirty-five (35) days after the date of recordation of the Notice of Completion.

In conformance with the Public Contracts Code, Section 22300, the Contractor may substitute securities for any monies withheld by the Agency to secure performance under the contract.

At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the Agency or with a State or Federally chartered bank as the escrow agent who shall pay such monies to the Contractor upon notification by Agency of Contractor's satisfactory completion of the contract. Actual pay quantity measurements will be done at the end of each working day and agreed upon by both the Contractor and the Engineer's representative.

The type of securities deposited, and the method of release shall be approved by the City Attorney's office.

#### **8-1.1 Delivered Materials.**

*is amended as follows:*

Materials and equipment delivered but not incorporated into the work will not be included in the estimate for progress payment, subject to the discretion of the City Engineer.

#### **8-1.2 Dewatering.**

*is amended as follows:*

The Contractor may encounter groundwater or water from other sources during excavation. The Contractor shall provide and maintain at all times during construction, ample means and devices with which to promptly remove and properly dispose of all water from any source entering the excavations or other parts of the work. Dewatering shall be accomplished by methods, which will ensure a dry excavation and preservation of the final lines and grades of the bottoms of excavations.

Dewatering shall commence when groundwater is first encountered and shall be

continuous until such times as water can be allowed to rise in accordance with the provisions of this section or other requirements.

Disposal of watering from dewatering operations shall be the sole responsibility of the Contractor. Disposal methods shall conform to the Porter-Cologne Water quality control Act, 1974, the Federal Water Pollution Control Act Amendment of 1972; and the California Administrating code, Title 23, Chapter 3.

The Contractor shall dispose of the water from the work in a suitable manner without damage to adjacent property. Conveyance of the water shall be such as to not interfere with traffic flow or other construction. No water shall be drained into work built or under construction without prior consent of the City Engineer.

Water shall be desanded before disposal in any storm drain system. The system used for desanding the water shall be a baffled structure and shall provide not less than five minutes detention time and shall have a "flow-through" velocity not exceeding 0.2 feet per second at the anticipated peak flow. The desanding box shall be cleaned as required to maintain the detention time and flow-through limitations specified above.

*8-1.3 Mobilization.  
is amended as follows:*

Mobilization shall consist of preparatory work and operations, including but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for the work on this project; and for all work and operations which must be performed or cost incurred prior to beginning work on the various contract items on the project site.

The compensation paid for mobilization shall be full compensation for all costs incurred by the Contractor for doing all the work involved in mobilization as specified herein. Payment for mobilization will be included in the items of work listed in the **BID PROPOSAL**.

## **PART II – CONSTRUCTION MATERIALS**

All CONSTRUCTION MATERIALS AND CONSTRUCTION METHODS shall be according to the latest edition of the State of California Department of Transportation (CALTRANS) Standard Specifications, CALTRANS Standard Drawings / Details, the 2024 Edition of the "Standard Specifications for Public Works Construction" ("GREENBOOK") and, according to the CONSTRUCTION PROJECT PLANS called for in APPENDIX C.

## **PART III – STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK") 2024 Edition**

All CONSTRUCTION MATERIALS AND CONSTRUCTION METHODS shall be according to the latest edition of the State of California Department of Transportation (CALTRANS) Standard Specifications, CALTRANS Standard Drawings / Details, and according to the CONSTRUCTION PROJECT PLANS called for in APPENDIX C.

## **1.0 GENERAL**

The Technical Specifications for the work to be completed shall comply with the City of Imperial Standard Specifications and Details, the latest Caltrans Standard Specifications 2023, and the Specifications as required in this Technical Conditions Section. Major material component standard specifications have been included in these Technical Specifications. Some of the major material component standard specifications refer to other Caltrans Standard Specifications, 2023. These “referred to” specifications have not been included in this Technical Specifications section. It shall be necessary to refer to the Caltrans Standard Specifications, 2023 document to review the “referred to” sections. If pertinent specifications are not included within these Technical Specifications, refer to Caltrans Standard Specifications, 2023.

If there is any conflict between the Specifications, the most stringent Specification shall prevail.

## **2.0 MOBILIZATION/DEMOBILIZATION**

Mobilization/demobilization shall include the preparatory work and operations that must be performed, or costs incurred before starting work, on the various items of the project site (Public Contracts Code § 10104); including activities and associated costs for transportation of contractor's personnel, equipment, and operating supplies to the site, move-on and move-off operations, establishment of offices, storage yards, hooks-up and disconnects for utility services, and the application for and acquiring of permits from other agencies.

Mobilization/demobilization also includes all work involved, including, but not limited to, the following items: Davis-Bacon Posters, mobilizing labor force; securing construction water supply; obtaining bonds; moving equipment and temporary construction facilities onto site; pre-construction and progress meetings, proper cleaning and clearance of the site to return it to its original condition; securing and leasing construction staging and storage areas, removal of all Contractor equipment, supplies, and labor force; warranty provisions; payments for bonds, and obtaining insurance, and for related items of work not otherwise provided for necessary to complete the work as shown on the Plans and as specified herein.

### **Measurement and Payment**

**“Mobilization / Demobilization”** shall be measured for payment as a lump sum.

Payment for **“Mobilization / Demobilization”** shall conform to the provisions in Section 9-1.16D, “Mobilization,” of the Caltrans Standard Specifications.

Up to 25% of this Bid Item may be paid upon the start of construction. Up to an additional 50% of the Bid Item may be paid when 50% of the construction is completed, as determined by the Engineer. The remaining 25% shall be paid upon completion of the project including all activities and associated costs for transportation of Contractor's personnel, equipment, and operating supplies from the site, as well as any other

general facilities of the Contractor's operations at the site.

### **3.0 PROJECT IDENTIFICATION SIGNS**

The Contractor shall provide, erect, and maneuver 2 (two) Project Identification signs. The signs shall be posted at all times. All project identification signs will be located within the City right-of-way. Final sign locations shall be determined in a field visit with the Contractor and Engineer prior to placement by the Contractor.

The Project Identifications signs shall conform to the following construction details:

1. 48 inches wide by 30 inches height
2. 0.063" Anodized Aluminum Panels
3. Avery-Dennison T-6500 High Intensity Series Prismatic Reflective Sheeting (3M Type IV), or equivalent
4. Avery-Dennison OL-1000 Premium Anti-Graffiti Overlay Film, or equivalent
5. UV Inks to be used without exception
6. Use City of Imperial Standard colors
7. Signs shall include:
  - a. City of Imperial logo
  - b. Affordable Housing and Sustainable Communities (AHSC) Program logos
  - c. Project Name with "UNDER CONSTRUCTION" underneath

Contractor shall submit shop drawings for review and approval by the Engineer prior to furnishing the signs. Signs shall be installed ten (10) working days prior to the start of construction.

Any requests to relocate the Project Information signs for the convenience of the Contractor shall be submitted to the Engineer for review and acceptance.

### **Measurement and Payment**

No separate measurement will be made for the requirements of this section.

Full compensation for furnishing, erecting, maintaining, and removing the project identification signage shall be considered as included in the contract lump sum paid for "**Mobilization / Demobilization**" and no additional payment will be allowed therefor. This payment will be made on a basis of the percentage of work completed on the entire project.

## **4.0 STORMWATER MANAGEMENT AND DISCHARGE CONTROL**

### **4.1 Stormwater Management and Discharge Control**

#### **4.1.1 General**

Contractor shall provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and adjacent areas. Remove physical evidence of temporary facilities at completion of

work.

- The Contractor shall prepare a SWPPP for the project. The Contractor prepared SWPPP shall include a Waste Management Plan to transport, handle, and store contaminated waste soil excavated from the pipe trench for dewatering and disposal. The plan shall include a site plan showing the location of BMP elements and activities described in Appendix A, "Best Management Practices," for which the Contractor shall adhere to. The anticipated best management practices include, but are not limited to: Hydroseeding Mulch for soil stabilization and erosion control, Geotextiles, Plastic Covers & Erosion Control Blankets/Mats as alternatives for soil stabilization and erosion control, Silt Fence for sediment control, Fiber Rolls for soil stabilization and sediment control, Gravel Bag Berms around the trench site and the construction staging areas to prevent storm water runoff and inflow from outside the site, Street Sweeping and Vacuuming the active construction site, Storm Drain Inlet Protection where applicable, and Entrance/Outlet Tire Grates to prevent sediment from tracking to public roadways.

The Waste Management Plan shall be submitted and approved by the Engineer before any waste soil is transported for disposal.

#### Measurement and Payment

No separate measurement will be made for the requirements of this section.

Full compensation for complying with the requirements of this section shall be considered as included in the contract lump sum price paid for "**Erosion Control**" and no additional payment will be allowed therefor.

#### **4.1.2 Dust Control**

Contractor shall be responsible for controlling objectionable dust caused by its operation of vehicles and equipment, clearing or for any reason whatsoever. Contractor shall apply water and calcium chloride or use other methods subject to the approval of the Engineer, which will keep dust in the air to a minimum. The Contractor's operations shall comply with Air Quality Control Board requirements. The Contractor shall be responsible for any damage resulting from any dust originating from its operations. Dust abatement measures shall be continued until the Contractor is relieved of further responsibility by the Engineer.

#### Measurement and Payment

No separate measurement will be made for the requirements of this section.

Full compensation for complying with the requirements of this section shall be considered as included in the contract prices paid for the various items of work and no additional compensation will be allowed therefor.

#### **4.1.3 Water Control**

Contractor shall provide methods to control surface water and water from excavations

and structures to prevent damage to the work, the site, or adjoining properties.

Contractor shall control fill, grading and ditching to direct water away from excavations, pits, tunnels, adjoining properties, and other construction areas; and to direct drainage to proper runoff courses so as to prevent any erosion, damage or nuisance. Water control shall comply with local and federal permitting requirements.

Contractor shall provide, operate and maintain equipment and facilities of adequate size to control surface water.

Contractor shall dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site or to adjoining areas and in conformance with all environmental requirements.

The Contractor is advised of the potential for a high level of ground water in certain portions of the project area. The ground water levels should be expected to fluctuate. If encountered, the Contractor shall conform to local municipal standards for disposal of ground water from dewatering. Discharge to either the sanitary sewer or storm drain will require initial and periodic analysis by the Contractor as required by the permit and may require pretreatment and/or removal of contamination. Should the testing conducted by the Contractor identify hazardous material in the ground water, the Contractor shall immediately notify the Engineer in writing. The Contractor will be responsible for obtaining all required permits for disposal of ground water prior to discharging water.

The Contractor is responsible for obtaining all permits, pumping and treating water and discharge monitoring. At all times the Contractor shall discharge in compliance with the discharge authorization. Treated water and discharge volumes shall be measured using a totalizing flow meter.

#### Measurement and Payment

No separate measurement will be made for the requirements of this section.

Unless otherwise provided for, full compensation for complying with the requirements of this section shall be considered as included in the contract prices paid for the various items of work and no additional compensation will be allowed therefor.

Full compensation for all work involved in dewatering, including the plan, permit, maintenance, monitoring, and all necessary labor, tools, equipment, and incidentals shall be considered included in the contract lump sum price paid for **“Clearing and Grubbing”** and no additional payment will be made therefor.

#### **4.1.4 Pollution Control**

Contractor shall provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by the discharge of noxious substances from construction operations. Contractor shall provide equipment and personnel, and perform emergency measures required to contain any spillages, and to remove soils or liquids

contaminated as a result of contractor's activities. Excavate and dispose offsite any contaminated soil or liquid and replace with suitable compacted fill and topsoil.

Contractor shall take special measures to prevent harmful substances from entering public waters.

Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or storm sewers.

All Contractors' equipment used during construction shall conform to all current federal, state and local laws and regulations.

#### Measurement and Payment

No separate measurement will be made for the requirements of this section.

Full compensation for complying with the requirements of this section shall be considered as included in the contract prices paid for the various items of work and no additional compensation will be allowed therefor.

#### **4.1.5 Erosion Control**

Contractor shall utilize Best Management Practices to control erosion and storm water pollution as shown in the Plans, in conformance with local, state and federal water pollution control regulations, and as directed by the Engineer.

The Contractor shall perform water pollution control work during construction in conformance with the requirements documented in these Special Provisions and the Standard Specifications. The Contractor shall evaluate, maintain, amend, and update their Project Storm Water Pollution Prevention Plan ("SWPPP") prior to commencing work and on an ongoing basis to document any changes required to accommodate the progression of construction activities throughout the life of the project.

Erosion Control work shall include the implementation and maintenance of the Project SWPPP and implementation and maintenance of storm water pollution prevention Best Management Practices (BMPs) required to prevent and control discharges of dust, soil, sediment, debris, and other pollutants from the project site onto adjacent areas and/or into the storm water conveyance system from construction activities shown on the Plans in compliance with all applicable laws and regulations of authorities having jurisdiction.

The Contractor shall perform water pollution control work in conformance with the requirements in the Project's SWPPP, the "California Stormwater Quality Association Construction Stormwater Best Management Practices Handbook" and the Caltrans "Construction Site Best Management Practices" manual in effect on the day the Notice to Contractors is dated.

#### Measurement and Payment



**“Erosion Control”** shall be measured for payment as a lump sum.

The contract lump sum price paid for **“Erosion Control”** shall include full compensation for preparing, updating, and implementing the Project SWPPP, and for continuously implementing and maintaining all required BMPs, erosion control measures, water pollution control practices, sampling, analysis, monitoring, training, and other necessary measures to prevent and control discharges to the maximum extent practicable; including all labor, materials, tools, equipment, and incidentals, removals, waste management, disposal, and for doing all work as shown on the Plans, as specified in the Contractor prepared project SWPPP, the Standard Specifications and these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefor.

#### **4.1.6 National Pollutant Discharge Elimination System (NPDES)**

Chapter 13.10 (Stormwater Management and Discharge Control) of the Municipal Code requires the control of non-stormwater discharge and reduction of pollutant discharge to the maximum extent practicable. Pollutant is defined as solid waste, sewage, garbage, medical waste, wrecked or discarded equipment, radioactive materials, dredged spoil, rock, sand, sediment, industrial waste and any organic or inorganic contaminant whose presence degrades the quality of the receiving waters.

To be in compliance, sand and sediment must be controlled. When a site is being developed and there is any disturbance of the soil or site excavation there is a need for a plan to reduce the pollutant discharge to the maximum extent practicable.

In 1989 USEPA developed regulations for storm water in major urban areas as part of the Federal Water Pollution Control (Clean Water) Act of 1972. In California, EPA mandated permits are issued and controlled by nine regional water quality control boards

Disposal of potable water during construction is considered a permissible discharge provided the release does not contribute to the violations of water quality standards. The discharge water must be de-chlorinated and cannot cause downstream erosion.

1. The Contractor shall apply for coverage under the California Water Resources Control Board Order No. 2009-009-DWQ (and subsequent addendums) NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities if the amount of disturbed area is greater than one acre. The Contractor shall prepare and implement the Storm Water Pollution Prevention Plan (SWPPP), utilize BMPs, conduct monitoring and report satisfactory completion in accordance with the General Permit.
2. The Contractor shall provide copies of the Notice of Intent and the Notice of Termination for compliance with conditions of the General Permit.
3. The SWPPP shall be submitted at least five working days prior to the start of construction to the Owner and be approved in writing by the Owner prior to commencing work.

The SWPPP shall provide that no sand, silt, or debris shall be allowed to enter the storm drain system including public streets.

Construction work shall not start until:

1. The Contractor prepares a SWPPP for review by the Engineer and receives approval.
2. The Contractor enters all pertinent data in the State Water Resources Control Board SMARTS system to obtain the WDID number.
3. A WDID is issued by SWRCB in response to a Notice of Intent (NOI).
4. SWPPP review requirements have been fulfilled. If the RWQCB requires time for SWPPP review, allow 30 days for the RWQCB to review the SWPPP.
5. The Contractor's submittals required in the Project's SWPPP have been reviewed and approved by the Engineer.
6. The Engineer determines that the appropriate BMPs are implemented and additional BMP materials are staged for rapid deployment, as necessary, in readiness for a likely precipitation event.
7. The Contractor submits the name and qualifications of the Contractor's Qualified SWPPP Practitioner (QSP). The Contractor's QSP shall meet the minimum requirements specified in the Construction General Permit and the Project SWPPP.
8. Contractor's and subcontractor's personnel have received the training required in the Project's SWPPP and said training is adequately documented and certified by the Contractor.

Contractor shall pay all fees associated with filing the Notice of Intent (NOI) to the State Water Resources Control Board necessary to obtain and maintain permit coverage under the CGP, including annual renewal fees.

The Contractor shall implement the plan and take remedial and preventive action immediately when pollutant discharge occurs and/or the City Engineer directs.

### Measurement and Payment

No separate measurement will be made for the requirements of this section.

Full compensation for all work involved in Stormwater Management and Discharge Control, including the plan, furnishings, installation, maintenance and removal of all necessary silt fences, fiber rolls, gravel bags, sand bags, and materials, and furnishings all necessary labor, tools and equipment, shall be considered included in the contract lump sum price paid for "**Erosion Control**" and no additional payment will be made therefor.

## **5.0 CONSTRUCTION STAKING**

The Contractor will provide the surveying, construction staking, and potholing, which are necessary to complete the work. The cost of any surveying, construction staking and potholing will be paid per lump sum, and no additional compensation will be allowed. All surveying and construction staking as required to relocate facilities of So Cal Gas, IID, AT&T, Cox Communications, etc. shall be self-performed by each corresponding agency, unless otherwise approved.

The Contractor shall prepare a pothole plan identifying locations where all utilities, shown or not shown on the plan, will be encountered where excavations are planned. The contractor, using non-destructive air-vacuum excavation, will identify the horizontal and vertical location, size, material type of each utility or conflict and submit a pothole report along with the location information plotted on the as-built redlines upon the completion of work.

### Measurement and Payment

**“Construction Staking”** shall be measured for payment as a lump sum.

The contract lump sum price paid for **“Construction Staking”** shall include full compensation for all labor, materials, tools, equipment, and incidentals, and for doing all required surveying and construction staking necessary to complete the project per the Plans and these Special Provisions, and no additional compensation will be allowed therefor.

### **6.0 SURVEY MONUMENT PRESERVATION**

The Contractor shall be responsible for protecting all existing horizontal and vertical survey controls, monuments, ties and benchmarks located within the limits of the project. If any of the above require any removal, relocating or resetting, the Contractor shall, prior to any construction work and under the supervision of a California-licensed surveyor or pre-1972 licensed civil engineer, establish sufficient temporary ties and bench marks to enable the points to be reset by the Contractor after completion of construction.

Prior to the start of construction, the Contractor shall inventory all existing survey monuments within the project limits. Monument records are for information purposes only and can be provided by the City upon request. The Contractor is responsible for ensuring that all survey monuments within the project area are preserved (both pre and post construction) and are restored following construction.

Any ties, monuments and benchmarks disturbed during construction shall be reset after construction per City of Imperial or County of imperial standards, as applicable, and the tie notes submitted to the City of Imperial or County of Imperial on 8-1/2" x 11" note paper. The Contractor and its sureties shall be liable for, at its expense, any resurvey required due to its negligence in protecting existing ties, monuments, benchmarks or any such horizontal and vertical controls.

The Contractor shall comply with The Land Surveyors Acts #9771 (Record of Surveys-

Monumentation) and #8773 (Corner Records-Records of Survey for "Lost Corners").

### Measurement and Payment

**"Survey Monument Preservation"** shall be measured for payment as a lump sum.

The contract lump sum price paid for **"Survey Monument Preservation"** shall include full compensation for all labor, materials, tools, equipment, and incidentals, and for doing all required work related to preserving and/or restoring all existing property corners, monuments and well monuments; as well as filing and recording all necessary pre and post construction corner record and/or record of survey maps, including fees, and no additional compensation will be allowed therefor.

### **7.0 TEMPORARY TRAFFIC CONTROL**

The Contractor shall prepare Traffic Control Plans for all improvements identified in the Construction Documents, obtain City review and approval, obtain permits, and fully implement and maintain said Traffic Control Plans.

The Contractor-prepared Traffic Control Plans shall be submitted to the City's Traffic Engineer for approval within ten (10) business days following contract award and at least fourteen (14) days prior to beginning the work. The traffic control permit application shall be coordinated so that no items of work will be delayed.

The Contractor shall not begin work without the approved traffic control permit(s). The Contractor-prepared Traffic Control Plans are not valid until work dates are approved.

All traffic control for the project shall be in accordance with the Special Provisions and the latest edition of the California Manual on Uniform Traffic Control Devices (California MUTCD) and the latest edition of the "Construction Area Traffic Control Devices" of Caltrans Standard Specifications.

The Contractor shall furnish, install, and maintain a minimum 48" high temporary chain link fence with continuous detectable edging, fabric screen, and lighting, or approved equivalent, at all locations where the pedestrian path of travel is adjacent to the work zone.

The Contractor shall utilize Armorcast Guardian 170 Barrier Heavy Duty, or approved equivalent, water-filled plastic rails to direct pedestrians to pedestrian ramps at all street corners, and at all locations where the pedestrian path of travel is adjacent to a vehicular travel lane.

All traffic control devices used at night must be equipped with flashing lights. Signs used at night must be reflectorized with a material that has a smooth, sealed, outer surface, or illuminated to show approximately the same shape and color, day and night. Street lighting is not an acceptable source of illumination.

The Contractor shall maintain emergency vehicle access in all directions, at all times.

The Contractor shall schedule its work so as to prevent interruption to driveway access, street sweeping, and trash collection.

The Contractor shall backfill or cover trenches with slip-resistant, recessed steel trench plates at the end of each workday. Upon completion of excavation, backfill and provide a satisfactory surface for traffic. Portable concrete barrier i.e., K-rail, additional noticing, and other items may be required when trenching cannot be secured overnight by backfilling or trench-plating.

**Working Hours are 7:00 a.m. to 5:00 p.m. and may be subject to change at the discretion of the Engineer.** Access shall be provided at all times for residents and businesses in the affected areas. If access is at any time restricted for residents adjacent to the project area, Contractor shall notify them of said restriction in writing at least 48-hours in advance.

The Contractor shall be responsible for the maintenance of necessary barricades, signs, etc. at all times, including Saturdays, Sundays, overnight, and holidays. In addition, Contractor shall provide traffic control approaching construction zone, including detour routes.

Contractor shall at all times maintain not less than one (1) - 12-foot minimum width traffic lane in each direction on all streets and alleys open for public traffic. Within the construction zone, when one traffic lane in each direction is not possible due to construction Work within the project scope, Contractor shall maintain two-way traffic within one 14-foot wide traffic lane, and shall include the necessary traffic control, including the use of flaggers. Or Contractor shall implement a street closure and detour as described herein.

The Contractor shall notify the Engineer of its intent to begin work at least two (2) days before the work is begun.

When entering or leaving roadways carrying public traffic, the Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way at any time, including any section closed to public traffic.

The provisions of this section may be modified or altered, if in the opinion of the Engineer, public traffic will be better served and work expedited. Any proposed modifications shall be approved in writing by the Engineer.

No surplus or other material shall be placed on private property unless prior written permission, signed by the property owner, is furnished to the Engineer.

Existing signs shall not be removed until new signage is ready to install, temporary traffic control signs are in place, or until authorized by the Engineer.

The Contractor shall coordinate with the City for appropriate traffic control in advance of,

and during, special events.

### Street Closures and Detours

Closures and detours shall be in accordance with all applicable State, County, and City requirements for closures of streets. Street closures and detours shall not impact public transit operations.

Street closures, detours, barricades lights, other safety devices must conform to the CA-MUTCD.

General vehicle travel lanes and turning movements may be detoured only when necessary to complete the Work, as approved by the Engineer, and as shown on the approved Traffic Control Plans. Throughout all phases of work, including times when general traffic is detoured, Contractor shall maintain emergency vehicle access in all directions through the work zone.

During street closures and detours, the Contractor shall provide barriers, guards, lights, signs, temporary bridges, flag persons, and watch persons. The Contractor shall be responsible for compliance with additional public safety requirements which may arise. Contractor must furnish and install signs and warning devices and promptly remove them upon completion of the Work.

At least 48 hours in advance of closing, partially closing or reopening, any street, alley, or other public thoroughfare, Contractor must notify the Police, Fire, and Traffic Engineering Departments, and comply with their requirements. Deviations must first be approved in writing by the Engineer.

The Engineer will order closing down the Work if the Contractor fails or refuses to construct and maintain detours as required.

Whenever a portion of the roadway is completed, that section of the road shall be available to traffic immediately if it does not conflict with the remaining the traffic control devices and does not compromise public safety.

Contractor shall furnish flag persons when required to give adequate warning to traffic or to the public of any dangerous conditions to be encountered.

### Traffic Signals

Do not interrupt the operation of the existing traffic signals and lighting **unless allowed on the Traffic Control Plans.**

Work that disturbs the normal traffic signal timing operations shall be coordinated with the City a minimum of 72 hours prior to commencing work.

Traffic signals shall remain fully actuated at all times unless otherwise approved by the Engineer. If traffic signal loop detectors are rendered inoperative by the proposed work,

video detection shall be used to provide actuation.

As required by the Engineer, and as shown on the approved Traffic Control Plans, the Contractor shall furnish and maintain temporary traffic signal equipment.

If at anytime a traffic signal is “black”, R1-1 signs shall be placed on barricades at the intersection.

### Parking

Where a parking prohibition is required to complete the work, the Contractor shall post signs 48 hours in advance of scheduled construction. The signs shall indicate the days (Mon., Tues., Wed., etc.) when work will be underway and enforcement will be requested. The signs must indicate the time when parking will be prohibited, (e.g. 7:00 a.m. to 4:00 p.m.). Time shall not be during hours when work is prohibited by other provisions of these specifications. The signs shall further indicate that enforcement may result in towing. The signs shall be posted at intervals along the street of not more than fifty (50) feet, and at a position at the edge of pavement or immediately behind the curb. Additional signs shall be installed when required by the Engineer to assure adequacy of the notice.

Upon posting no parking signs, the Contractor shall advise the Engineer who must inspect and certify that posting was completed in accordance with these specifications. Said certification must be at least 48 hours prior to required enforcement.

To request towing, the Contractor may contact the Police Department or Traffic Division. Towing will not normally be performed before 7:00 a.m. or after 4:30 p.m. If towing outside these hours is required, it shall be by prior arrangement with the Police Department Traffic Division Commander, and subject to availability of officers.

Following posting no parking signs, the Contractor shall maintain the signs no less than twice per day and additionally as directed by the Engineer to assure maintenance of the notice. The Contractor shall make every effort to schedule work so that any posted "No Parking" zone will be used on the days posted. In the event the Contractor is unable to maintain the planned schedule, the days posted (Mon., Tues., etc.) shall be revised in advance to reduce the impact of the parking restrictions for days when no work will be done. If additional days are added, the Contractor shall again notify the Engineer who will re-certify the posting.

### Measurement and Payment

**“Temporary Traffic Control”** shall be measured for payment as a lump sum.

The contract lump sum price paid for **“Temporary Traffic Control”** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, preparation of Traffic Control Plans, maintenance of traffic control devices, and incidentals for all necessary and required Traffic Control and Stage Construction to completely implement and maintain the Traffic Control Plans, per these Special

Provisions, and any approved revisions thereto, obtaining all permits, all required coordination efforts, temporary traffic signals, and no additional compensation will be allowed therefor.



## **8.0 MAINTANCE AND PROTECTION OF EXISTING IMPROVEMENTS**

Protection and restoration of existing improvements shall be in accordance with Section 5-1.37, 5-1.38 and 5-1.39 Caltrans Standard Specifications. Private, and public, facilities and structures removed in conflict with construction shall be replaced in kind, as shown on the Plans and as directed by the Engineer.

Improvements such as sidewalks, curbs, gutters, Portland cement concrete (PCC) and asphalt concrete pavements, underlying material, irrigation systems, lawns and plants, buildings, walls, pavements, fencing, lighting, utilities, and any other improvements removed, broken or damaged by the Contractor's operations shall be replaced or reconstructed with the same kind of material as found on the work, or with materials of equal quality. The new work shall be left in a serviceable condition to the satisfaction of the Engineer.

The Contractor shall protect existing facilities which are to remain in place, that are to be reused, or which are to remain the property of the owner by: temporary covers, shoring, bracing, and supports, and other methods approved by the Engineer. Items which are to remain or are to be salvaged which are damaged during the performance of the work shall be repaired to their original condition or replaced with new by the Contractor, at no additional cost to the owner or the City.

Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal work.

The Contractor shall protect all services and utilities which are to remain. Where removal of existing structures, utilities, sidewalk, pavers and pavement is specified or indicated, Contractor shall provide approved barricades, temporary covering of exposed areas, and temporary services or connections for utilities.

The Contractor shall use extra caution in the excavation adjacent to existing utilities and structures. Existing high voltage electrical lines and communications lines are present in the area. Existing utilities shall remain in operation during construction and the Contractor shall utilize extreme caution in the protection in place of these utility lines during excavation for the installation and compaction of structural soil.

### **Measurement and Payment**

No separate measurement will be made for the requirements of this section.

Full compensation for complying with the requirements of this section shall be considered as included in the contract prices paid for the various items of work, and no additional compensation will be allowed therefor.

## **9.0 TREE REMOVAL**

Individual tree removal work shall conform to Sections 20-1.03 of the Caltrans Standard Specifications and be performed in advance of earthwork. All cuttings and debris shall be removed immediately. All tree stumps shall be removed in their entirety.

Where underground utilities conflict with tree or stump removal, the utilities shall be carefully supported and protected by the Contractor, and in case of damage, they shall be restored by the Contractor, at the Contractor's expense, to the satisfaction of the Engineer. Any voids created by stump removal shall be backfilled to the existing grade with Class 2 aggregate base or compacted fill material.

### **Measurement and Payment**

**"Remove and Dispose Tree"** shall be measured for payment by each Tree removed.

The contract unit prices paid for **"Remove and Dispose Tree"** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation and incidentals for doing all the work involved with the removal and disposal of trees, and no additional compensation shall be allowed therefor.

## **10.0 DEMOLITION, CLEARING AND GRUBBING**

Clearing and grubbing shall conform to Section 17-2 of the Caltrans Standard Specifications, and as directed by the Engineer. "Clearing and Grubbing" shall include the removal and disposal of existing PCC sidewalks and base, driveways and base, pavements and base, curbs, and gutters and base, asphalt concrete and base, temporary sidewalk patches, aggregate base below paved surfaces, pavement interlayer fabric, geogrid, petromat, signs and posts, trees and roots, irrigation systems, fences, walls, utilities, storm drain, foundations, disposal/salvaging of traffic signal and street light poles and equipment, and removal and replacement of other obstructions and facilities in conflict with the construction and in performing the Work as specified.

Where necessary to make an excavation within fifteen feet (15') of any tree to remain, use all possible care to avoid injury to trees and tree roots. Any exposed tree roots shall be hand trimmed to a level of twelve inches (12") below grade and three inches (3") outside the limits of finished pavement, making clean cuts through each exposed root and immediately covered with backfill or damp burlap material. At no time, shall roots be pruned by mechanical means such as excavator, trencher or backhoe. All work shall be done in accordance with such generally accepted arboricultural specifications and standards of practice necessary to protect the vitality of the tree. Any tree to remain in place and damaged beyond salvage ability by the Contractor shall be replaced at the direction of the Engineer with two (2) fifteen (15) gallon trees of the same species and planted.

Concrete removal shall be sawcut to neat, clean lines as shown on the Plans. Ragged or uneven pavement edges will not be allowed. In such cases, the Contractor will be required to over cut the adjacent pavement to a minimum of one (1') foot and replace

the full depth pavement section. No additional payment will be allowed for this additional sawcutting, over excavation, and replacement.

Whenever a part of a slab of existing concrete is broken or damaged, the entire section or slab to the nearest joint shall be removed and the concrete reconstructed as specified above and as shown on the Plans.

The outline of all areas to be removed in Portland cement concrete sidewalks, driveways and pavements shall be removed in accordance with Section 15-1.03 of the Caltrans Standard Specifications, and as described herein. Portland cement concrete shall be sawcut with an abrasive type saw prior to removing the concrete material. Cuts shall be neat and true along score lines, with no shatter outside the removal area.

Asphalt pavement and base materials shall be removed in accordance with Section 19-2.03A, and as described herein.

Where asphalt concrete surfacing is repaired or replaced on private property, the Contractor shall install asphalt concrete and base material to the same or higher thickness as the existing section, or as shown on the Plans.

The Contractor shall prevent sawcut slurry discharges to gutters, storm drains, and watercourses. The Contractor shall shovel, absorb or vacuum the slurry residue from the pavement or gutters and remove from the site at the end of the day or job (whichever is sooner).

The Contractor shall not remove more than one thousand (1,000) linear feet of sidewalk, driveways and curbs (measured along the roadway center line) in advance of the installation of new sidewalks, driveways, and curbs, unless approved by the Engineer.

Where shown on the Plans, or as directed by the Engineer, the Contractor shall modify, cap, abandon, or relocate existing irrigation systems. Replacements shall be with in-kind materials.

Foundations shall be removed to a depth of at least 30-inches below existing ground.

All materials to be removed and disposed of by the Contractor shall become the property of the Contractor. The Contractor has sole discretion on the means of hauling away the removal items and is obligated to dispose of such materials in accordance with all applicable laws, regulations, and ordinances. The Contractor may use Contractor's own vehicles and employees to haul waste that is incidental to the contract. If the Contractor self-hauls waste material, he or she must designate the specific State permitted landfill or recycling facility that will be used to dispose of any waste material generated on the job. If the Contractor does not designate a State permitted disposal site, he or she shall obtain a hold harmless agreement acceptable to the City.

Certain existing improvements shall be demolished, removed, disposed, stored, salvaged, reconstructed, and/or relocated as shown on the Plans. Items and materials

not scheduled for re-use, relocation or re-installation within the project limits shall be immediately loaded into trucks and removed from the site and legally disposed of off-site.

The Contractor shall not dispose of the improvements or materials therefrom by sale, gift, or in any manner whatsoever to the general public at the site, provided, however, that this provision shall not be construed as limiting or prohibiting the sale or disposal of such improvements or materials at the site to duly licensed contractors, and provided that the Contractor verifies that all such materials have been removed from the site.

To the maximum extent practicable, recycle nonhazardous job site waste and excess material.

Excavated materials determined to contain aurally deposited lead or other hazardous materials which have special requirements for disposal, shall be disposed of properly.

In addition to the above items, Clearing and Grubbing shall include, but not be limited to, the following items as shown on the Plans or specified in these Special Provisions:

1. Removal of existing asphalt concrete pavement sections, including asphalt concrete, pavement interlayer fabric, geogrid, petromat, and aggregate base materials.
2. Removal of thermoplastic pavement markings, posts, fencing, utility boxes, and pull boxes.
3. Removal of PCC pavement, PCC curb, PCC curb and gutter, PCC sidewalks, PCC curb ramps, including aggregate base material.
4. Removal of trees, shrubs, stumps, trash, debris, vegetation in the pavement cracks or curb lines, whether or not specifically indicated on the Plans or otherwise shown to be protected or relocated.
5. Deleterious materials resulting from Clearing and Grubbing operations shall be hauled away and legally disposed of at a site obtained by the Contractor.
6. Removal and disposal of any additional items not specifically mentioned which may be found within the work limits.
7. Applying water.
8. Dust Control.
9. Maintenance of project appearance.
10. Clean-up of project upon completion of work.
11. Clearing tree roots (root pruning), where tree roots are the cause of damage to existing sidewalks or may damage new improvements.
12. Tree trimming.

13. Tree protection.
14. Protection of existing facilities which are to remain.
15. Removal of underground structures.
16. Removal and salvage of existing utilities, street lighting, and traffic signal equipment.
17. Removal and disposal of interfering portions of underground utility conduit and appurtenances.
18. Removal and salvage of existing signs, post foundations, street furniture, and pull boxes.
19. Removal of Detectable Warning Tiles.
20. Asphalt concrete milling.

Damage to asphalt concrete pavement, buildings and structures, utilities, PCC flatwork, and other existing facilities which are to remain in place beyond the excavation limits shall be repaired to a condition satisfactory to the Engineer at the Contractor's expense.

#### Measurement and Payment

Measurement for the various items of Demolition, Clearing and Grubbing work shall be measured in accordance with the Bid Schedule and as specified in the various sections of these Special Provisions.

Demolition, Clearing and Grubbing bid items include, but are not limited to:

**“Clearing and Grubbing”** shall be measured for payment as a lump sum.

**“Sawcut”** shall be measured for payment by the linear foot of saw cutting performed.

**“Remove and Dispose Fence”** shall be measured for payment by the linear foot of fence removed.

**“Remove and Dispose Storm Drain Pipe”** shall be measured for payment by the linear foot of pipe removed.

**“Remove and Dispose Concrete and Base”** shall be measured for payment by the square foot of concrete removed.

**“Remove and Dispose Curb and Gutter”** shall be measured for payment by the linear foot of curb and/or curb and gutter removed.

**“Remove and Dispose Asphalt Concrete and Base”** shall be measured for payment by the square foot of asphalt pavement and base removed.

**“Remove and Dispose Asphalt Dike”** shall be measured for payment by the linear foot

of asphalt dike removed.

Full compensation for Demolition, Clearing and Grubbing work as indicated in the Bid Schedule is considered included in the contract unit prices paid for the various Demolition, Clearing and Grubbing bid items and no additional compensation will be allowed therefor.

The contract unit prices paid for the Demolition, Clearing and Grubbing items of work shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in demolition and clearing and grubbing, including but not limited to watering, dust control, transportation, demolition, removal, salvage, root pruning (including Contractor-paid Certified Consulting Arborist), hauling and /or disposal or recycling, and associated fees, permits and permit fees, performing abandonments, removals, storing, salvaging, disposal, sawcutting, protection of existing facilities, adjustments to grade, relocations, project site maintenance, and reconstruction of existing facilities, and no additional compensation will be allowed therefor.

#### **11.0 EARTHWORK**

All excavation, grading, cuts and fills, hand-digging, export, import, structural excavation, structural backfill, trench backfill, stockpiling, borrow, transport, mixing, moisture conditioning, and compaction necessary to obtain the finished grades as shown on the Plans shall be considered "unclassified excavation" and shall be done in accordance with Section 19 of the Caltrans Standard Specifications. Excess materials shall become the property of the Contractor and shall be removed from the site.

The Contractor may perform their own below ground surface investigation of the site, subject to all County and City permitting, and at the Contractor's sole expense.

Section 4216/4217 of the Government Code requires a dig alert identification number be issued before a "Permit to Excavate" will be valid. To obtain a "Dig Alert" I.D. number, call Underground Service Alert toll free at 8-1-1 or 1-800-422-4133 two (2) working days before digging.

The Contractor will be required to grade for the new improvements in accordance with the Standard Specifications. If material must be imported to make finish subgrade, the Contractor may use Class 2 aggregate base or imported borrow. The cost of supplying and placing this material shall be considered included in the contract unit price paid for "**Unclassified Excavation**" and no additional compensation will be allowed therefor.

The Contractor is responsible for locating all existing utilities that might be disturbed or damaged from the Contractor's operation. The cost of this work, including removal and disposal of excess material, is considered included in the various bid items and no additional compensation shall be allowed therefor.

Unless otherwise shown on the Plans, or otherwise described in these Special Provisions, compaction requirements of subgrade, fill areas, and embankments, shall

be a minimum of 90% relative compaction.

Contractor shall observe safety precautions in all phases of the work, including, but not limited to trench shoring, bracing, lighting, and barricades, as dictated by reason and by the Safety Orders of the Division of Industrial Safety, State of California (CAL/OSHA). Contractor shall acquire an exemption letter or trenching permit from the CAL/OSHA and comply with Labor Code Section 6705, Excavation Plans for Worker Protection. Contractor shall submit a copy of the exemption letter or trenching permit with excavation drawings to the Engineer prior to starting excavation work.

Structure excavation shall include the temporary support of all sloped and vertical plains of excavation. Shoring, where needed, shall be placed to protect existing improvements including adjacent properties. Temporary shoring design is the Contractor's responsibility and shall be designed in accordance with State of California Department of Industrial Relations, Division of Occupational Safety and Health requirements, and stamped by a registered civil or structural engineer in the State of California. The Contractor shall submit the shoring plans and calculations to the Engineer for review and approval prior to the commencement of the construction for which the shoring is required.

The Contractor shall furnish all labor, equipment, and materials required to design, construct, and remove all sheeting, shoring, and bracing, or other equivalent method of support, for the walls of open excavations required for the construction of this project.

Prior to the beginning of excavations requiring shoring, the Contractor shall designate in writing to the Engineer, someone whose responsibility is to supervise the project safety measures and someone (Trench Safety Foreman) whose responsibility is to supervise the installation and removal of sheeting, shoring, and bracing.

In addition to shoring the excavations in accordance with the minimum requirements of the Industrial Safety Orders, it shall be the Contractor's responsibility to provide any and all additional shoring required to support the sides of the excavation against the effects of loads which may exceed those derived by using the criteria set forth in the Industrial Safety Orders. The Contractor shall be solely responsible for any damages which may result from its failure to provide adequate shoring to support the excavation under any or all of the conditions of loading which may exist, or which may arise during the construction of the project.

Full compensation for trench safety and shoring of excavation is included in the contract prices paid for the various items of work, including all costs relating to trench safety and shoring of **excavations**, the cost for preparation of the shoring plan, and obtaining said permit from the Division of Industrial Safety as described herein, and no additional payment will be made therefor.

No additional payment will be made as a result of required revisions in the trench support details due to the type of soil encountered which requires a method of trench support different from that approved.

## Measurement and Payment

**“Unclassified Excavation”** shall be measured for payment by the cubic yard.

**“Geotechnical Testing for Quality Control”** shall be measured for payment as a lump sum.

The contract unit price paid for “Unclassified Excavation” shall include full compensation for all excavation, disposal, site preparation, unclassified fill, borrow excavation, grading, hand-digging, compaction, field testing, imported borrow, export, backfill, subgrade preparation, re compaction, disposing of surplus material, stockpiling, hauling it to its final location, labor, materials, tools, equipment and all incidental work, and no additional compensation shall be made therefor.

The contract lump sum price paid for **“Geotechnical Testing for Quality Control”** shall include full compensation for all labor, materials, tools, equipment, and incidentals, testing, quality assurance, and quality control, to perform tests related to the following project materials and construction as described within these Special Provisions: Class 2 Aggregate Base, Asphalt Concrete, Leveling Course, ARAM, and ARHM, PCC, unclassified excavation, and subgrade preparation, and no additional compensation shall be made therefor.



## 12.0 CLASS 2 AGGREGATE BASE

The Class 2 base material shall conform to Caltrans Standard Specifications Section 26 for ¾ inch maximum base material. The gradation requirements are as follows:

| <u>SIZE PERCENT</u> | <u>PASSING</u> |
|---------------------|----------------|
| 1 IN/25.00MM        | 100            |
| ¾ IN/19.00MM        | 87-100         |
| #4/4.75MM           | 30-65          |
| #30/600MM           | 5-35           |
| #200/75.00MM        | 0-12           |

The sand equivalent shall be 25 or greater. An angular aggregate is to be used. Class 2 base material shall be compacted to 95 percent of maximum density according to ASTM D-1557, unless otherwise noted on the plans or details. The tolerance for the class 2 base between design subgrade elevation and actual subgrade elevation as constructed in the field shall be plus or minus 0.02 feet as referenced from the design subgrade. Prior to the placement of class 2 base the native subbase grade shall be checked and approved by the construction manager or City Inspector. The native subbase grade shall be within plus or minus 0.05 feet of native subbase design grade prior to the placement of class 2 base.

The Contractor shall supply a five-gallon sample of the class 2 base to the material testing laboratory within four (4) days of the notice to proceed. The material shall be delivered to the testing laboratory to determine the maximum density, gradation, r-value, sand equivalent and durability index of the class 2 base. A copy of the test results shall be forwarded to the construction manager or City by the geotechnical consultant for review. The gradation of the class 2 base shall be determined, and the test results forwarded to the construction manager or City for approval prior to the delivery of the class 2 base material to the construction site. Class 2 base utilizing recycled materials shall be allowed in lieu of virgin class 2 base as long as the specifications meet the Caltrans standard specifications section 26.

The Contractor shall take samples for testing Relative Compaction of the class 2 the aggregate based in accordance Section 26-1.01D(2)(d) and the California Test 231.

The Contractor shall submit certified test reports from the vendor specifying the aggregate gradation along with a certification form from the vendor that the material meets the specification and requirements of this section within five (5) working days following the Notice to Proceed.

## Measurement and Payment

“**Construct Class 2 Aggregate Base (Under HMA and PCC)**” shall be measured for payment by the cubic yard of material placed.

The contract unit price paid for “**Construct Class 2 Aggregate Base (Under HMA and PCC)**” shall include full compensation for all loading, quality control, hauling, depositing, moisture conditioning, compacting, labor, materials, tools, equipment and all incidental work, and no additional compensation shall be allowed therefor.

### **13.0 ASPHALT CONCRETE**

#### **13.1 General**

Asphalt Concrete shall be constructed in accordance with Section 39 of the Caltrans Standard Specifications and these Special Provisions, including, but not limited to, requirements, specifications, quality, and acceptance criteria for designing, producing, and placing asphalt concrete by mixing aggregate and asphalt binder in a laboratory and at a mixing plant, and spreading and compacting the asphalt concrete mixture at the site.

The Contractor shall submit a certification and mix design in accordance with the Caltrans Standard Specifications by the asphalt concrete vendor demonstrating that the supplied material meets the requirements of this Special Provision, along with a test report showing the gradation of the material, supplied within ten (10) working days following the Notice to Proceed. The mix design shall clearly specify the source(s) of all aggregates and asphalt binders utilized in the mix design, along with a statement that said aggregate and asphalt binder sources shall be used for the duration of the project.

All asphalt concrete shall be Type A Hot Mix Asphalt (HMA), PG 70-10, unless otherwise noted in this Special Provision. Reclaimed Asphalt Pavement (RAP) shall not exceed 15%.

Asphalt concrete base course pavement lift thickness shall be between 2.4” and 4”. Asphalt concrete base course gradation shall be  $\frac{3}{4}$  inch.

Asphalt concrete surface course pavement lift thickness shall be between 1.6” and 2.4”. Asphalt concrete surface course gradation shall be  $\frac{1}{2}$  inch.

Asphalt concrete pavement sections less than 4” thick shall be placed as a single base course pavement lift.

Leveling course shall be constructed in accordance with Section 39-2.01 of the Caltrans Standard Specifications, and these Special Provisions, including, but not limited to, requirements, specifications, quality, and acceptance criteria for designing, producing, and placing asphalt concrete by mixing aggregate and asphalt binder in a laboratory and at a mixing plant, and spreading and compacting the asphalt concrete mixture.

The leveling course asphalt binder shall be PG 70-10. The aggregates for the leveling course must comply with the gradation specifications for Type A HMA in section 39-2.02B.

The Contractor shall submit a quality control plan for HMA at least 5 days prior to the pre-paving meeting in accordance with Section 39-2.01q(3)(c) of the Caltrans standard Specifications. The Contractor shall take HMA samples to testing size in accordance with California Test 125 and reduce samples of HMA to testing size under California Test 306.

Contractor shall submit job mix verification in accordance Section 39-201A(4)(b) of the Caltrans standard Specifications.

Contractor shall evaluate HMA production and placement at production start-up in accordance with Section 39-2.01A(h)(v) of the Caltrans standard Specifications.

During HMA placement determine the HMA density using a nuclear gauge in accordance with Section 39-2.01A(4)(h)(vi) of the Caltrans standard Specifications.

Contractor shall take density cores every 5 business days, or every 250 tons of HMA placed, whichever comes first, in accordance with Section 39-2.01A(h)(viii) of the Caltrans standard Specifications. Contractor shall take density cores from the final layer in accordance with Section 39-2.01(4)(i)(ii) of the Caltrans standard Specifications.

Contractor shall test for pavement smoothness in accordance with Section 39-2.01A(4)(i)(iii) of the Caltrans standard Specifications.

Asphalt rubber hot mix (ARHM) shall be constructed in accordance with Section 302-9 of the Greenbook Standard Specifications including, but not limited to, requirements, specifications, quality, and acceptance criteria for designing, producing, and placing ARHM by mixing aggregate and rubberized asphalt binder in a laboratory and at a mixing plant, and spreading and compacting the ARHM mixture at the site.

Asphalt rubber aggregate membrane (ARAM) shall be constructed in accordance with Section 302-10 of the Greenbook Standard Specifications including, but not limited to, requirements, specifications, quality, and acceptance criteria for designing, producing, and placing ARAM by mixing aggregate and rubberized asphalt binder in a laboratory and at a mixing plant, and spreading and compacting the ARAM mixture at the site. Before placement of the first lift of the asphalt concrete base course, the Contractor shall tie-out the locations of the tops and full dimensions of all manholes, valve lids, vault covers, survey monuments, etc. that must be adjusted to grade by the Contractor or various utility companies. Adjustments to grade shall be in accordance with the Standard Specifications, these Special Provisions, and utility company's requirements. It is the responsibility of the Contractor to preserve the location and condition of all manholes, valve lids, vault covers, etc. during the course of construction. All adjustments to grade shall be considered included in the contract lump sum price

paid for "Clearing and Grubbing" and no additional compensation will be made therefor.

The final surface course of asphalt concrete shall be installed as a last order of work following the completion of all surrounding concrete and utility improvements.

#### Measurement and Payment

**"Construct Hot Mix Asphalt"** shall be measured for payment by the ton of material placed.

**"Construct 1.5" Asphalt Rubber Hot Mix"** shall be measured for payment by the square footage of material placed.

**"Construct 3/8" Asphalt Rubber Aggregate Membrane"** shall be measured for payment by the square footage of material placed.

**"Construct Leveling Course"** shall be measured for payment by the square footage of material placed.

The contract unit prices paid for **"Construct Hot Mix Asphalt"**, **"Construct 1.5 Asphalt Rubber Hot Mix"**, **"Construct 3/8" Asphalt Rubber Aggregate Membrane"** and **"Construct Leveling Course"** shall include full compensation for all labor, materials, quality assurance, quality control, tools, equipment, and incidentals, loading, hauling, depositing, compacting, rolling, surface preparation, tack coat, asphalt concrete, leveling course, ARAM, and ARHM, and no additional compensation will be allowed therefor.

### **13.2 Tack Coat**

Tack coat consisting of RS1 emulsified asphalt conforming to the requirements of Section 94 of the Caltrans Specifications shall be applied prior to the placement of asphalt concrete, trench restoration, or successive layers of asphalt concrete.

#### Measurement and Payment

No separate measurement will be made for complying with the requirements of this section.

Full compensation for furnishing and installing tack coat shall be included in the contract unit price paid for **"Construct Hot Mix Asphalt"** and no separate payment shall be made therefor.

### **13.3 Stress Relieving Pavement Mat (Engineering Paving Mat Interlayer)**

This work shall consist of furnishing and placing an engineered paving mat within the pavement structure as shown on the Plans or directed by the Engineer. The engineered paving mat shall provide a moisture barrier/stress relieving

membrane and shall be placed beneath an asphalt concrete overlay.

Paving interlayer fabric shall be Mirafi MPM30 (PGM-30) or approved equivalent and shall be constructed of high-strength glass filaments bonded to a polyester fabric, conforming to the following properties:

| Mechanical Properties  | Test Method          | Unit                | Minimum Average Roll Value |
|------------------------|----------------------|---------------------|----------------------------|
| Tensile Strength @ 0°  | ASTM D5035<br>(2C-E) | lbs                 | 200                        |
| Tensile Strength @ 90° |                      |                     | 200                        |
| Tensile Elongation     | ASTM D5035           | %                   | <5                         |
|                        |                      |                     | Minimum Test Value         |
| Melting Point          | ASTM D276            | F°<br>(C°)          | 450° (232°)                |
| Asphalt Retention      | ASTM D6140           | gal/yd <sup>2</sup> | 0.10                       |
| Mass/Unit Area         | ASTM D5261           | oz/yd <sup>2</sup>  | 4.0                        |

| Physical Properties              | Unit            | Roll Characteristics |            |
|----------------------------------|-----------------|----------------------|------------|
| Roll Dimensions (width x length) | ft              | 10 x 450             | 12.5 x 360 |
| Roll Area                        | yd <sup>2</sup> | 500                  | 500        |
| Estimated Roll Weight            | lbs             | 172                  | 172        |

The engineered paving mat shall be stored in accordance with the manufacturer's requirements in a dry, covered condition free from dust, dirt and moisture. The engineered paving mat shall be installed in accordance with the manufacturer's specifications and this Special Provision. Where a conflict exists between the specifications, the more stringent specification will apply. A copy of the proposed manufacturer's specifications shall be provided to the Engineer for review and approval at the pre-construction meeting or no later than (10) ten working days prior to installation.

A tack coat consisting of PG 70-10 asphalt binder shall be applied to the milled pavement surface immediately prior to application of the engineered paving mat interlayer.. Application rate shall be 0.15 +/- .03 gallons per square yard.

The surface on which the engineered paving mat is to be placed shall be reasonably free of dirt, water, vegetation or other debris. The engineered paving mat shall be placed on a drainable surface, and any rutting or low spots in the pavement shall be removed by milling or by the use of a leveling course. Cracks exceeding ¼-inch in width shall be filled with suitable elastomeric crack filler.

Neither the asphalt binder nor the engineered paving mat shall be placed when weather conditions, in the judgment of the Engineer, are not suitable. Air and pavement temperatures shall be sufficient to allow the tack coat to hold the engineered paving mat in place. The air temperature shall be 50 ° F and rising for placement of the asphalt tack coat.

Application of the tack coat shall be by a calibrated distributor truck spray bar. Emulsified Asphalt shall not be allowed. Temperature of the tack coat shall be sufficiently high enough to permit uniform spray pattern and shall be between 325° F and 400° F.

The target width of the tack coat application shall be the engineered paving mat material width plus four (4) inches. Tack coat application shall be wide enough to cover the entire width of engineered paving mat material overlaps. The tack coat shall be applied only as far in advance of the engineered paving mat material installation as is appropriate to ensure a tacky surface at the time of the engineered paving mat material placement. Traffic shall not be allowed on the tack coat.

The engineered paving mat shall be placed onto the tack coat with minimum folds or wrinkles and before the tack coat has cooled and lost tackiness. As directed by the Engineer, wrinkles or folds in excess of (one) 1 inch shall be slit and laid flat or pulled out and replaced. In these repaired areas, additional tack coat shall be applied as needed to achieve a sound bond to the substrate. Damaged engineered paving mat shall be removed and replaced, per the manufacturer's recommendations, at the Contractor's expense with the same type of material.

Brooming, squeegee, or pneumatic tire rolling shall be used to remove any air bubbles and to maximize engineered paving mat contact with the pavement surface and shall be done in accordance with the manufacturer's specifications and to the satisfaction of the Engineer.

Excess tack coat that bleeds through the engineered paving mat under normal construction traffic shall be countered by broadcasting clean sand or hot mix to create a bond break between the excess tack and the construction equipment tires. If sand is applied, any excess sand shall be removed from the interlayer prior to placing the asphalt concrete overlay. No other material, such as asphalt release agents or diesel, shall be used for this purpose. No traffic, except necessary construction traffic or emergency vehicles, shall be driven on the

engineered paving mat, unless approved by the Engineer. If the Engineer approved traffic on the engineered paving mat, clean sand shall be lightly broadcast over the engineered paving mat interlayer, and any loose sand shall be removed prior to paving.

Placement of the first lift of the asphalt concrete overlay shall closely follow placement of the engineered paving mat. All areas in which the engineered paving mat has been placed shall be paved during the same day, unless approved otherwise by the Engineer. In the event of rainfall on the engineered paving mat prior to the placement of the first asphalt concrete overlay lift, the engineered paving mat shall be allowed to dry before the asphalt concrete is placed. The compacted thickness of the first lift of the asphalt concrete overlay on the engineered paving mat shall not be less than 1.5 inches, and the temperature of the mix at placement shall not exceed the engineered paving mat's melting point temperature. Where the total asphalt concrete overlay thickness is less than 1.5 inches, engineered paving mat shall not be used.

#### Measurement and Payment

**"Furnish and Install Paving Fabric"** shall be measured for payment by the square yard of material placed. All overlaps of mat interlayer required by the Manufacturer's installation specifications will not be included in the square yardage measurement.

The contract unit price paid for **"Furnish and Install Paving Fabric"** shall include full compensation for preparation, tack coat, placement, storage, and all labor, materials, tools, equipment, and incidentals necessary for a complete installation, and no additional compensation will be allowed therefor.

### **13.4 Hot Mix Asphalt Dike**

Hot mix asphalt dike shall be constructed in conformance with Sections 39-2 of the Caltrans Standard Specifications, the applicable Standard Drawings, the Plans and these Special Provisions.

#### Measurement and Payment

**"Construct HMA Dike Type A per Caltrans Standard Plan A87B"** shall be measured for payment by the linear foot of dike installed.

The contract unit price paid for **"Construct HMA Dike Type A per Caltrans Standard Plan A87B"** shall include full compensation for all material, labor, plant, equipment, furnishing all transportation, hauling, spreading, finishing, complete in place, and incidentals necessary for a complete installation and no additional compensation will be allowed therefor.

### **14.0 COLD MILL**

Existing asphalt concrete shall be cold milled or ground in accordance with Section 404 of the Greenbook Standard Specifications, and these Special

Provisions.

At least two full time flag persons shall be assigned to the milling machine for traffic control when working on streets open to traffic.

The asphalt concrete millings shall be disposed of at a recycling plant. The Contractor shall provide the City with proof that the asphalt concrete millings and other asphalt concrete to be disposed of has been recycled.

The Contractor shall take care not to contaminate the millings with non-aggregate base material, including disintegrated granite.

#### Measurement and Payment

“**Cold Mill**” shall be measured for payment by the square foot of material removed.

The contract unit price paid for “**Cold Mill**” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in cold milling asphalt concrete pavement and disposing of the material removed, as specified in these Special Provisions, as shown on the Plans and as directed by the Engineer, and no additional compensation shall be allowed therefor.

#### **15.0 SLURRY SEAL**

This work shall consist of furnishing and placing of Emulsion Aggregate Slurry (EAS) (Type II) and shall conform to section 37-3 of the Caltrans Standard Specifications.

Prior to applying the slurry seal the existing pavement shall be cleaned and prepared in accordance with the Standard Specifications. Existing pavement markings and pavement markers shall be removed prior to applying the slurry seal.

#### Measurement and Payment

“**Place Type II Slurry Seal**” shall be measured for payment by the square yard of material placed.

The contract unit price paid for “**Place Type II Slurry Seal**” shall include full compensation for providing and placing EAS, surface preparation, and all labor, materials, equipment, tools, and incidentals necessary for a complete installation, and no additional compensation will be allowed therefor.

#### **16.0 ADJUST MANHOLES AND UTILITIES TO GRADE**

All manhole frames and covers, valve boxes and lids, and other similar existing utilities shall be raised to the grade of the finished pavement surface by the contractor. Manhole frames and covers, and similar utility covers shall be lowered a minimum of 3 inches below the design pavement surface prior to the



installation of A.C. pavement. Manhole frames and covers, and other lids shall be raised after paving operations have occurred. 8-inch wide, 8-inch deep concrete collars shall be poured concentric with the outside of valve extension risers 3/8 inches below the finish pavement surface. A one (1) foot wide, one (1) foot deep concrete collar shall be poured concentric with the outside of all manhole frames and covers 3/8 inches below the surface of the pavement. Manhole frames and covers shall be raised with concrete grade rings 3/8 inches below the new street pavement surface elevation. The manhole frame and covers and valve extension risers and covers shall be raised 3/8 inches below the pavement grade after paving operations are complete.

Utility boxes that are to be adjusted to grade, and are not within areas of asphalt concrete, shall be adjusted to grade per the requirements of the owner.

#### Measurement and Payment

Adjust manholes and utilities to grade shall be measured for payment by each constructed. Bid items include, but are not limited to:

**“Adjust Manhole to Grade”**

**“Adjust Pull Box to Grade”**

**“Adjust Water Valve to Grade”**

**“Adjust Water Meter to Grade”**

Full compensation for adjust manholes and utilities to grade as indicated in the Bid Schedule is considered included in the contract unit prices paid for the various adjust to grade bid items and no additional compensation will be allowed therefor. The contract unit prices paid for the adjust to grade items of work shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, finishing, and incidentals necessary for a complete installation, and no additional compensation will be allowed therefor.

#### **17.0 WATER SERVICE**

Water Service lateral and meter box shall be constructed as shown on the Plans.

#### Measurement and Payment

**“Furnish and Install New Water Service”** shall be measured for payment by each constructed.

The contract unit price paid for **“Furnish and Install New Water Service”** shall include full compensation for all labor, materials, testing, and equipment to install the new water service. This bid item shall include all earthwork and imported bedding and backfill materials, service saddle, corporation stop, copper tubing, fittings, angle meter valve, sacrificial anodes, meter box and lid, and all other appurtenances, and no additional payment shall be allowed therefor.

## **18.0 PCC SURFACE IMPROVEMENTS**

### **18.1 General**

PCC shall meet the requirements of Section 90-2 "Minor Concrete" of the Caltrans Standard Specifications.

PCC concrete, utilized for but not limited to, curb and gutter, barrier curb, spandrels, cross-gutter, valley gutter, ribbon gutters, residential and commercial driveways, sidewalks and all other concrete infrastructure shall contain a minimum of 7 sacks of cement per cubic yard of concrete and attain 5,000 psi compressive strength after 28 days curing unless stated otherwise on the plans. The PCC shall contain 1 ½ lbs. of polypropylene fiber per cubic yard. A concrete mix design shall be submitted to the Engineer within five (5) days after the issuance of the notice to proceed. New formwork shall be utilized in the construction of every concrete facility. The formwork shall be true to line and grade. The vertical flowline elevation tolerance shall be +/- 0.02 feet for design grade for slopes of 1.0% or greater, +/- 0.01 for design grade for slopes less than 1.0%. The City Inspector shall check the formwork for line and grade prior to the placement of concrete. The Contractor shall notify the Engineer 72 hours prior to the required inspection. Exposed surfaces of concrete areas shall receive a double trowel finish. Weakened plane joints shall be placed every 8 lineal feet for ribbon gutter, cross gutter and valley gutter construction unless otherwise illustrated on the Plans or Standard Plans. Expansion joints shall be placed every 32 feet along curb and gutter, barrier curb, valley gutter and sidewalk construction unless otherwise illustrated on the Plans or Standard Plans. Installation of curb and gutter, valley gutter and cross-gutters shall begin at the lowest elevation and proceed uphill. A total of one (1) set of cylinders and one (1) slump test shall be required for every 50 cubic yards of concrete, except that a minimum of one (1) set of cylinders and slump test shall be required each day twenty (20) or more yards of concrete are placed at a project site.

The maximum allowable slump shall be four (4) inches. A set of cylinders shall be composed of three (3) cylinders. The first cylinder of a set shall be tested after seven (7) days curing. The second cylinder of a set shall be tested after 28 days curing. The third cylinder shall be held in reserve and tested if directed by the Engineer. The test results will be forwarded to the construction manager or City for review. The Engineer shall receive a concrete vendor slip for each truck load of concrete delivered to the project site.

Prior to the placement of concrete, the subgrade depth shall be inspected to ensure that the full depth of concrete, as noted on the plans, is attained. Excess fill material shall be removed as required by the Engineer. The form boards shall be checked for the proper elevation. Compaction tests on the subgrade shall have achieved the density requirements specified. The Engineer shall then allow the placement of concrete.

The concrete shall be screeded and floated. All edges shall be struck with a concrete edger. Weakened plane joints shall be established at right angles to the sidewalk edge as illustrated on the standard drawings. The weakened plane joints shall be 3/8 inch in width and 3/4 inch in depth. Expansion joints consisting of 1/2-inch-thick fiberboard material shall be placed across the full section of the PCC sidewalk every 32 lineal feet, or as required by the standard plans. After the concrete surface has been floated and cured adequately, it shall receive a double trowel finish. The troweling shall be accomplished by hand with a steel trowel. The surface of the concrete shall receive a light broom finish after the surface is double troweled. The surface of the concrete shall be smooth and true to grade. Tolerance for the concrete surface shall be 1/8 inch in 10 lineal feet with maximum high and low variance not occurring in less than 20 feet. The Contractor shall maintain the concrete surface moist or wet for a 24-hour period after the concrete is placed and finished troweled. Placement of burlap bags or used carpet over the concrete surface and a continuous application of water over the concrete surface will be required for a 24-hour period. After the 24-hour period, a concrete sealer shall be applied to all new PCC concrete surfaces. The concrete surfaces shall be cleaned of all dirt and residue prior to the placement of the concrete sealer. Concrete shall not be placed after 10:00 a.m. on Fridays.

#### Measurement and Payment

Measurement for the various items of Portland Cement Concrete (PCC) work shall be measured in accordance with the Bid Schedule and as specified in the various sections of these Special Provisions.

Unless specified otherwise in the Bid Schedule, miscellaneous structure foundations shall be paid under the item of work they are associated.

Measurement and payment for concrete curb and gutter (all types) or curb only (all types) shall include transition sections necessary to conform to existing curb and gutter or curb, transition sections between different types of curb and gutter or curb; curb and gutter or curb along ADA curb ramps (all types) and driveways (all types); and dispersion area bmp curb inlets/outlets.

PCC bid items include, but are not limited to:

**“Construct PCC Curb and Gutter per City of Imperial Standard Detail 400”**

**“Construct PCC Barrier Curb per City of Imperial Standard Detail No 401”**

**“Construct Type A3-6 Pin on Curb per Caltrans Standard Plan A87A”**

**“Construct PCC Sidewalk per City of Imperial Standard Detail 407-A”**

**“Construct Type A PCC ADA Passageway per Caltrans Standard Plan A88B”**

**“Construct Type B PCC ADA Passageway per Caltrans Standard Plan A88B”**

**“Construct PCC ADA Curb Ramp (All Types)”**

**“Construct PCC Spandrel per City of Imperial Standard Detail 410”**

**“Construct PCC Cross Gutter per City of Imperial Standard Detail 411”**

**“Construct PCC Median Infill”**

**“Construct PCC Driveway (All Types)”**

Full compensation for Portland Cement Concrete construction as indicated in the Bid Schedule is considered included in the contract unit prices paid for the various PCC bid items and no additional compensation will be allowed therefor. The contract unit prices paid for the PCC items of work shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, testing, reinforcement, joints, joint sealant, dowels, transitions, finishing, curing, test panels, subgrade preparation, sawcutting, truncated domes (for ADA curb ramps), and incidentals necessary for a complete installation, and no additional compensation will be allowed therefor.

#### **19.0 TRENCH EXCAVATION, PIPE SUBGRADE, AND TRENCH BACKFILL**

Trenches, excavation, and backfill for storm drain pipes and structures shall conform to Sections 300, 302, 306 and other applicable sections of the Greenbook Standard Specifications, the Plans and these Special Provisions.

On the same day, the trench shall be excavated, waste material removed or salvaged, pipe laid, and trench backfilled. Backfill shall be to final grade, except in streets, driveways and other areas that receive asphalt concrete or PCC paving. In these areas, the Contractor may backfill to not less than two inches (2") of final grade and place temporary paving on the same day the trench is opened. The Contractor shall assume full responsibility for maintaining the surface of the trench at the same grade existing on each side, and shall open the streets and other areas to allow normal passage of vehicular and pedestrian traffic.

Permanent trench surface restoration and base paving shall be placed within ten (10) days after pipe installation.

Surplus material shall not be dumped on private property, unless prior written permission, signed by the property owner is furnished to the Engineer.

The Contractor shall comply with the California Public Contract Code Section No. 7104, Contracts for digging trenches or excavations; notice on discovery of hazardous waste or other unusual conditions; investigations; change orders; effect on contract; as follows:

The Contractor shall promptly, and before the following conditions are disturbed, notify the City in writing, of any:

1. Material that the Contractor believes may be 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.

The City shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a change order request under the procedures described in the contract.

In the event that a dispute arises between the City and the Contractor 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. The 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 contracting parties.

Where unsuitable material is encountered in the trench bottom, it shall be removed to the width and depth as ordered by the Engineer. This material shall be replaced by Class 2 Aggregate Base.

Full compensation for Class 2 Aggregate Base to replace unsuitable material as specified shall be included in contract unit price paid for the various items requiring the all material, including all labor, tools, and equipment including excavating and disposing of the unsuitable material, loading, hauling, disposal, compacting and all work involved in the placement as specified, and no additional payment will be made therefor.

Pipe bedding and trench backfill shall be installed in accordance with the Plans, Section 306 of the Greenbook Standard Specifications, and these Special Provisions.

The bottom of the trench shall be excavated a minimum of six (6") inches below the grade of the bottom of the pipe and a subgrade installed consisting of crushed rock conforming to the following grading and composition requirements placed. The crushed rock shall be used for installations of all non-pressure pipe. The crushed rock shall be clean crushed stone free of organic matter. Crushed rock shall be certified to contain less than 1% asbestos by weight or volume and shall conform to the following gradation:

U. S. Standard Percent      Passing Sieve Size By Weight

|                |        |
|----------------|--------|
| 25mm (1")      | 100    |
| 19mm (3/4")    | 90-100 |
| 12.5mm (1/2")  | 30-60  |
| 9.5mm (3/8")   | 0-20   |
| 4.75mm (No. 4) | 0-5    |
| 2.36mm (No. 8) | ----   |

In addition, crushed rock shall meet or exceed the following requirements for resistance to abrasion or impact as measured using ASTM Test Method C 131, Test Sample Grading B: 100 Revolutions: 15% Maximum Loss by Weight 500 Revolutions: 52% Maximum Loss by Weight.

The crushed rock shall be placed to twelve inches (12") above the top of the pipe. The remainder of pipe bedding shall be as shown on the Plans and Standard Drawings and the Standard Specifications.

Jetting as a procedure for compaction for any type of pipe shall not be used.

Additional bedding required below or adjacent to pipe subgrade to fill the void caused by the removal of existing obstructions shall be crushed rock as specified above and shall not be a separate bid item. The cost of this material is considered as included in the contract unit prices paid for gravity pipes, and no additional payment will be made therefor.

Measurement and Payment

No separate measurement will be made for the requirements of this section.

Full compensation for complying with the requirements of this section shall be considered as included in the contract unit prices paid for the various items of work, and no separate payment shall be made therefor.

**20.0 RCP STORM DRAIN**

Reinforced Concrete Pipe (RCP) storm drains shall be 1350-D, sizes as shown on the Plans. The storm drain pipes shall conform to, and be placed in accordance with, Sections 65-2 of the Caltrans Standard Specifications, the Plans, and these Special Provisions.

Connections and stabilization of new storm drain pipe to new and existing structures shall be included as incidental costs of RCP Storm Drain and built in accordance with the applicable Standard Drawings and Standard Specifications.

Measurement and Payment

**"Furnish and Install 18" RCP Storm Drain"** shall be measured for payment by

the linear foot of pipe installed.

The contract unit price paid for “**Furnish and Install 18” RCP Storm Drain**” shall include full compensation for furnishing all labor, materials, tools, equipment, transportation and incidentals for doing all work involved in installing storm drain pipes, connection to new and existing storm drainage pipes and structures, trench safety and shoring, excavation, bedding, backfill, temporary pavement repair, disposal of existing pipe and excavated materials, and all labor, materials, tools, equipment, and incidentals, and all work necessary for installation, complete in place, and no additional compensation shall be allowed therefor.

## **21.0 REINFORCED CONCRETE STRUCTURES**

Reinforced concrete inlets, storm drain cleanouts, and headwalls shall conform to Sections 51, and 52, of the Caltrans Standard Specifications. Reinforced concrete structures shall be constructed per the Standard Drawings and as shown on the Plans. Miscellaneous iron and steel appendages or hardware shown on the Plans and the Standard Drawings shall be galvanized in accordance with Section 75-1.02B of the Caltrans Standard Specifications. No load shall be allowed on any concrete member until the concrete has attained a compressive strength of at least three-thousand (3,000) psi.

Contractor shall adjust the cement content and admixtures, with the prior approval from the Engineer, as necessary to assure the concrete will reach the required compressive strength before backfill.

All steel reinforcing shall be Grade 60, ASTM Designation A615. Aluminum and plastic supports for reinforcement shall not be used.

Reinforcing steel bars shall be accurately spaced as shown on the Plans and/or Standard Drawings. The spacing of the first bar immediately adjacent to a transverse construction joint shall be one-half the required spacing shown on the Plans. In no case shall the clear distance between parallel bars be less than 2-½ diameters of the bar or a minimum of two (2) inches.

Unless otherwise shown on the Plans and/or Standard Drawings, embedment of reinforcing steel (other than stirrups and spacers) shall be 1-½ inches clear depth for #8 bars and smaller, and shall be 2 inches clear for #9 bars and larger. Where placement of reinforcing steel requires alternate bars of different size, embedment requirements shall be governed by the larger bar. Stirrups and spacers shall be embedded not less than one-inch clear depth. Measurement of embedment shall be from the outside of the bar to the nearest concrete face.

Tack welding on reinforcing bars will not be permitted.

Splicing of reinforcing bars shall be either by lapping, butt welding, or by mechanical butt splicing, at the option of the Contractor. Splicing shall comply with the requirements set forth in Section 52-6, “Splicing,” of the Caltrans Standard Specifications and the applicable subsections of Section 11-3 of the Caltrans Standard Specifications.

Reinforcing bars may be continuous at locations where splices are shown on the Plans, at the option of the Contractor. The location of splices, except where shown on the Plans, shall be determined by the Contractor as approved by the Engineer, based upon using available commercial lengths where practicable.

Unless otherwise shown on the Plans or approved by the Engineer, splices in adjacent reinforcing bars shall be staggered. The minimum distance between staggered splices for reinforcing bars No. 11 or smaller shall be the length required for a lapped splice in the bar.

Completed welded butt splices and mechanical butt splices shall develop not less than 90 percent of the specified minimum ultimate tensile strength of the un-spliced reinforcing bar.

The deviation in alignment of reinforcing bars at a welded or mechanical splice shall not be more than ¼-inch over a 3 ½ foot length of bar.

Prior to use in the work, welded butt splices and mechanical butt splices shall be qualified by tests made on sample splices.

During progress of the Work, in addition to inspection and non-destructive testing performed by the Engineer on all types of butt splices, job control tests shall be made on sample splices representing each lot of mechanical butt splices. Sample splices for qualification and job control tests shall be tested for compliance with all specified requirements for splices. All such sample splices shall be fabricated and tested by the Contractor at its cost and a copy of the test results furnished to the Engineer.

Splices shall consist of placing the reinforcing bars in contact and wiring them together in such a manner as to maintain the alignment of the bars and to provide minimum clearances.

No lapped splices will be permitted at locations where the concrete section is not sufficient to provide a minimum clear distance of two (2) inches between the splice and the nearest adjacent bar. The clearance to the surface of the concrete shall not be reduced.

The length of lapped splices shall be as follows: Reinforcing bars No. 8, or smaller, shall be lapped at least 45 diameters of the smaller bar joined, and reinforcing bars Nos. 9, 10, and 11 shall be lapped at least 60 diameters of the smaller bar joined, except when otherwise shown on the Plans.

Splices of tensile reinforcement at points of maximum stress shall be avoided; however, any deviation from splices shown on the Plans shall be approved by the Engineer. Splices in longitudinal steel shall be staggered at least the length of the splice.

#### Measurement and Payment

**“Construct type G-2 Inlet With Grate per Caltrans Standard Plan D73-b and**



**D77-A**”, “ **Construct straight Headwall per Caltrans Standard Plan D89B**”,and “**Construct 18” Concrete Pipe Collar**” shall be measured for payment by each constructed.

The contract unit prices paid for “**Construct type G-2 Inlet With Grate per Caltrans Standard Plan D73-b and D77-A** and “**Construct 18” Concrete Pipe Collar**” shall include full compensation for furnishing all labor, materials, tools, equipment, transportation and incidentals for doing all the work involved in installing concrete structures, trench safety and shoring, excavation, removals and disposals, concrete formwork, reinforcement, compaction, backfill, curing, finishing, necessary for a complete installation, and no additional compensation shall be allowed therefor.

## **22.0 REINFORCED CONCRETE UNDERDRAIN AND RIP RAP PAD**

Reinforced concrete underdrain and rip rap pad shall conform to Sections 51 and 52 of the Caltrans Standard Specifications. Reinforced concrete underdrains and masonry structures shall be constructed as shown on the Plans.

Unless otherwise shown on the Plans and/or the Standard Drawings, miscellaneous iron and steel appendages or hardware shown on the Plans, and the Standard Drawings, shall be galvanized in accordance with Section 75-1.02B of the Caltrans Standard Specifications. No load shall be allowed on any concrete member until the concrete has attained a compressive strength of at least three-thousand (3,000) psi.

Contractor shall adjust the cement content and admixtures, with the prior approval from the Engineer, as necessary to assure the concrete will reach the required compressive strength before backfill.

All steel reinforcing shall be Grade 60, ASTM Designation A615. Aluminum and plastic supports for reinforcement shall not be used.

Reinforcing steel bars shall be accurately spaced as shown on the Plans and/or Standard Drawings. The spacing of the first bar immediately adjacent to a transverse construction joint shall be one-half the required spacing shown on the Plans. In no case shall the clear distance between parallel bars be less than 2-½ diameters of the bar or a minimum of two (2) inches.

Unless otherwise shown on the Plans and/or Standard Drawings, embedment of reinforcing steel (other than stirrups and spacers) shall be 1-½ inches clear depth for #8 bars and smaller, and shall be 2 inches clear for #9 bars and larger. Where placement of reinforcing steel requires alternate bars of different size, embedment requirements shall be governed by the larger bar. Stirrups and spacers shall be embedded not less than one-inch clear depth. Measurement of embedment shall be from the outside of the bar to the nearest concrete face.

Tack welding on reinforcing bars will not be permitted.

Splicing of reinforcing bars shall be either by lapping, butt welding, or by

mechanical butt splicing, at the option of the Contractor. Splicing shall comply with the requirements set forth in Section 52-6 of the Caltrans Standard Specifications and the applicable subsections of Section 11-3 of the Caltrans Standard Specifications.

Reinforcing bars may be continuous at locations where splices are shown on the Plans, at the option of the Contractor. The location of splices, except where shown on the Plans, shall be determined by the Contractor as approved by the Engineer, based upon using available commercial lengths where practicable.

Unless otherwise shown on the Plans or approved by the Engineer, splices in adjacent reinforcing bars shall be staggered. The minimum distance between staggered splices for reinforcing bars No. 11 or smaller shall be the length required for a lapped splice in the bar.

Completed welded butt splices and mechanical butt splices shall develop not less than 90 percent of the specified minimum ultimate tensile strength of the unspliced reinforcing bar.

The deviation in alignment of reinforcing bars at a welded or mechanical splice shall not be more than  $\frac{1}{4}$ -inch over a  $3\frac{1}{2}$  foot length of bar.

Prior to use in the work, welded butt splices and mechanical butt splices shall be qualified by tests made on sample splices.

During progress of the work, in addition to inspection and non-destructive testing performed by the Engineer on all types of butt splices, job control tests shall be made on sample splices representing each lot of mechanical butt splices. Sample splices for qualification and job control tests shall be tested for compliance with all specified requirements for splices. All such sample splices shall be fabricated and tested by the Contractor at its cost and a copy of the test results furnished to the Engineer.

Splices shall consist of placing the reinforcing bars in contact and wiring them together in such a manner as to maintain the alignment of the bars and to provide minimum clearances.

No lapped splices will be permitted at locations where the concrete section is not sufficient to provide a minimum clear distance of two (2) inches between the splice and the nearest adjacent bar. The clearance to the surface of the concrete shall not be reduced.

The length of lapped splices shall be as follows: Reinforcing bars No. 8, or smaller, shall be lapped at least 45 diameters of the smaller bar joined, and reinforcing bars Nos. 9, 10, and 11 shall be lapped at least 60 diameters of the smaller bar joined, except when otherwise shown on the Plans.

Splices of tensile reinforcement at points of maximum stress shall be avoided; however, any deviation from splices shown on the Plans shall be approved by the Engineer. Splices in longitudinal steel shall be staggered at least the length of

the splice.

### Measurement and Payment

**“Construct Sidewalk Underdrain with Rip Rap Pad”** shall be measured for payment by each constructed.

The contract unit price paid for **“Construct Sidewalk Underdrain with Rip Rap Pad”** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, and incidentals for doing all work involved in installing the structures, trench safety and shoring, excavation, subgrade preparation, removals and disposals, concrete formwork, concrete, footings, reinforcement, anchors, sleeving through footing, compaction, mortar, grout, block, backfill, joints, joint sealant, curing, rip rap, fabric, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

## **23.0 TRAFFIC STRIPING, PAVEMENT MARKERS, AND ROADSIDE SIGN**

### **23.1 General**

All signs to be installed shall be in conformance with the guidelines set forth in the latest edition of the California Manual on Uniform Traffic Control Devices (CA-MUTCD), Section 56 and 82 of the Caltrans Standard Specifications unless otherwise specified here-in.

Signs shall be installed per City of Imperial Standard Detail No. 516 unless otherwise shown on Plans. Signs shown to be installed on light poles shall use strap and saddle brackets.

All traffic striping, reflective and non-reflective pavement markers, painted lines, pavement markings, and post delineators as shown on the Plans shall conform to the provisions in Section 84 and 85 of the Caltrans Specifications, and these Special Provisions.

### Measurement and Payment

**“Furnish and Install Signing and Marking”** shall be measured for payment as a lump sum.

The contract lump sum price paid for **“Furnish and Install Signing and Marking”** shall include all removal, salvage, and relocation of existing signs, stripes, posts, and delineators, the installation of new signs, stripes, posts, delineators, and pavement markers, painting of curbs, posts, foundations, and coring, and all labor, materials, tools, equipment, and incidentals necessary for a complete installation, and no additional compensation will be allowed therefor.

### **23.2 Thermoplastic Traffic Striping and Pavement Markings**

Use hot applied “Thermoplastic” materials for all striping details, crosswalks, pavement arrows, pavement legends, limit lines/stop bars and symbols. Thermoplastic traffic striping and pavement markings shall conform to Section

314-4.4 of the Greenbook.

Samples of traffic striping and pavement marking materials shall be submitted to the Engineer at least two weeks prior to application.

#### Measurement and Payment

No separate measurement will be made for complying with the requirements of this section.

Full compensation for complying with the requirements of this section shall be included in the contract lump sum price paid for “**Furnish and Install Signing and Marking**” and no separate payment shall be made therefor.

### **23.3 Raised Pavement Markers**

Pavement markers shall conform to Section 85 of the Standard Specifications.

Pavement marker height shall be 0.70 inch minimum. “Low profile” type markers will not be acceptable. Adhesives for pavement markers shall be either rapid-set epoxy adhesive or hot-melt bituminous adhesive.

#### Measurement and Payment

No separate measurement will be made for complying with the requirements of this section.

Full compensation for complying with the requirements of this section shall be included in the contract lump sum price paid for “**Furnish and Install Signing and Marking**” and no separate payment shall be made therefor.

### **23.4 Traffic Signs**

All traffic signs shall be of new aluminum panel with a .080” gauge thickness meeting Section 56-2 of the Standard Specifications. The sheeting must be 3M Diamond Grade (DG3) Reflective Sheeting for all non-school signs and fluorescent yellow-green for all school signs, or City approved equivalent. All sign faces shall have an application of anti-graffiti overlay film. The film must be 3M product overlay film series 1160, or City approved equivalent.

#### Measurement and Payment

No separate measurement will be made for complying with the requirements of this section.

Full compensation for complying with the requirements of this section shall be included in the contract lump sum price paid for “**Furnish and Install Signing and Marking**” and no separate payment shall be made therefor.

### **23.5 Traffic Sign Size**

All signs shall be "Standard" size as specified in the most recent edition of the California Manual on Uniform Traffic Control Devices (CA-MUTCD).

#### Measurement and Payment

No separate measurement will be made for complying with the requirements of this section.

Full compensation for complying with the requirements of this section shall be included in the contract lump sum price paid for "**Furnish and Install Signing and Marking**" and no separate payment shall be made therefor.

### **23.6 Break-Away Perforated Square Tube Steel Support System**

Sign posts, anchor posts and anchor sleeves shall be manufactured of Telespar perforated square tube or City approved equivalent. Fastening the perforated tube steel assembly and traffic signal connection to the Telespar post shall be done by using a 3/8" Cadmium Plated Steel Drive Rivets.

The 32" perforated square anchor post (2" x 2") shall be installed at a minimum of 29 inches in the ground with one of the sides of the square post parallel to the face of curb, leaving a maximum of 3 inches of the assembly exposed above the surface. Insert an 18" anchor sleeve (2-1/4" x 2-1/4") and level anchor sleeve with the anchor post. Insert the 12 feet high sign post (1-3/4" x 1-3/4"), about 12 inches into the anchor base. Installation of the perforated break-away sign post shall comply with Standard Detail Drawing no. 516 of the City of Imperial Standard Drawings.

Installations in existing sidewalks shall be done by coring a hole for no less than the thickness of the existing concrete. The anchor assemblies (sleeve and post) shall be driven to a maximum of 3-4 inches above the paved surface using a pneumatic hammer, a self-contained power equipment, manually installed or any other method approved by the manufacturer. Prior to the installation, the anchor assemblies shall be "duct" taped around the assembly to below ground level so runoff does not flow into it.

Signs installed in sidewalk shall provide a minimum 42" clear walk path.

#### Measurement and Payment

No separate measurement will be made for complying with the requirements of this section.

Full compensation for complying with the requirements of this section shall be included in the contract lump sum price paid for "**Furnish and Install Signing and Marking**" and no separate payment shall be made therefor.

### **23.7 Foundations**

Provide foundations for all new and relocated signs on posts. Foundation shall extend a minimum of 2 inches below the sign post and be a minimum 10 inches

in diameter.

PCC for sign foundations shall conform to Section 90-2 of the State Specifications. Sign foundations shall contain not less than 470 pounds of cement per cubic yard. Contractor shall furnish all foundation bolts, nuts, and washers.

#### Measurement and Payment

No separate measurement will be made for complying with the requirements of this section.

Full compensation for complying with the requirements of this section shall be included in the contract lump sum price paid for “**Furnish and Install Signing and Marking**” and no separate payment shall be made therefor.

### **24.0 RECTANGULAR RAPID FLASHING BEACON (RRFB) ASSEMBLY SYSTEM**

#### **24.1 General**

RRFB system shall be by TAPCO (or approved equal), solar powered, wireless, and single sided. The light bars shall be self-contained and pedestrian push button activated. The RRFB system shall be fully compliant with all FHWA and CA-MUTCD guidelines. Each pole for the RRFB system shall be accompanied by a 20 watt solar panel mounted to the top of pole, controller, batteries, and wireless radio that operates on the same radio frequency once the light bars are activated, LED light bars, warning signs, pedestrian push button (where shown on the plans), pedestal base, anchor bolts, nuts, washers, and foundation.

The pedestrian push button for the RRFB shall be Polara iNX, or approved equal. The push button shall be ADA compliant, with arrow pointing in the direction of the crosswalk. The push button shall be accompanied by a R10-25 sign, “Push Button to Turn on Warning Lights” and installed per plan. The push button frame shall be cast aluminum housing with yellow powder coated finish with watertight o-ring seals.

Each light bar shall house LED light arrays: two rapidly and alternately flashing rectangular amber (vehicle) indications and one amber side-mounted (pedestrian) indication. The RRFB pedestrian warning system shall be synchronized with wireless 900mHz radios, and push buttons. The RRFB Light Bar shall be in conformance with all applicable FHWA MUTCD standards and guidelines, and shall meet or exceed the requirements specified in FHWA Memorandum IA-21, Interim Approval for Optional Use of Pedestrian-Actuated Rectangular Rapid Flashing Beacons at Uncontrolled Marked Crosswalks. The RRFB housing shall be constructed of durable, corrosion-resistant powder-coated aluminum with stainless steel vandal resistant fasteners. Mounting shall include hardware for either single or back-to-back pole mounting and shall be universal to the pole.

The RRFB flash controller shall be housed within a NEMA 3R-Type control

cabinet. The flash controller shall be capable of automatically adjust the LED drive current control to optimize brightness for ambient lighting conditions determined by the phototransistor input. The LED drive outputs shall reach the full output current as programmed within the duration of the on-time. The controller shall have a integrated Real Time Clock (RTC) with an on-board battery backup and housed in a IP67 type enclosure.

Warning signs supplementing the RRFB system shall be per Plan and standard size. Signs shall be mounted using the strap and saddle method. Unless specified here-in, signs and mounting shall meet requirements specified in the State Standard Specifications and section "Traffic Signs" of these Special Provisions. Warning signs and LED light bars shall face the direction of on-coming traffic intended to alert when activated.

The solar panel shall be installed such that there are no direct obstructions to the sun's path. Contractor shall contact the manufacturer to provide recommended orientation of the solar panels. The recommended orientation made by the manufacturer shall be submitted to the Engineer for approval prior to installation. The orientation and angle of each solar panel may vary depending on the placement of each pole in order to optimize the performance of each pole.

The solar panel must be IEC612 15, TUV, and UL 1703 certified. The solar panel shall operate at 12VDC nominal with a maximum output rating of 20 watts. Solar Panel shall be constructed of an anodized aluminum frame, high-transmission 1/8" tempered glass, with silicon cells encapsulated in double-layer EVA, and with a white polymer backing. The solar panel specifications:

- Overall Size: 22.68" x 14.06"
- Maximum power voltage: 17.2 VDC
- Maximum power current: 1.16 A
- Short circuit current: 1.31 A
- Open circuit voltage: 21.6 VDC
- Operate from -40° to +185°F (-40° to +85°C)

The controller may be self-contained in the solar panel or may be in a lock box with hinged door and vandal resistant. The lock box shall attach to the pole via strap and saddle method. The controller shall be able to adjust the brightness of the light bars as outside lighting levels change between day and night, being brighter during the day and less bright at night.

The control cabinet shall be a NEMA 3R Type and powder coated grey. A U-Bolt kit shall be included to secure the control cabinet on the pole. All materials used for the installation or mounting of the control cabinet shall be either aluminum or stainless steel and anti-vandal.

Solar power batteries shall be 44Ah and shall be achieved by using two quantity batteries of 22Ah each. Batteries shall be housed inside the Control Cabinet, have a nominal output voltage of 12 VDC, sealed and spill-proof, Absorbent Glass Mat, U.L. recognized, maintenance free, and shall be fused for short circuit protection.

Wireless radio transceivers shall be BlinkerBeam or approved equal and operate wirelessly at 900 Mhz, utilizing Frequency Hopping Spread Spectrum (FHSS) technology to minimize the effects of external RF interference. Wireless radios shall seamlessly integrate with the controller to ensure sequential activation of other radio- equipped devices in the system. The radios shall be compliant with part 15 of FCC rules, operate from 3.3VDC to 15VDC, capable of providing site-survey data for verification of signal strength between network devices, provide Parent or Child operations, and provide seamlessly integration with the controller to ensure sequential activation of other radio-equipped devices in the system.

The pole shall be 13' length Schedule 40 aluminum with a minimum 4¼" outside diameter.

The pedestal base shall be FHWA certified and meet AASHTO break-away requirements. Pedestal base shall be made of TP-358 cast aluminum and provide an aluminum 8.5" minimum access door on the downstream side of the pole.

Anchor bolts, nuts, washers, and foundation shall meet requirements specified in the State Standard Specifications and subsection "Foundations" under section "Traffic Signal Improvements" of these Special Provisions.

The Contractor shall set up an on-site training session with a certified representative from the manufacturer and a representative from the City to go over the installation, programming, testing, adjusting, calibrating, and maintaining of the assembly. The Contractor shall furnish all materials and equipment necessary for the training and notify the Engineer at least ten (10) working days prior the desired training date.

Warranty:

Provide a minimum ten (10) year manufacturer's warranty against any defects or failures for solar panels, minimum three (3) year manufacturer's warranty against any defects or failures for batteries, and a minimum five (5) year manufacturer's warranty against any defects or failures for all other parts. The warranty period begins on the date of Contract acceptance. The Contractor shall furnish replacement parts within fifteen (15) calendar days after notification of a failed part. Deliver replacement part(s) to the City of Imperial Department of Public Services located at:

David Dale, PE, PLS  
Public Services Director  
City of Imperial  
420 S. Imperial Avenue



Imperial, CA 92251  
760-355-3336 direct

### Measurement and Payment

**“Furnish and Install Solar Power Rectangular Flashing Beacon (RRFB) Assembly System (Baroni Boulevard @ H Street) Complete and In Place”** shall be measured for payment as a lump sum.

Full compensation for complying with the requirements of this section shall be considered as included in the contract lump sum price paid for **“Furnish and Install Solar Power Rectangular Flashing Beacon (RRFB) Assembly System (Baroni Blvd. and H St.) Complete and In Place”** and no separate payment will be made therefor. The lump sum price paid for furnishing and installing RRFB Crossing System shall include, but not be limited to, the complete installation of RRFB improvements as shown on the Plans, including poles, lighting bars, solar panels, mounting of signs on poles, pedestrian push buttons, bases, foundations, hardware, fabrication, miscellaneous PCC and AC patching, sidewalk patching, cables/conductors, grounding conductors, all connections, testing, training, warranties, loading, transportation, storing, repair of existing facilities impacted during construction, and clean up. The contract lump sum price paid shall include full compensation for furnishing all labor, materials, tools, equipment, incidentals, as directed by the Engineer, and all other appurtenant work as shown on the Plans and as specified in these Special Provisions, and no additional compensation will be allowed therefore.

## **25.0 PEDESTRIAN HYBRID BEACON**

### **25.1 General**

Pedestrian Hybrid Beacon work shall be performed as shown on the Plans, the Caltrans Standard Plans, and as specified in the Caltrans Standard Specifications and these Special Provisions.

### Measurement and Payment

**“Furnish and Install Pedestrian Hybrid Beacon”** shall be measured for payment as a lump sum.

The contract lump sum price paid for **“Furnish and Install Pedestrian Hybrid Beacon”** shall include full compensation for all loading, transportation, preparation, anchor bolts, base plates, hardware, concrete, reinforcement, potholing, excavation, backfill, shoring, poles, painting, foundations, equipment, conduit and wiring, pull boxes, video detection systems, connections, testing, labor, materials, tools, equipment, and incidentals necessary for a complete installation, and no additional compensation will be allowed therefor.

## 25.2 Foundations

The construction of traffic signal pole foundations shall conform to Section 87-1.03E(3), "Concrete Pads, Foundations, and Pedestals", of the Caltrans Standard Specifications. PCC shall conform to Section 90-2, "Minor Concrete", of the Caltrans Standard Specifications and shall contain not less than 505 pounds of cement per cubic yard. Contractor shall furnish all foundation bolts, nuts, washers, and CIDH pile foundation reinforcing.

Prior to installation, the Contractor shall confirm via potholing that each foundation does not conflict with new or existing underground facilities.

### Measurement and Payment

No separate measurement will be made for the requirements of this section.

No separate measurement will be made for complying with the requirements of this section.

Full compensation for complying with the requirements of this section shall be considered as included in the contract unit prices paid for "**Furnish and Install Type 19-4-100 Pole and Foundation**", "**Furnish and Install Type 24-4-100 Pole and Foundation**", "**Furnish and Install Type 1A (10') Pole and Foundation**", "**Furnish and Install Type 15TS Pole and Foundation**", "**Furnish and Install Type 15-FBS Pole and Foundation**", and "**Furnish and Install Push Button Post (Type 2) and Foundation**" and no separate payment will be made therefor.

## 25.3 Traffic Signal Standards

The furnishing and installation of traffic signal pole standards shall conform to Section 86-1.02J, "Standards, Poles, Steel Pedestals, and Posts" and Section 87-1.03J, "Standards, Poles, Steel Pedestals, and Posts" of the Standard Specifications.

All traffic signal pole standards shall be finished with a textured semi-gloss black finish by Cardinal Coatings or approved equivalent.

Contractor shall furnish all new nuts, bolts, washers, foundation anchors, pole caps, hand hole covers, mast arm tenon caps, and other hardware, as required to provide the intended installation, for all Contractor-furnished or relocated equipment. Nuts, bolts, washers, foundation anchors, and other hardware.

### Measurement and Payment

Measurement for payment for the various items of Traffic Signal Standards work shall be in accordance with the Bid Schedule and as specified in these Special Provisions.

Traffic Signal Standards bid items are:

- **“Furnish and Install Type 19-4-100 Pole and Foundation”**
- **“Furnish and Install Type 24-4-100 Pole and Foundation”**
- **“Furnish and Install Type 1A (10’) Pole and Foundation”**
- **“Furnish and Install Type 15TS Pole and Foundation”**
- **“Furnish and Install Type 15-FBS Pole and Foundation”**
- **“Furnish and Install Push Button Post (Type 2) and Foundation”**

Full compensation for traffic signal pole standard construction is considered included in the contract unit prices paid for the various traffic signal pole standard bid items and no additional compensation is allowed therefor. The contract unit prices paid for the traffic signal pole standard items of work shall include full compensation for furnishing all labor, materials, tools, transportation, equipment, incidentals, and doing all work involved in installing the poles, loading, storing, preparation, engineering, connections, hardware, fabrication, light standard, light mast arm, foundation, handhole, base plate, anchor bolts, anchor plate, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

#### **25.4 Vehicle Signal Faces, Signal Heads, and Mounting Assemblies**

Signal faces, signal heads and auxiliary equipment, as shown on the plans, and the installation thereof, shall conform to the provisions in Sections 86-1.02R, “Signal Heads” and 87-1.03R, “Signal Heads”, of the Standard Specifications.

All new vehicle signal heads shall be black, aluminum metal housing with black aluminum louvered backplates with a lusterless finish.

#### **Measurement and Payment**

Measurement for payment of the various items of vehicle signal head construction shall be by each installed.

Vehicle signal head bid items are:

- **“Furnish and Install Vehicle Signal Head (1-Section, 12”)”**
- **“Furnish and Install Vehicle Signal Head (3-Section, 12”)”**
- **“Furnish and Install MAS Mount”**

Full compensation for vehicle signal head construction is considered included in the contract unit prices paid for the various vehicle signal head bid items and no additional compensation is allowed therefor. The contract unit prices paid for the vehicle signal head items of work shall include full compensation for furnishing all

labor, materials, tools, equipment, transportation, incidentals, loading, storing, signal heads, signal faces, backplates, LED modules, signal mounting assemblies, visors, fabrication, hardware, connections, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

### **25.5 Pedestrian Signal Head and Housing**

Pedestrian signal heads shall conform to Section 86-1.02S, "Pedestrian Signal Heads", and Section 87-1.03S, "Pedestrian Signal Heads", of the Standard Specifications and these Special Provisions. Pedestrian signals shall be light emitting diode (LED) signal modules/combo pedestrian signal housing. Pedestrian signals shall have visible countdown timers within the LED face. The LED pedestrian traffic signal module (16"x18") shall be GELcore's GT1 LED Pedestrian Signal, or City approved equal.

All new pedestrian signal heads shall have a honeycomb front screen comprising of 3/8-inch-thick aluminum honeycomb screen with 0.2-inch-wide cells or a 1/2-inch-thick plastic screen with 3/8-inch-wide squares with 1/16-inch wall thickness that:

1. Is installed so it tilts downward at an angle of  $15 \pm 2$  degrees from the top and completely covers the message plate
2. Includes a clear front cover made of either a minimum 1/8-inch-thick acrylic plastic sheet or a minimum 1/16-inch-thick polycarbonate plastic
3. Is held firmly in place, including the cover, with stainless steel or aluminum clips or stainless steel metal screws

The screen and frame of the pedestrian signal shall be anodized aluminum that is flat black color.

### **Measurement and Payment**

Measurement for payment of the various items of pedestrian signal head construction shall be by each installed.

Pedestrian signal head bid items are:

- **"Furnish and Install Pedestrian Signal Head"**
- **"Furnish and Install SP-1-T Mount"**

Full compensation for pedestrian signal head construction is considered included in the contract unit prices paid for the various pedestrian signal head bid items and no additional compensation is allowed therefor. The contract unit prices paid for the pedestrian signal head items of work shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, incidentals, loading, storing, signal heads, signal faces, backplates, LED modules, signal mounting assemblies, visors, fabrication, hardware, connections, and testing necessary for a complete installation, and no additional compensation will be

allowed therefor.

## **25.6 Pedestrian Push Button System**

Pedestrian push buttons shall conform to Section 86-1.02U, "Push Button Assemblies", and Section 87-1.03U, "Push Button Assemblies", Section 86-1.02T, "Accessible Pedestrian Signals" of the Standard Specifications, and these Special Provisions.

The Contractor shall install new Polara Accessible Pedestrian Signal (APS) iNS2 or approved equal push buttons with double-sided R10-3E, 9"x15" signs. Push button frames shall be yellow finish metal housing. Prior to installation, the Contractor shall provide a worksheet detailing the custom voice message to the Engineer for review and approval. The APS push button system shall include the rack-mounted central control unit, power supply, and interconnect board as required for a Type 332L Cabinet.

### Measurement and Payment

**"Furnish and Install Pedestrian Push Button (APS)"** shall be measured for payment by each push button installed.

The contract unit price paid for "Furnish and Install Pedestrian Push Button (APS)" shall include full compensation for furnishing all labor, materials, tools, transportation, equipment, incidentals and for doing all work involved in installing the push buttons, loading, storing, preparation, engineering, connections, hardware, fabrication, mounting, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

## **25.7 Safety Lighting**

Contractor shall furnish and install new LED safety lights (on the proposed traffic signal standards where shown on the Plans. The Contractor shall furnish and install a photoelectric control unit and plug into the LED safety light receptacle. The twist-lock electronic photocontrol unit shall be a Ripley Lighting Controls (Model Number RD8645-BK) with a 10-year warranty, or approved equivalent.

### Measurement and Payment

**"Furnish and Install Luminaire (LED)"** shall be measured for payment by each luminaire installed.

The contract unit price paid for **"Furnish and Install Luminaire (LED)"** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, incidentals and for doing all work involved in installing the luminaries, loading, transportation, storing, preparation, engineering, connections, hardware, fabrication, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

## 25.8 Conduit

Conduit shall conform to the Provisions in Section 86-1.02B, "Conduit and Accessories", and Section 87-1.03B, "Conduit Installation", of the Standard Specifications and these Special Provisions, and be limited to rigid electrical non-metallic (PVC schedule 40 and 80) conduit. After conductors have been installed, the ends of conduits terminating in pull boxes and controller cabinets shall be sealed with an approved type of sealing compound. Rigid steel conduit, to be used as a drilling or jacking rod, shall be fitted with suitable drill bits for size hole required.

The Contractor shall locate all underground obstructions and utilities. Install conduit as near as possible to the routing indicated. Following mark out the Contractor shall schedule a site meeting with the Engineer or designated representative to layout the proposed equipment and conduit locations. The Contractor shall, with the approval of the Engineer or designated representative, shift the location of the conduit package to avoid interference with existing equipment and structures.

### Measurement and Payment

**"Furnish and Install 3" PVC Conduit (Trench In Pavement)"** shall be measured for payment by the linear foot of conduit installed.

The contract unit price paid for **"Furnish and Install 3" PVC Conduit (Trench In Pavement)"** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, incidentals, and for doing all work involved in installing the conduit, trenching, backfill, directional boring, surface restoration, paving, removal/abandonment of existing conduit, repairs, connections, and sweeps necessary for a complete installation, and no additional compensation will be allowed therefor.

## 25.9 Conductors and Wiring

Cables and conductors shown on the Traffic Signal Plans shall conform to the provisions of Section 86-1.02F, "Conductors and Cable", and Section 87-1.03F, "Conductor and Cable Installation", of the Standard Specifications and these Special Provisions. Insulation on conductors installed for internally illuminated street name signs shall be color-coded orange with no stripes. Emergency vehicle pre-emptor detector lead-in cable shall meet the characteristics of IPCEA-S-61-402 of NEMA WC5, Section 7.4, 600V, Control Cable, 75°C, Type B.

Conductors shall be 3 No. 20-7x28 stranded and shall be individually tinned. Conductor insulation shall be low-density polyethylene material having a minimum thickness of 25 mils. Conductors shall be color-coded: 1-yellow, 1-blue, and 1-orange. The cable shall have one (1) No. 20-7x28 stranded, tinned, bare drain wire. The drain wire shall be placed between the insulated conductor and a shield. The shield shall be of tinned copper-brass or aluminum polyester tape with a nominal 20% overlap. The conductive surface of the shield shall be in contact with the drain wire.

Capacitance measured between any conductor and the other two conductors

and the shield shall not exceed 48 pico-farads per foot when tested at 1000 hertz. The cable jacket shall be a black PVC material rated for 600 volts and 75°C and shall have an average minimum wall thickness of 45 mils. The finished outside diameter of the cable shall be between 0.28 and 0.30 of an inch. The cable jacket shall be marked with the manufacturer's name, insulation type designation, number of conductors and conductor size, and voltage and temperature ratings.

#### Measurement and Payment

**"Furnish and Install Conductor Wire (All Wires)"** shall be measured for payment on a lump sum basis.

The contract lump sum price paid for **"Furnish and Install Conductor Wire (All Wires)"** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, incidentals, and for doing all work involved in installing the wiring, splicing, removal of existing conductors, connections, grounding, cable tags, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

### **25.10 Bonding and Grounding**

Bonding and Grounding shall conform to the requirements in Section 86, "General", and Section 87, "Electrical Systems", of the Standard Specifications and these Special Provisions. Grounding jumper shall be attached by a 3/16 inch or larger brass bolt in the signal standard or controller pedestal and shall be run to the conduit, ground rod or bonding wire in adjacent pull box. Except for conduits that only contain loop lead-in-cable and/or signal interconnect cable, all non-metallic conduits shall be bonded with a #8 copper wire run continuously in all other circuits.

#### Measurement and Payment

No separate measurement will be made for the requirements of this section.

Full compensation for complying with the requirements of this section shall be considered as included in the contract prices paid for the various items of work, and no separate payment will be made therefor.

### **25.11 Pull Boxes**

All new pull boxes shall be Caltrans Standard traffic rated (T) pull boxes as shown on Caltrans Standard Plan ES-8A and shall conform to the requirements of Section 86-1.02C, "Pull Boxes," and Section 87-1.03C, "Installation of Pull Boxes" of the Standard Specifications. Pull boxes shall be No. 6 unless otherwise specified on the Plans.

Pull boxes and pull box extensions shall be concrete.

Pull box covers shall be steel, reinforced and galvanized post fabrication.

Pull box lids shall be labeled "TRAFFIC SIGNAL".

## Measurement and Payment

**“Furnish and Install (Size) Pull Box”** shall be measured for payment by each pull box installed.

The contract unit prices paid for **“Furnish and Install (Size) Pull Box”** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, incidentals, and for doing all work involved in installing the pull boxes, excavation, backfill, surface restoration, repairs, connections, and sweeps necessary for a complete installation, and no additional compensation will be allowed therefor.

### **25.12 Controller Cabinet**

Controller cabinet shall conform to Section 86-1.02Q, “Controller Cabinets” of the Standard Specifications and these Special Provisions.

The Contractor shall furnish and install Type 332L controller cabinet manufactured by Swarco McCain, Inc. or approved equal, and controller assembly indicated on the Plans. The cabinet shall meet all Caltrans and FHWA functional requirements to accommodate Caltrans approved 170/2070 cabinet assembly meeting TEES 2009 or later.

All proposed Type 332L cabinet assemblies shall conform to State Standard Specifications and Caltrans Standard Drawing Number ES-3C including conduit location, cabinet foundation and PCC sidewalk pad per these Technical Specifications. Construct controller cabinet foundation as shown for Type 332L cabinets, including furnishing and installing anchor bolts, install the controller cabinet on the foundation, and make field wiring connections to the terminal block in the controller cabinet. The Type 332L cabinet shall be appropriate for use of 2070 ATC controllers.

The Contractor shall furnish and install anodized aluminum, anti-graffiti coating cabinet. The control cabinet assembly shall be prewired and include 19” Electronics Industry Alliance (EIA) rack, two 14-position input files, and standard and 12-position output file.

At minimum, the Type 332L cabinet shall conform to the following:

#### Standard Features

- 8-phase, 4-pedestrian operation (2 right turn overlaps available)
- Auxiliary 4-phase, 2-phase spare operation output
- 36 detector channel capability (3 per left turn, 6 per through movement)
- 2-channel or 4-channel industry standard detection modules
- Railroad (2) and emergency vehicle (4) preemption inputs



- Solid state relay (SSR) (Mercury Contactor replacement)
- SSR Fault Indicator Light
- Relay safety feature interrupts 24 VDC control to the load switches if the SSR fails during a flash condition
- Programmable “Yellow/Red” or “All Red” flashes through the use of flash plugs
- DC isolation inputs for pedestrian push buttons and special functions
- 210 Signal Monitor slot
- Main power circuit breaker (30A) on service panel
- Transient voltage & surge suppression filter
- Drawer / shelf combination

#### Cabinet Assemblies

- 14-position input files (2)
- 12-position output file
- Model PDA-2L Power Distribution Assembly
- Model 206L power-saving, high-efficiency power supply
- Flash transfer relay sockets (4)
- Dual-circuit flasher sockets (2)
- Input panel
- Service panel
- Police panel with signal “On/Off” and “Auto/Flash” switches, including two keys
- Conflict monitor shall be EDI Model 2010ECLip or equivalent with a red monitor assembly circuit board and capable of monitoring green, amber and red indications
- Rack mounted 1U, 6 outlet power supply per agency specifications
- Include all auxiliary equipment required to operate the phasing designated on the plans.

#### General Specifications

- Dimensions: 67” H x 24” W x 30” D (rounded to the nearest inch)
- Material: 5052-H32 aluminum, 0.125” thick

- Anodized aluminum, anti-graffiti coating

### Controller Assembly

The Contractor shall furnish and install Swarco McCain, Inc. model 2070LX or approved equal signal controller. The signal controller shall be preloaded with the latest Omni eX local intersection control software and shall include one 5 ft CAT5E, shielded RJ45 patch cable.

The signal controller assembly shall include the following modules: 2070-1C CPU, 2070-2E+ Field I/O, 2070-4A Power Supply, and 2070-LX Front Panel.

The Contractor shall arrange to have a signal technician qualified to work on the controller and employed by the controller manufacturer or his representative, present at the time the equipment is turned on.

The Contractor shall notify the Engineer one (1) week in advance prior to signal controller activations. The Contractor shall have on-site a minimum of two (2) qualified signal technicians to assist with signal controller activations and temporary traffic control. Signal controller activations shall be performed only under the supervision and direction of City Staff.

### Measurement and Payment

**“Furnish and Install Type 332L Cabinet and Foundation”** and **“Furnish and Install 2070LX Controller with Omni Software”** shall be measured for payment by each controller installed.

The contract unit prices paid for **“Furnish and Install Type 332L Cabinet and Foundation”** and **“Furnish and Install 2070LX Controller with Omni Software”** shall include full compensation for furnishing all labor, materials, tools, transportation, equipment, incidentals and for doing all work involved in installing the controller cabinets and assemblies, foundations, controllers, loading, storing, preparation, connections, hardware, fabrication, foundations, concrete pad, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

### **25.13 Battery Backup System Cabinets**

Battery backup system cabinets shall conform to Section 86-1.02Q(4) & 87-1.03D, “Battery Backup System Cabinets” of the Standard Specifications and these Special Provisions.

The battery back-up systems shall include the uninterruptable power supply (UPS) system control unit, batteries, cables, and cabinet (side-mounted) as shown on plans. The BBS unit shall be configured to run communication hub cabinet redundant power separate from the internal A/C unit.

The uninterruptable power supply (UPS) shall have a standard battery pack, capable of operating a full HUB cabinet location for over 2 hours at 700W (watts)

output maintaining field ITS elements only. A typical intersection consuming 450W can be powered for approximately 4 hours. In Red- Flash operation, which consumes only about 300W, over 6 hours of backup is possible. These times assume fully charged batteries at the ambient temperature of 25°C. The BBS cabinet shall be side mounted to the traffic signal cabinets (Type 332L) and shall house the BBS unit and four (4) batteries. The BBS system shall not provide back-up power to the internal A/C unit inside the hub cabinet.

## **Operation**

The uninterruptible power supply (UPS) shall be capable of producing a full regenerated and regulated, true sine wave power, with continuous AC outputs. There shall be a bypass box that provides the link between the utility power, the UPS power, and the loads.

The bypass box shall enable removal and replacement of the traffic UPS without shutting down the traffic control system (i.e. "hot swap" capability).

For Type 332 style cabinets, upon loss of power the Traffic UPS can actuate the existing Flash Transfer Relays (FTRs), Mercury Contactor (MC) or Railroad Preemption to allow the traffic control system to put the cabinet into Flash Mode operation.

Existing Flasher Modules and Flash Transfer Relays are utilized. The traffic UPS does not duplicate or take over flash operation or flash transfer relay functions.

The UPS provides continuous, fully regenerated, conditioned, regulated, sinusoidal (AC) power to selected devices such as signal controllers, counters, modems, communications hubs, NTCIP adapters, video equipment, etc.

To facilitate emergency crews and police activities, the traffic UPS shall be compatible with police panel functions (i.e. "Signals OFF" switch must kill power to the field wiring even when on UPS/Battery power).

## **Utility Voltage Windows and Battery Operation**

The UPS operates on utility power if the utility voltage is between 75 and 155 VAC. When the utility falls below 75 VAC or climbs above 155 VAC the UPS shall operate from the batteries.

### **Description**

The Traffic UPS shall consist of three major components, the UPS Power Module, the Bypass Box, and the Battery System.

The UPS Power Module consists of the following:

- True on-line, double conversion, pure sine wave, high frequency inverter utilizing IGBT technology
- Programmable LCD Display
- A DB9 RS232 and USB Type B connectors for remote signal alarms and true RS232 monitoring and remote communications
- Auxiliary Temp Sensor
- Multi-stage, temperature compensated battery charger

The bypass box shall be three-pole, double-throw switch that switches both hot and neutral lines to the UPS or cabinet.

The battery module shall be comprised of one or more strings of 4, 6 or 8 individual 12V batteries connected in series for a total string voltage of 48VDC nominal for SP1250LX-48 or 72VDC nominal for SP1250LX or 96VDC for SP2000LX.

The batteries shall be manufactured for extreme temperature, deep cycle, AGM/VRLA (Absorbed Glass Mat/ Valve Regulated Lead Acid) batteries that have been field proven and tested. The batteries supplied shall be certified to operate at extreme temperatures from  $-40^{\circ}\text{C}$  to  $+74^{\circ}\text{C}$ .

The batteries shall be provided with appropriate interconnect wiring harness. Optional battery mounting trays and brackets shall be available for selection by the Engineer.

The interconnect cable shall connect to the base module with a quick-release circular connector.

The UPS module shall include a charger that replenishes the Battery Pack whenever possible and required. This charger shall operate with a charging current of 0.6A. An Optional Fast Charger shall be available, which operates with a charging current of up to 3.5A.

### **Mounting/Configuration**

NEMA Style: mounting method shall be shelf-mount or wall-mount, as indicated on the plans. In Type 332/334 Style Cabinets: The mounting method is 19" rack-mount. Shelf angles or rails, typically supplied by others, are available as optional accessories.

Battery construction shall be heavy-duty, with inter-cell connections for low-impedance between cells, and heavy-duty plates to withstand shock and vibration.

### **UPS Specifications**

The specifications of the UPS system are provided in the following tables:

| <b>Electrical Specifications</b> |  |
|----------------------------------|--|
| <b>Input Specification</b>       |  |
| Nominal Input Voltage            | 120 VAC, Single Phase  |
| Input Voltage Range              | 75 VAC to 155 VAC  |
| Input Frequency                  | 45 to 65 Hz (+/-5%)  |
| Input Configuration              | 3 Wire (Hot, Neutral & Ground)   |
| Input Protection                 | Input breaker 20 amps, SP2000LX 30A  |
| <b>Output Specification</b>      |  |
| Nominal Output Voltage           | 120 VAC, Single Phase  |
| Power Rating                     | 1.25 KVA (1250VA/875W), 2 KVA (2000VA/1400W)                                   |
| Output Voltage Regulation        | +/-4% for 100% step load change and from High battery to Low battery condition |
| Output Frequency                 | 50 or 60 Hz (+/-0.5%) unit not in sync.  |
| Output Configuration             | 3 Wire (Hot, Neutral & Ground)   |
| Output Wave Form                 | True Sine wave   |
| Overload capability              | 110% for 10 minutes 200% for 50 milliseconds 2k PLUS 160% for 10 seconds       |
| Fault clearing                   | Current limit and automatic shutdown   |
| Short circuit protection         | Current limit and automatic shutdown   |
| Efficiency                       | 85% at full load (on utility)  |
| Load Power Factor                | .7 lagging through unity to .7 leading   |

| <b>Physical Specifications, UPS Electronics Module</b> |   |
|--|---|
| Dimensions   | Width = 19", Depth = 10", Height = 3.5"     |
| Weight   | UPS: 15 lbs., Shipping weight: 20 lbs.      |
| <b>Physical Specifications, Bypass Box</b>             |   |
| Dimensions   | Width = 7", Depth =2.5", Height =4.5"       |
| Weight   | Bypass Box: 5 lbs., Shipping weight: 5 lbs. |
| <b>Environmental Specifications</b>                    |   |
| Temperature  | - 40°C to +74°C                             |

| <b>Design</b>  |  |
|--|--|
| Standard Features                                      | Power factor corrected input<br>Fully regenerative<br>True on-line continuous power<br>Low distortion sine wave output<br>Designed for non-linear loads<br>Extended brownout protection<br>EIA/RS232 data interface  |
| Certifications   | IEEE 587/ANSI C62.4<br>IEC 555 @ 120 VA<br>NEMA  |
| Typical Recharge Time<br>(to 85% capacity @ 100% load) | 48-72hrs   |
| <b>Control and Indicators</b>                          |  |
| Switches / Control Panel                               | System power<br>Cold start<br>Test<br>Alarm silence<br>Four line LCD display panel   |
| Alarms   | Utility interrupt<br>Inverter failure Overload<br>Low battery Self-test  |
| Intelligent Computer Interfaces                        | Serial interface for EIA 232<br>1 each DB9-F (RS232 and signal interface pins) and 1 each USB<br>Full interactive remote computer monitoring and control of most features including load control (requires optional monitoring software)<br>NTCIP and TCP/IP ready |
| Contact Closures                                       | "D" connector<br>Open collector<br>Others per manufacturer specifications  |
| <b>Battery Specifications</b>                          |  |
| Temperature  | - 40°C to +74°C  |
| Ampere-Hour ratings                                    | (see table below)  |
| Hydrogen gas emissions`                                | Meets Mil-Spec #MIL-B-8565J  |

| <b>Typical Battery Runtime Specifications, Wattage, Weight, and Dimensions</b>                 |                      |   |                  |                  |                  |                         |  |                   |                    |
|--|----------------------|---|------------------|------------------|------------------|-------------------------|--|-------------------|--------------------|
| <b>No. of Batteries</b>  | <b>Volts/ A-hrs.</b> | <b>Estimated Runtime (Per set @ 77°F / 25°C) (New Batteries, fully charged)</b> |                  |                  |                  | <b>Unit Weight (lb)</b> | <b>Overall Dimensions Per Battery (in)</b> |                   |                    |
|  |                      | <b>300 Watts</b>  | <b>500 Watts</b> | <b>700 Watts</b> | <b>875 Watts</b> |                         | <b>Length (in)</b>                         | <b>Width (in)</b> | <b>Height (in)</b> |
| *Set of 6 Batteries  | 12VDC/ 41 AH         | 6.4 Hrs.**  | 3.5 Hrs.**       | 2.4 Hrs.**       | 1.7 Hrs.**       | 29                      | 7.68                                       | 5.15              | 7.9                |
| *Battery sets, with six (6) batteries per set, that are wired in series, shall provide 72 VDC. |                      |   |                  |                  |                  |                         |  |                   |                    |
| ** Actual times may vary, runtimes are dependent on many factors.                              |                      |   |                  |                  |                  |                         |  |                   |                    |

### **Communications, Controls & Diagnostics**

UPS System shall be supplied with TCIP/Ethernet interface.

Front Panel controls shall include Power ON, Cold (DC) Start, Alarm Silence, Battery Test, Bypass Circuit Breaker, and DC/Battery Circuit Breaker

#### Measurement and Payment

**“Furnish and Install Battery Backup System (Complete)”** shall be measured for payment by each battery backup system installed.

The contract unit price paid for **“Furnish and Install Battery Backup System (Complete)”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, loading, transportation, storing, preparation, engineering, connections, hardware, configuration, testing, licensing, batteries, uninterruptable power supply system, cables, cabinet, mounting, wireless broadband assembly, configuration, setup, commissioning, and for doing all the Work as shown on the Plans as specified in the these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefor.

#### **25.14 Emergency Vehicle Preemption**

The Contractor shall furnish and install new Global Traffic Technologies (GTT) Opticom Emergency Vehicle Preemption System equipment or approved equal as indicated on the Plans.

The Contractor shall furnish and install GTT Model 764 Multimode Phase Selector in each new controller cabinet.

Where indicated on the Plans, EVP detectors shall be of an infrared two direction, dual output detector GTT Model 721 with manufacturer provided mounting equipment and cabling.

The Contractor shall have a manufacturer representative onsite to configure and test the EVP detectors and phase selector for functionality prior to traffic signal activation.

The Contractor shall clearly label and verify the labeling of each optical detector cable connected in the controller cabinet.

### Measurement and Payment

**“Furnish and Install Emergency Vehicle Preemption (EVP)”** shall be measured for payment by each installed.

The contract unit price paid for **“Furnish and Install Emergency Vehicle Preemption (EVP)”** shall include full compensation for furnishing all labor, materials, tools, transportation, equipment, incidentals and for doing all work involved in installing the EVP, loading, storing, preparation, connections, hardware, wiring, fabrication, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

#### **25.15 Electrical Service Pedestal**

The installation of the electrical service pedestals shall conform to all IID Utility Service Guide Requirements, Section 56-3, 86 and 87 of the Caltrans Standard Specifications, and these Special Provisions.

The service pedestals shall have 30A single/double in-line fuse, 3/4-inch x 8-foot copper ground rod, and neutral-ground bonding (for both 120v and 240v circuits). The service pedestals shall be a Type III-CF service equipment enclosure (aluminum type) and shall be installed per drawing number ES-2F of the Caltrans Standard Drawings. The service pedestals shall provide service as shown on the Plans. Maximum base size of service equipment enclosure shall not exceed 16 inches x 16 inches (406.4 mm x 406.4 mm) and service equipment shall meet all IID requirements.

Continuous welding of exterior seams in the service equipment enclosures is not required. Circuit breakers shall be the cable-in/cable-out type, mounted on non-energized clips. All circuit breakers shall be mounted vertically with the up position of the handle being the “ON” position. Dead front panel or panels, and corresponding exterior door, shall be hinged on one side and shall be openable without the use of tools. A barrier-type terminal block rated for 40 A, minimum, shall be provided in each service equipment enclosure. The terminal block shall have a minimum of 12 positions with terminals rated at No. 8 or larger, to accept the field wires indicated on the Plans. Field wires shall be terminated using crimped, insulated loop connectors.

All new and existing electrical services are provided by Imperial Irrigation District (IID). The Contractor must coordinate directly and comply with all standards set forth by IID for the conduit between the service point and the meter pedestal. The Contractor shall note that IID specifications and requirements may be more stringent than those specifications described in these Special Provisions and supporting documents. In case of a conflict, the IID specifications shall supersede these Special Provisions and supporting documents.



## Measurement and Payment

**“Furnish and Install Type III-CF Service Cabinet and Foundation”** shall be measured for payment by each cabinet installed.

**“Establish Electrical Connection”** shall be measured for payment on a lump sum basis.

The contract unit price paid for **“Furnish and Install Type III-CF Service Cabinet and Foundation”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, excavation, conduit, backfill, surface restoration, cabinet, foundation, concrete pad, connections, splicing, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

The contract lump sum price paid for **“Establish Electrical Connection”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, Imperial Irrigation District (IID) coordination, connections to IID service points, conduit, trenching, backfill, conductors, surface restoration, connections, splicing, and testing necessary for a complete installation, and no additional compensation will be allowed therefor.

### **25.16 Wireless Radio System (Signal Interconnect)**

The Contractor shall furnish and install a point-to-multipoint Wireless Broadband Radio Assembly - Single Radio, Dual Radio or Integrated Unit as required for wireless connectivity. Wireless Broadband Radio Assemblies are used to transmit and receive 10/100/1000 Mbps Ethernet data between field cabinets as designated on the plans and **shall be compatible with the existing radios at E. Barioni Blvd/N. Imperial Ave traffic signal.**

Upon the receipt of the Notice to Proceed, the Contractor shall prepare a Concept of Operations Plan (COP) for the project. The COP shall outline the location and installation of the Wireless Broadband Radios at each of the traffic signal location. A detailed description or schematic shall be provided that outline the type of the antennas, mounting locations, and antenna direction. The Contractor shall submit at least (3) hard copies and one electronic submittal of the preliminary Proof of COP for review and approval. The Contractor shall incorporate comments received from the Engineer and resubmit the plan for final approval of the COP.

Any costs to the Contractor for the coordination between the manufacturer or other subcontractors shall be considered incidental and included in the cost of the Wireless Broadband Radio system.

#### **Materials**

All components, furnished, assembled, fabricated or installed shall be new and in strict accordance with all of the details shown in the contract documents or as specified by the Engineer.

#### **Wireless Broadband Radio Assembly-Single Radio External**

The Wireless Broadband Radio Assembly - Single Radio external includes the radio transceiver, external antenna kit, and all cables and mounting hardware required. The single radio unit will typically be utilized in point-to-point and end of

the line type configurations. It will also serve as the remote in a master/remote configuration.

#### **Wireless Broadband Radio Assembly-Dual Radio Integrated**

The Wireless Broadband Radio Assembly - Dual Radio Integrated includes two independent radio transceivers, one integrated antenna, two N type connectors for a second external antenna and all cables and mounting hardware required. Both radio transceivers and one antenna shall be housed in the same enclosure. The dual radio unit will typically be utilized in drop/insert, point-to-multipoint or signal interconnect repeater type configurations.

#### **Wireless Broadband Radio Assembly-Integrated Unit**

The Wireless Broadband Radio Assembly - Integrated Unit includes the radio transceiver, single antenna, and all cables and mounting hardware required. The mounting of the antenna shall be integral to the radio transceiver housing requiring no external antenna input. The integrated unit will typically be utilized in point to point and end of the line type configurations.

#### **System Requirements**

This specification covers the minimum technical requirements for a 5 GHz and 2.4 GHz options for high capacity wireless broadband Ethernet system for ITS communications. The system shall consist of connectorized radios and/or radios with integrated panel antennas with options for external panel antennas. Also, the devices must be offered in both single radio units, dual radio units and gateway units.

The system shall function in mesh, point-to-point or point-to-multipoint modes, repeater gateway and hotspot radio for a range of up to 20 miles.

Radio Unit Specifications:

- i. Over air data rate shall be compatible with 802.11ac, 802.11n, and 802.11a/b/g.
- ii. The radio shall be compatible with IEEE Standards 802.11e WMM and QOS, 802.11h DFS and TPC, 802.1d Ethernet Bridging, 802.1p Traffic Prioritization, 802.1q VLAN, 802.1s Spanning Tree, 802.1w Rapid Spanning Tree, 802.3ab Gigabit Ethernet, 802.3ac Extended Frame Size, 802.1q & 802.1p support, 802.3ad Link Aggregation/Port, Bonding/Port Tracking, 802.3i 10 Mbps Ethernet, 802.3u 100 Mbps Ethernet and Auto-Negotiation, 802.3x Full Duplex and Flow Control.
- iii. AES encryption, advanced IP filtering, WPA2, multilevel authentication, user access and MAC Access Control.
- iv. Temperature rating of -40° to 75°C.

#### **Construction Details**

The results of the COP shall determine the type of antenna required for the wireless link in accordance with the manufacturer's recommendations and shall be documented in the shop drawing. Particular care shall be given to the interconnection of all of the components and the cabling. The Engineer reserves the right to inspect and/or factory test any completed assemblies prior to delivery of the material to the project site. Any deviations from these specifications that are identified during such testing shall be corrected prior to shipment of the assembly to the project site.

Each radio shall be provided with the proper mounting hardware for proper installation as shown on the plans. The cost for this mounting hardware shall be included in the cost of the radio assembly.

The outdoor rated Cat5E cable shall be installed on the span and into the signal pole back to the controller cabinet unless otherwise shown on the plans. Splices in the cable shall not be allowed between the equipment and field terminals. The contractor shall install the equipment in accordance with the contract documents, standard sheets, and manufacturer's instructions. The contractor shall perform all of the tests necessary to confirm acceptable operation, in the presence of the Engineer.

After the initial directional setup is made, the procedure outlined below shall be implemented to maximize the signal strength for each radio link. The Contractor shall adjust the output power to optimize the receive signal level at the slaves in compliance with FCC regulations. The master radio shall then be setup to transmit a continuous signal. The radio technician shall then adjust the beam heading at each slave location by measuring the radio signal level monitor output while adjusting the antenna beam heading for maximum signal. The contractor shall make a record of the channel settings and power levels to which each radio is set and the measured signal level measurement received at each radio. These test results shall be submitted to the Engineer in a written report.

Once the Antenna/feed-line and Antenna alignment tests have been completed, an Operational Stand-Alone test shall be initiated. For this test, the broadband radios to be tested shall be connected to the designated Ethernet port at each field equipment location as indicated in the plan set. The Contractor shall program the radios and adjust for proper operation. The Contractor shall then connect a portable computer to the master radio. Utilizing fully functioning network visualization and management software to be provided by the contractor, each slave unit shall be addressed and successful two-way communications shall be demonstrated. Message throughput shall exceed 99% over at least a fifteen minute period. The contractor shall keep an accurate record of each Operational Subsystem Test and shall provide a written report to the Engineer.

#### **Testing Requirements**

Testing shall be performed in accordance with the manufacturer's recommendations. The testing procedure shall be submitted for approval prior to installation of the equipment. The testing shall be performed in the presence of the Engineer.

#### **Warranty**

The manufacturer shall warranty and guarantee that all material supplied shall be free from all defects in materials and workmanship for a period of THREE (3) years from date of acceptance.

## Measurement and Payment

**“Furnish and Install Wireless Radio System (Signal Interconnect)”** shall be measured for payment on a lump sum basis.

The contract lump sum price paid for **“Furnish and Install Wireless Radio System (Signal Interconnect)”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, loading, transportation, storing, preparation, engineering, connections, hardware, configuration, testing, licensing, wireless broadband assembly, radios, power supplies, patch cords, cabling, mounting, hardware, configuration, set up, concept of operations plan, and commissioning, and no additional compensation will be allowed therefor.

### **25.17 Ethernet Switch**

The Contractor shall furnish and install Moxa EDS-G512E-4SFP-T or approved equal. Gigabit Ethernet switch shall include, one Cat5e blue molded-snagless 6 foot RJ45 cable and two temperature hardened Small-Form Pluggable (SFP) transceivers, 20km Single-Mode, LC-Type Connectors.

The Gigabit Ethernet Switch shall be warranted by the Contractor against all defects in material and workmanship for a minimum of 2 years or the manufacturer’s standard warranty, whichever is of greater duration. The warranty for the Gigabit Ethernet Switch shall include the following; that in the event malfunction during the warranty period, the defective unit, card, module, subassembly, or auxiliary device shall be replaced with a working unit within three working days for us while the warranted unit is being repaired. The Contractor is responsible for all shipping costs of malfunctioning Gigabit Ethernet Switch equipment for repair or replacement.

All screws, nuts and locking washers shall be stainless steel. The use of self-tapping screws shall not be allowed without written approval by the Engineer. The Contractor shall meet all applicable codes and standard requirements for all external wiring to the Gigabit Ethernet Switches. All wire and cable shall be neatly installed and secured per common practices and standards. Contractor shall provide service loop at all connection points.

The Contractor or approved subcontractor with the Engineer all switch configuration information, (i.e. IP addresses, VLANs etc.) forty-five (45) days prior to installing the Ethernet Switch.

The Contractor or approved subcontractor involved in the installation and testing of the Gigabit Ethernet Switch equipment shall have a minimum three (3) years’ experience in the installation, testing and maintenance of Ethernet equipment.

The Gigabit Ethernet Switch shall meet the following tests:

- A. Pre-Installation Testing: The Contractor shall inspect the Gigabit Ethernet Switch upon delivery for any visual damage, inventory contents, and ensure proper functionality.
  
- B. Subsystem Testing: The Contractor shall ensure the Gigabit Ethernet Switches are correctly installed, configured, and are properly functioning as networked subsystem.

## Measurement and Payment

“**Furnish and Install Ethernet Switch**” shall be measured for payment by each switch installed.

The contract unit price paid for “**Furnish and Install Ethernet Switch**” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, loading, transportation, storing, preparation, engineering, connections, hardware, configuration, testing, licensing, SFP, power supplies, patch cords, cabling, mounting, hardware, configuration, set up, and commissioning, and no additional compensation will be allowed therefor.

### **25.18 Advanced Solar-Powered Flashing Beacon Assembly**

The Contractor shall furnish and install a LaneLight or approved equal solar-powered flashing beacon assembly where indicated on the plans. The flashing beacon assembly shall operate simultaneously with the Pedestrian Hybrid System and shall flash upon activation and/or start of the Pedestrian Hybrid System operations.

#### **Solar PV Powered System**

System shall be solar powered with manufacturer designed and supplied solar/battery power package. System shall be solar powered with manufacturer designed and supplied solar/battery power package. The system shall consist of a 55 watt solar panel with top of pole mount, MPPT solar charge regulator integral to the transmitter/receiver unit, surge arrestor between solar panel and transmitter/receiver unit, 40 amp-hour rated Lithium Iron Phosphate (LiFePO4) battery, NEMA 3R rated cabinet with #2 Corbin lock. Solar system autonomy shall exceed 5 days operation at constant operation with 1-hour solar exposure to full recovery.

Cabinet shall be supplied with mounting hardware suitable for banding bolt-fastening to a pole. Fully equipped weight shall not exceed 25 lb.

The solar panels and battery/batteries shall be specifically sized by the system manufacturer according to the regional solar conditions and shall include all necessary mounting hardware for side of pole mounting.

The solar panel aiming direction and aiming angle shall be fully adjustable and installed according to the manufacturer’s angle and direction specifications for the geographical location of the crosswalk.

Replacement solar panels and replacement batteries shall be available and replaceable independent of other system components.

Cabinet shall be supplied with mounting hardware suitable for banding to a pole.

## **System Controller**

The system controller shall be as follows:

1. LaneLight model MK10 or approved equal with wig-wag dual output, with cloud adjustment, system condition and activation count reporting capability.
2. Casing material: Anodized aluminum
3. Operating temperature range: -40°C to 65°C (-40°F to 149°F)
4. Operating voltage: 10-30 VDC
5. Supply voltage: 110 to 240 volts AC line voltage with factory supplied power converter/12VDC Solar
6. Output voltage: 12 VDC
7. Transient/Inrush current limiting – internal on all outputs
8. Overload –internal, auto-reset circuit breakers on outputs, 10A threshold on two output channels
9. Power Factor Correction – provided, Power Output limiting – 120%
10. Short Circuit – Continuous protection, intermittent cycle permitted
11. Activation time: 0 to 120 seconds, or continuous
12. Pattern Mode: Signal beacon pattern shall comply with FHWA MUTCD
13. Configuration: On board menu or remote via USB or Cloud
14. Diagnostics: On board menu or remote via USB or Cloud
15. Terminal connection type: Screw terminals
16. Standards compliance: NEMA

## **Signs**

Shall meet CAMUTCD standards, Diamond Grade, and sized per plan.

## **Communication**

Communication from the traffic signal controller to the advanced flashing beacon assembly shall be wireless, using RF communications and shall include an antenna, accessories, and mounting equipment to install within a 332 cabinet.

Communication between system control units, local and/or from system to cloud or network:

1. Transmitter/receiver unit, hard-wired to intersection/hybrid signal controller

2. Cellular network connectivity cloud system or other modem network access service equipped in one transmitter/receiver unit; peer to peer network between transmitter/receiver units, 2.4GHz frequency
3. Transmitter/receiver unit, located in each remote unit

## **Beacons**

Flashing beacon faces and modules shall conform to the provisions in Sections 86-1.02R, "Signal Heads" and 87-1.03R, "Signal Heads", of the Standard Specifications.

All beacon assemblies shall consist of a quantity of two (2) 12-inch LED, low voltage (12VDC) single units, provided by the system manufacturer; standard signal housings shall be furnished with visors, side of pole mounts, and shall conform to the following specifications:

1. Luminous Intensity acc. to EN12368: Yellow > 200cd
2. Color acc. to EN12368: Yellow 585-597nm
3. LED Type: High Flux
4. Power Consumption: Yellow – 4W
5. Material (lens and housing): UV-stabilized polycarbonate; signal housing: Polycarbonate.
6. Mounting: Signal arrays, side of pole, stainless band or other secure pole mount

## **Warranty**

System components shall have a non-pro-rated warranty period of five (5) years against manufacturer defects and failure under normal use.

## **Measurement and Payment**

**"Furnish and Install Wireless Beacon Control Assembly"** shall be measured for payment by each beacon assembly installed.

The contract unit price paid for **"Furnish and Install Wireless Beacon Control Assembly"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, loading, transportation, storing, preparation, engineering, connections, hardware, configuration, testing, mounting, hardware, configuration, set up, and commissioning, and no additional compensation will be allowed therefor.

## **25.19 Blank-Out Signs**

The Blank-Out Sign shall be 24"x24" and CA MUTCD compliant modeled after CA MUTCD sign code R3-1, NO RIGHT TURN, with Institute of Transportation Engineers (ITE) and CA MUTCD compliant color LEDs with black background. The Contractor shall install the Blank-Out Sign such that the sign shall activate and illuminate only when the pedestrian walk phase is active. The Blank-Out Sign shall only remain activated and illuminated for the duration of the pedestrian

walk phase.

The Blank-Out sign enclosure shall be manufactured with Aluminum and with a minimum thickness of 0.125". Seams of the enclosure shall be continuously welded to ensure a watertight seal.

The Contractor shall factory drill weep holes in the bottom of the enclosure to prevent buildup of condensation. Enclosures shall use a neoprene gasket strip to provide a watertight seal between the door and the display lens. Door locking mechanism on the enclosure shall require no tools to open for maintenance. Glare shields shall be installed for each enclosure.

Enclosures shall be manufactured to a maximum size of 28"x28" with a Blank-Out Sign viewable area of 24"x24". Enclosures shall be compatible with and be installed on Astro-Brac, stainless steel cable signal mount. Lenses are cut from a minimum of 0.120" thick clear finish polycarbonate Lexan. All enclosure hardware shall be stainless steel.

Blank-Out Sign enclosure shall have a satin black power coat finish applied to all external aluminum surfaces. The message background shall have a flat black power coat finish. No status or alarms shall be installed on the enclosure door.

All electronics shall be mounted onto a panel located on the rear of the enclosure body and the message board for ease of access during maintenance. Enclosure mounted electronics shall meet a minimum ambient operating temperature range of -30°C (-30°F) to +74°C (+165°F).

The Contractor shall furnish the Blank-Out Sign with a light engine that complies with the applicable ITE, Vehicle Traffic Control Signal Heads (VTCSH) specifications, and Caltrans Transportation Electrical Equipment Specifications. The light engine shall consist of LED's mounted onto printed circuit boards (PCB) which shall match the layout of CA MUTCD sign code R3-1. The Contractor shall provide this preliminary format and layout to the Engineer for approval prior to installation. The PCBs shall be protected from the elements by a lens. The LEDs shall be connected in parallel to ensure continued operation if one current path fails.

All LEDs and coloration of the LEDs shall comply with ITE VTCSH: LED Vehicle Arrow Traffic Signal Supplement Section 4 (Photometric Requirements) and ITE VTCSH: LED Circular Signal Supplement Section 4 (Photometric Requirements) for luminous intensity and distribution (Section 4.1) color regions (Section 4.2) and color uniformity (Section 4.2).

The Contractor shall use a power supply for the Blank-Out Sign as recommended by the manufacturer. The Contractor shall submit the appropriate specifications, Blank-Out Sign power loads, and drawings of the power supply to the Engineer for approval.



The Contractor shall furnish a dimmer with each Blank-Out Sign. The dimmer shall be controlled locally by an electric photocell mounted to the top of the enclosure. The dimmer shall be a two-level design (bright/dim) allowing the light engine to normally operate at full intensity. When the dimmer is active, the power to the light engine is reduced by a percentage of the bright power levels. The Contractor shall work with the Engineer to modify the percentage of power to the sign in the dim mode. This value is typically adjusted to 50% of the LEDs bright output. The dimmer shall incorporate a failsafe where the light engine will continue operating at its full intensity in the event of a dimmer failure. The Blank-Out Signs shall include an adjustable resistor to set the dim mode intensity.

#### Measurement and Payment

**“Furnish and Install Blank Out Sign (R3-1)”** and **“Furnish and Install TV-1-T Mount”** shall be measured for payment by each sign installed.

The contract unit prices paid for **“Furnish and Install Blank Out Sign (R3-1)”** and **“Furnish and Install TV-1-T Mount”** shall include full compensation for furnishing all labor, materials, tools, transportation, equipment, incidentals and for doing all work involved in installing the signs and mounting, loading, storing, preparation, connections, hardware, fabrication, wiring, and testing necessary for a complete installation, and no additional compensation will be allowed therefor

#### **25.20 Traffic Signs and Components**

All new traffic signs and components shall conform to the provisions of Section 82-2, “Sign Panels” of the Caltrans Standard Specifications and these Special Provisions.

All new traffic signs shown on the Plans shall conform the latest California MUTCD, California Sign Specifications, and the FHWA publication Standard Highway Signs and Markings. Sign panels shall be fabricated using 0.10-inch thick aluminum sheeting. The reflective sheeting material for all signs shall be 3M Diamond Grade DG3 with 3M Premium Protective Anti-Graffiti Overlay Film 1160.

All new straps, saddle brackets, nuts, bolts, and washers shall be stainless steel and tamper proof per agency specifications. Mast arm traffic signs indicated on the Plans shall be mounted by Caltrans Standard Plans, ES-7N, Detail U.

#### Measurement and Payment

**“Furnish and Install Traffic Sign on Signal Standard/Mast Arm”** shall be measured for payment by each sign installed on the traffic signal standard / mast arm.

The contract unit price paid for **“Furnish and Install Traffic Sign on Signal Standard/Mast Arm”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the installation of traffic signs on signal mast arms or standards and no additional

compensation will be allowed therefor.

## **26.0 LANDSCAPE AND IRRIGATION**

### **26.1 General**

Landscape and Irrigation work shall be performed in accordance with Section 20 and of the Caltrans Standard Specifications and these Special Provisions.

The Caltrans Standard Specifications shall be the initial source of project specifications. Additional supplemental specifications have been included to further address items that are not addressed by the Caltrans Standard Specifications. In the event of any conflicts between the Supplemental Specification sections and Caltrans Standard Specifications, this section shall take precedence.

#### Measurement and Payment

**“Furnish and Install Landscape and Irrigation”** shall be measured for payment as a lump sum.

**“Furnish and Install Booster Pump Assembly”** shall be measured for payment as a lump sum.

The contract lump sum price paid for **“Furnish and Install Landscape and Irrigation”** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, earthwork, testing, amendments, bedding, backfill, compaction, wiring, connections, controllers, concrete, backflow preventers, plants, trees, root barriers, mulch, accessories, incidentals, maintenance and establishment, and all required coordination efforts, and no additional compensation will be allowed therefor.

The contract lump sum price paid for **“Furnish and Install Booster Pump Assembly”** shall include full compensation for furnishing all labor, materials, tools, equipment, transportation, testing, wiring, connections, incidentals, and all required coordination efforts, and no additional compensation will be allowed therefor.

### **26.2 Plants**

#### **26.2.1 Submittals**

- A. Submittals for items shall be made in one package. If submittals are judged incomplete or non-responsive to the directions of the Owner’s Representative after three (3) submittals, the Contractor shall be back-charged for the Owner’s Representative’s costs to process additional Submittals.
- B. Submittals will be rejected without the benefit of review by the Owner’s Representative if they are difficult to read, incomplete or if the required information is not presented in format required.

C. Product Data:

1. For each type of product listed in Part 25.3 of this specification.
2. Plant Materials: Include quantities, sizes, quality, and nursery sources for plant materials.
3. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to the Project.
4. Plant Photographs: For each plant specified, include photo quality color photographs at 8 ½ x11 size format of each required species and size of plant material as it will be furnished to the Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. Include a minimum of three photographs of each species. Identify each photograph with the full scientific name of the plant, container size, height and spread, and name of the growing nursery. Review of plant photographs does not indicate acceptance of the plant material as delivered to the Project Site.
5. Planting Schedule: Submit anticipated planting dates for each type of planting.
6. Delivery Slips for all products included in submittal, slips should indicate quantity delivered.

D. Samples for Verification: For each of the following:

1. Mineral Mulch: 1 lb bagged sample of each mineral mulch required, in sealed plastic bags labeled with source of mulch. Sample shall be typical of the lot of material to be delivered and installed on the site; provide an accurate indication of name, source, size, and color range of the material.
2. Boulders: Submit three (3) photo quality color images at 8 ½ x11 size format of each required stone. Label each image with an accurate indication of name, source, size and color range of the material.

Coordinate first paragraph below with qualification requirements in Division 01 Section "Quality Requirements" and as supplemented in "Quality Assurance" Article.

- E. Qualification Data: For qualified Landscape Installer and qualified Native Plantings Landscape Subcontractor (if applicable). Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners/ contact persons. Refer to the "Quality Assurance" section Part 1 of this specification for additional information.

- F. Material Test Reports:
1. Soil Analysis Test Reports: Testing for all planting soils including import Topsoil and existing or stockpiled soil to be used during backfill operations. Refer to Soil Testing section in Part 3 testing procedures. Soil testing shall be completed after rough grading operations. See Part 1 Quality Assurance for additional requirements.
  2. Percolation Test Reports: Refer to Percolation Testing section in Part 3 for testing procedures. The results of the percolation testing must be submitted to the Owner's Representative for review and approval.
- G. Maintenance Instructions: Contractor shall furnish to the Owner recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before start of required maintenance periods.
1. Instructions should include but not be limited to the following tasks: Fertilizing, irrigation schedule, dead heading, mulch or other inert groundcover replenishment, pruning of shrubs to maintain design intent and 3 year tree maintenance schedule.
  2. Instructions shall be submitted to Owner's Representative for approval before submittal to the Owner and prior to the expiration of the Maintenance period.
- H. Landscape Planting Plan As built Drawings Contractor mark ups.
- I. Warranty: Submit written warranties on the Contractor's or subcontractor's letterhead, addressed to the Owner. Submit all warranties in duplicate and in the form shown in the General Conditions, or modified as approved by the Owner's Representative to suit the conditions pertaining to the warranty. Refer to Warranty and Replacement section, Part 1 for more information.

### **26.2.2 Quality Assurance**

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful establishment of plants.
1. All work shall be performed by a trained crew in accordance with the standards and practices related to the trade.
  2. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
  3. Experience: Five years' experience in landscape installation in addition to requirements in Division 01 Section "Quality Requirements." Provide

client list with contact names, phone numbers and date planting was installed.

4. License: Single entity subcontractor holding a valid C-27 California Contractor's license.
  5. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
  6. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
    - a. Certified Landscape Technician - Exterior, with installation, maintenance and irrigation specialty area(s).
    - b. Certified Ornamental Landscape Professional, designated COLP.
  7. Pesticide Applicator: State licensed, commercial.
- B. Soil and Plant-Testing Laboratory Qualifications: An independent or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

Provide testing by one of the following or a comparable testing laboratory:

- a. John Deere Landscapes
  - b. Waypoint Analytical
  - c. Wallace Laboratories
- C. Soil Analysis Testing: For each unamended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio (SAR), electrical conductivity (ECe), boron content, deleterious material; pH; and mineral and plant-nutrient content of the soil.
1. Supply Testing Agency with a complete copy of this specification and a copy of the project plant list and planting plan at the time of the soil testing.
  2. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
  3. The soil-testing laboratory shall oversee soil sampling at the conclusion of rough grading operations; with depth, location, and number of samples to be taken per instructions from Owner's Representative. A minimum of five representative samples (or as listed in the Drawings) shall be taken

from varied locations for each soil to be used or amended for planting purposes.

4. No amendments shall be applied prior to receipt of test results.
  5. Report suitability of tested soil for plant growth.
    - a. Based upon the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft. (92.9 sq. m) or volume per cu. yd. (0.76 cu. m) for recommended quantities of soil amendments and fertilizers listed in the specifications to produce satisfactory planting soil suitable for healthy, viable plants.
    - b. Testing Agency recommendations must use the soil amendments and fertilizers listed in the specifications in their recommendations.
    - c. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.
    - d. If corrective measures are specified, provide retesting of soils after measures are corrected to confirm soils were successfully abated. Costs for soil testing and retesting after corrective measures are completed shall be including in the base bid price.
  6. The Owner's Representative shall recommend all changes to the amendments listed after review of the test results. Cost change for soil preparation shall be in accordance with the provisions in the General Conditions. Amounts of amendments listed in Part 3 shall be used for bidding purposes.
- D. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.
- E. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.
1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip.
  2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

- F. Plant Material Observation: Owner's Representative may elect to observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Owner's Representative retains right to observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. The Owner's Representative may make invasive inspection of the rootball as needed to verify that plants meet the requirements and may require random cutting into the interior of the rootball and or remove or request the removal of the sides of boxes at the nursery or on-site. Such cutting and inspection may render the container plant unsuitable for planting. Findings of the root inspections shall be considered as representative of all plants of that type from said nursery source. Remove rejected trees or shrubs immediately from Project site.
1. Notify Owner's Representative of sources of planting materials fourteen days in advance of delivery to site.
- G. Preinstallation Conference: Conduct conference at Project site with the Owner's Representative, Contractor and Landscape subcontractor to review requirements.
1. Meeting minutes from the preinstallation conference shall be the responsibility of the Contractor and shall be distributed to the parties in attendance for review and subsequent approval of conference discussion items.
  2. Discussion agenda items during the pre-installation shall include the Contractor's understanding and familiarity with the following:
    - a. Protection of existing trees and landscape areas
    - b. Contract grown plant material
    - c. Site materials and finishes
    - d. Required submittals, samples and mock-ups.
    - e. Preparation and criteria for generation of the punch list, determination of Notice of Completion and Date of Acceptance.
    - f. Soil testing and percolation testing
    - g. Procedures protocol for site construction observation visits.

### **26.2.3 Delivery, Storage, and Handling**

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of

manufacturer, and indication of conformance with state and federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants or within driplines of existing trees.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

D. Handle planting stock by root ball.

E. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F (16 to 18 deg C) until planting.

F. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

G. Plants shall not be allowed to remain on site longer than 5 days prior to planting.

1. Do not remove container-grown stock from containers before time of planting.
2. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition

**26.2.4 Project Conditions**

A. Field Measurements: Prior to excavation for planting or placing of plant materials, verify actual grade elevations, service and utility locations, underground and overhead lines, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by



field measurements before proceeding with planting work. In the event of a conflict the Contractor shall notify the Owner's Representative and the owner.

- B. Interruption of Existing Services or Utilities: Do not interrupt services or utilities to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated:
  - 1. Notify Owner no fewer than two days in advance of proposed interruption of each service or utility.
  - 2. Do not proceed with interruption of services or utilities without Owner's written permission.
- C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.
- D. Site Draining: Established site drainage shall be maintained by the Contractor during all phase of the Work. Grade areas as needed to insure proper grades and drainage as indicated on Drawings. Final finish grade shall insure positive drainage with surface drainage away from buildings, walls and toward driveways, drainlets and catch basins.
- E. Errors and Omission: Refer to errors and/or discrepancies in or between plans, specifications, lists or notes to the Owner's Representative for adjustments before proceeding with the Work. The Contractor shall assume responsibility for proceeding with the Work without referring. In the event of a conflict, the Owner's Representative shall interpret the meaning of the Contract Drawings and Contract Specifications and their decision shall be final.
- F. Excavation: When conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions or obstructions, cease planting operations and notify the Owner's Representative for further direction.
- G. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
  - 1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

#### **26.2.5 Warranty**

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Death and unsatisfactory growth, except for defects resulting from incidents that are beyond Contractor's control.
    - b. Structural failures including plantings falling or blowing over.
    - c. Faulty performance of tree stabilization, edgings, tree grates, improper planting, and failure to water sufficiently.
    - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
    - e. Damages done to plant material during construction.
  2. Revise start date in first subparagraph below according to local practice and the types of planting required and coordinate with the maintenance period. It is not usually equitable to require the Installer to warrant living plant material beyond the maintenance period. See Evaluations.
  3. Warranty Periods from Date of Notice of Completion:
    - a. Warranty periods in first three subparagraphs below are examples only for some categories of plants; revise to suit Project.
    - b. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months
    - c. Ground Covers, Biennials, Perennials, and Other Plants: 6 months.
    - d. Specialty Plants (succulents, tropical plants, bamboo): 24 months
  4. Include the following remedial actions as a minimum:
    - a. Immediately remove dead plants within 14 days and replace unless required to plant in the succeeding planting season.
    - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
    - c. Replacement plants shall be of the same size, species and variety as specified in the Drawings. Replacement includes restoration of surrounding area to match the existing conditions.
    - d. Retain subparagraph below if required; revise to suit Project.

- e. Provide extended warranty for period equal to original warranty period, for replaced plant material.

**26.2.6 Maintenance Service**

- A. Initial Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.
  - 5. Maintenance Period: 90 days from date of Substantial Completion.
- B. Within one week, prior to authorization start of maintenance, submit a Maintenance Schedule to the Owner’s Representative listing the days when maintenance crews will be on site. Include a contact person and emergency phone number.
- C. The maintenance period shall be extended when in the opinion of the Owner’s Representative, dead or dying plant materials, poor or unhealthy growing conditions or improper maintenance practices are evident within the maintenance period. The extended period shall be provided at no additional cost to the Owner and shall be extended until the work is complete and acceptable to the Owner’s Representative.

**26.2.7 Rejection and Substitution**

- A. Products or materials, whether installed or not, not conforming to the requirements herein specified shall be considered defective and be marked as rejected. Materials shall be removed and replaced with approved materials at no additional cost to the Owner.
- B. Submit written request for each proposed substitution. Provide data substantiating the request as well as a Certificate of Suitability certifying that the proposed substitution is equal or better in all respects to that specified and that it will in all respects perform the function for which it is intended. Include with request all required samples.

**26.2.8 Site Observation**

- A. Schedule and coordinate site observation visits for the following construction activities. Reviews shall be performed by the Owner’s Representative and notification shall be given in advance notice as noted:

|    |   |                |
|----|---|----------------|
| B. | <u>Item</u>                                     | <u>Advance</u> |
|    | <u>Notice</u>                                   |                |
|    | Soil preparation and finish grade               | 48 hours       |
|    | Inspection of plant material delivered on site. | 48 hours       |

|   |          |
|---|----------|
| Spotting of Trees prior to excavation of planting holes | 48 hours |
| Plant material review                                   | 48 hours |
| Plant layout and installation                           | 48 hours |
| Substantial Completion Punch List                       | 7 days   |
| Punch List Completion                                   | 7 days   |
| Maintenance Completion                                  | 7 days   |

## **26.3 Plant Products**

### **26.3.1 Plant Material**

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Schedule or Plant Legend shown on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of weeds, disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch (19 mm) in diameter; or with stem girdling or kinked roots will be rejected.
  2. Plants shall have normal well-developed, vigorous and fibrous root systems which are neither root, nor container bound.
  3. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
- B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Owner's Representative, with a proportionate increase in size of roots or balls.
- C. Labeling: Label five plants of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant as shown on Drawings.
- D. If formal arrangements or consecutive order of plants is shown on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.
- E. Provide healthy, weed and disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the

container or stem girdling roots above the root collar. Provide only plants that are acclimated to outdoor conditions before delivery.

- F. Plants shall be grown in their container for at least six months, but not over two years.
- G. A minimum of three structural roots reasonably distributed around the trunk of the plant shall be found in each plant. Plants with structural roots only on one side of the trunk (J roots) shall be rejected.
- H. The root crown must be more than two inches below the soil line. The top two structural roots shall be no more than three inches below the soil line when measured four inches radial to the trunk. The top of the other structural roots shall be no greater than five inches below the soil line when measured four inches radial to the trunk. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that the grower removed all circling roots above or across the top of the structural roots.
- I. The plant grower shall be responsible for certifying that the plants have been root pruned at each step in the plant production process to remove stem girdling roots and kinked roots. The plant grower shall certify in writing that all plants are reasonably free of root defects as defined in this specification and that the tree has been grown and harvested to produce a plant that meets the specifications.
- J. Groundcover plants grown in flats shall be healthy vigorous rooted cuttings grown in flats for at least 3 months but not over six months. Plants that have a cracked or broken rootball shall be replaced with the same species, size and character as specified.
- K. Succulents: Succulents shall be acquired from a licensed nursery. Succulents shall be free of insects, mottled leaves, broken or split branches or trunks, scarring or any other uncharacteristic growth patterns.
- L. Eucalyptus trees: all trees must be self-supporting when the nursery stake is removed.
- M. Plants that fail to meet any of the above requirements may be rejected by the Owner's Representative. Additionally, corrective measures may be taken to fix deficiencies in the plant material if approved by the Owner's Representative. Modifications may include the following:
  - 1. Shaving all circling roots on the exterior of the root mass deep enough so that all cut roots' ends are roughly radial to the trunk.
  - 2. Removal of all roots above the top of the main structural roots and trunk flare including any roots that are imprints from previous smaller containers.

### **26.3.2 Inorganic Soil Amendments**

- A. Sulfur: Pelletized, biodegradable, commercially processed and packaged, and containing a minimum of 90 percent sulfur capable of oxidizing over time and providing nutrient sulfur with a minimum of 99 percent passing through No. 6 (3.35-mm) sieve and a maximum of 10 percent passing through No. 40 (0.425-mm) sieve.
  - 1. Acceptable Manufacturers:
    - a. "Tiger 90 CR", John Deere Landscapes (800) 233-6933
- B. Iron Sulfate: a non-staining iron with micronutrients, pelletized, slow release, environmentally safe; 40% Iron, 1% Manganese, 1% Zinc, 1% Magnesium, 6% Sulfur; 2% Humic Acids
  - 1. Acceptable Manufacturers:
    - a. "Premium Green Iron 40% Fe", Gro-Power®, Inc. (800) 473-1307
- C. Ammonium Sulfate (21-0-0): a granular ammonium sulfate with 21% total nitrogen, 24% sulfur and 55% inert ingredients.
  - 1. Acceptable Manufacturers:
    - a. Best "Ammonium Sulfate 21-0-0", Simplot (800) 992-6066
- D. Agricultural Gypsum: Minimum 90 percent calcium sulfate ( $\text{CaSO}_4$ ,  $\text{H}_2\text{O}$ ), a commercially processed and packaged gypsum, finely ground with 90 percent passing through No. 50 (0.30-mm) sieve.
- E. Sand: Clean, washed, natural or manufactured, and free of toxic materials.

### **26.3.3 Compost**

- A. Humus material shall have an acid-soluble ash content of no less than 5% and no more than 20%.
- B. Organic matter shall be between 30% minimum and 60% maximum on a dry weight basis.
- C. The pH of the material shall be between 6 and 8
- D. Permeability Rate - Hydraulic conductivity rate shall be not less than one inches per hour nor more than three inches per hour
- E. Compost shall be provided from a licensed facility and shall be "metered."

- F. Compost shall undergo a pathogen reduction process, be a minimum of 15 days, and kept at a temperature between 131 degrees Fahrenheit to 150 degrees Fahrenheit.
- G. The salt content shall be less than 10 millimho/cm @ 25° C. in a saturated paste extract.
- H. Boron content of the saturated extract shall be less than 1.0 parts per million.
- I. Silicon content (acid-insoluble ash) shall be less than 50%.
- J. Calcium carbonate shall not be present if to be applied on alkaline soils.
- K. Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, peat mosses etc. low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.
- L. Composted wood products are conditionally acceptable, but stable humus must be present. Wood based products are not acceptable which are based on red wood or cedar.
- M. Sludge-based materials are not acceptable.
- N. Carbon: nitrogen ratio shall be less than 25:1.
- O. The compost shall be aerobic without malodorous presence of decomposition products.
- P. The maximum particle size shall be 0.5 inch, 80% or more shall pass a No. 4 screen for soil amending. The maximum particle size shall be 0.25 inch for hydroseeding.
- Q. Maximum total permissible pollutant concentrations in amendment in parts per million on a dry weight basis:

|            |     |
|------------|-----|
| arsenic    | 20  |
| copper     | 150 |
| selenium   | 50  |
| cadmium    | 15  |
| lead       | 200 |
| silver     | 10  |
| chromium   | 300 |
| mercury    | 10  |
| vanadium   | 400 |
| cobalt     | 50  |
| molybdenum | 20  |
| zinc       | 250 |
| nickel     | 100 |

- R. Higher amounts of salinity or boron to be pre-leached to reduce the excess.
- S. Acceptable Manufacturers:
  1. "Humic Compost", AgriService (760) 439-9920
  2. "Forest Floor Humus", Aguiñaga Fertilizer 909/424-1400
  3. "Washed Steer Humus", Earthworks 951-782-0260
  4. "Economix", Agromin 805/432-5265

**26.3.4 Fertilizer** (For bidding purposes only – follow recommendations from soil test results)

- A. Potassium sulfate (0-0-50): a low salt fertilizer for potassium deficient soils that provides high levels of potassium for increased drought, heat, wear, and cold tolerance. Contains 18% Sulfur minimum for improved color and plant density, and 50% soluble potash derived from potassium sulfate.

|                |     |         |
|----------------|-----|---------|
| Soluble Potash | 50% | minimum |
| Sulfur         | 18% | minimum |

- 1. Acceptable Manufacturers:
  - a. "Sulfate of Potash 0-0-50", Best Fertilizer (800) 992-6066.

- B. Triple superphosphate (0-45-0): a fertilizer for eliminating phosphorus deficiencies in soils. Contains phosphate derived from monocalcium phosphate and dicalcium phosphate, with a PH (20% solution) of 3.1; 90% water solubility; and 87% passes through a 4 mm screen with 100% retained by a 1.18 mm screen.

|                     |       |         |
|---------------------|-------|---------|
| Available Phosphate | 45%   | minimum |
| Calcium             | 13.5% | minimum |

- 1. Acceptable Manufacturers:
  - a. "Triple Superphosphate 0-45-0", Best Fertilizer (800) 992-6066.
- 2. Palm, Tropicals and Bamboo Fertilizer (9-3-9) : Controlled release nitrogen and potash with Micronutrients.

|                                  |       |         |
|----------------------------------|-------|---------|
| Nitrogen (total)                 | 9%    | minimum |
| Water Soluble Organic Nitrogen   | 0.92% |         |
| Water Insoluble Organic Nitrogen | 8.08% |         |
| Phosphoric Acid                  | 3%    | minimum |
| Potash (total)                   | 9%    | minimum |



|                         |       |
|-------------------------|-------|
| Soluble Potash          | 1.10% |
| Slowly available potash | 7.9%  |
| Calcium                 | 3%    |
| Magnesium               | 4%    |
| Iron                    | 2%    |
| Manganese               | 0.05% |
| Zinc                    | 0.05% |

3. Acceptable Manufacturers:

- a. "Gro-Power Palm Fertilizer and Tropicals (9-3-9)", Gro-Power®, Inc. (800) 473-1307,

- C. Planting Tablets: Tightly compressed chip type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots. Slow release fertilizer tablets, soil conditioner, 24-month formulation with trace elements, composted organic higher plant form life and mineral matter. Shall not contain any poultry, animal or human waste.

1. Nutrient Composition:

|                                    |               |
|------------------------------------|---------------|
| Nitrogen (total)                   | 20% minimum   |
| Ammonical Nitrogen                 | 2%            |
| Water Soluable Organic Nitrogen    | 5.3%          |
| Water Insoluable Organic Nitrogen  | 12.7%         |
| Phosphoric Acid                    | 10% minimum   |
| Soluable Potash                    | 5% minimum    |
| Calcium                            | 3.5%          |
| Sulphur                            | 2.5% minimum  |
| Iron (Fe)                          | 2% minimum    |
| Manganese                          | 0.05% minimum |
| Zinc                               | 0.05% minimum |
| Humic Acids (derived from compost) | 2.5% minimum  |

2. Acceptable Manufacturers:

- a. "Gro-Power (20-10-5) Planting Tablets", Gro-Power®, Inc. (800) 473-1307

**26.3.5 Mycorrhizal Soil Conditioner and Humid Acids**

- A. Mycorrhizal Inoculum / Soil Conditioner: Inoculum shall be both Endo and Ecto (granular), with consisting of propagules (spores, fragments of fungal mycelium, and pieces of mycorrhizal roots capable of colonizing host plant roots) of the vesicular arbuscular mycorrhizal species *Glomus intraradices*,

Glomus aggregatum, Glomus mosseae, combined with other species and/or additional genera including, Sclerocyctis, Gigaspora, Scutellospora, Entrophospora, and Acaulospora. Ectomycorrhiza include Pisolithus and 4 species of Rhizopogon. Soil Conditioner portion shall consist of organic materials consisting of higher plant form life, composted beyond the fibrous stage, to humus. Also shall have humic acids and beneficial soil bacteria strains. It shall NOT contain poultry, animal or human waste (i.e., sewage sludge), pathogenic viruses, fly larvae, insecticides, herbicides, fungicide or poisonous chemicals that would inhibit plant growth.

1. Nutrient Composition:

| Ingredients          | percentage (minimum)            |
|----------------------|---------------------------------|
| Mycorrhizal Inoculum | 6,500/55,00 progagules per lb.* |
| Humus                | 65%                             |
| Humic Acids          | 25%                             |

2. Acceptable Manufacturers

- a. "GroLife Granular", Gro-Power®, Inc (800) 473-1307.

B. Humic Acids (from Leonardite) 50 .00 %

1. Nutrient Composition: Per random sample of material.

|                 |        |
|-----------------|--------|
| Organic matter  | 40.00% |
| Carbon          | 40.00% |
| Nitrogen        | 0.05%  |
| Phosphoric Acid | 0.07%  |
| Potash          | 0.13%  |
| Sulfur          | 0.21%  |
| Magnesium       | 0.18%  |
| Calcium         | 0.32%  |
| pH              | 4.0    |
| Soluble Salts   | 1.8    |

2. Acceptable Manufacturers

- a. "Tri-C Premium Humate" (800) 927-3311.

**26.3.6 Planting Soils**

A. Import Topsoil: ASTM D 5268 topsoil, with pH range of 5.5 to 7, a minimum of 2 percent organic material content; free of stones 1 inch (25 mm) or larger in any dimension and other extraneous materials harmful to plant growth.

1. Import topsoil to be supplied for the full depth of raised planters indicated below and in Planting Cells of Grasscrete Porous Paving: Submit Amended Imported Topsoil to Owner's Representative for evaluation.

Provide Imported Topsoil from off-site sources, obtained from naturally well-drained site; do not obtain from bogs or marshes; see Part 1 for definition of raised planters.

2. Import topsoil also to be used on-grade as required for fill operations or as specified in the drawings.
3. Permeability Rate - Hydraulic conductivity rate shall be not less than one inches per hour nor more than three inches per hour
4. Retain applicable subparagraphs below or revise to suit Project.
5. Silt plus clay content of the import soil shall not exceed 20% by weight with a minimum 95% passing the 2.0 millimeter sieve. The sodium absorption rate (SAR) shall not exceed 6 and the electrical conductivity (ECe) of the saturation extract of this soil shall not exceed 3.0 millimhos per centimeter at 25 degrees centigrade. The boron content shall be no greater than 1 part per million as measured on the saturation extract.
6. Additional Properties of Imported Topsoil or Manufactured Topsoil: Screened and free of stones 1 inch (25 mm) or larger in any dimension; free of roots, plants, sod, clods, clay lumps, pockets of coarse sand, paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials harmful to plant growth; free of obnoxious weeds and invasive plants including quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and bromegrass; not infested with nematodes; grubs; or other pests, pest eggs, or other undesirable organisms and disease-causing plant pathogens; friable and with sufficient structure to give good tilth and aeration. Continuous, air-filled pore space content on a volume/volume basis shall be at least 15 percent when moisture is present at field capacity. Soil shall have a field capacity of at least 15 percent on a dry weight basis.
7. General requirement for Lightweight on-structure soil mix:

a. Chemistry:

- |   |         |
|---|---------|
| 1) Reaction (pH) saturated paste          | 6.0-7.6 |
| 2) Salinity (ECe dS/m) saturation extract | <3.0    |
| 3) Sodium adsorption ratio (SAR)          | <6.0    |
| 4) Boron in saturation extract, ppm       | <1.0    |

b. Texture:

| Particle Size   | USDA Sieve Size | % Passing |
|-----------------|-----------------|-----------|
| 1) Gravel       | 2.0             | >85%      |
| 2) Coarse sands | 0.5             | >75%      |
| 3) Silt + clay* | 0.05**          | <35%      |

\*Silt to clay ratio shall be 0.5 – 1.2

\*\*Use Hydrometer method

8. Submit results of agricultural soils analysis testing for review and approval by the Owner's Representative.
9. Provide Amended Imported Topsoil in sufficient quantities which allow for natural settling and compaction of the topsoil mix in the Raised Planters, and flush with the top of the Grasscrete Porous Paving cells. Prior to planting plant materials, Raised Planters and Grasscrete cells shall be compacted to 90% density to minimize settling. Set Amended Imported Topsoil and compact accordingly in 6" lift to within 4" of top of the Raised Planters.
  - a. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
    - 1) A-1 San Diego Select Topsoil, Hanson Aggregates A-1 Soils.
    - 2) Topsoil Mix #5, Agromin Horticultural Products.
    - 3) 70/30 Topsoil, Agri-Service

#### **26.3.7 Mulches**

- A. Mineral Mulch: Hard, durable stone, washed free of loam, sand, clay, and other foreign substances, of following type, size range, and color:
  1. Type: Rock Mulch. Double washed stones graded to 4"-8" nominal size with 3/8" minus Decomposed Granite Mulch base layer.
    - a. Size Range: as indicated in the drawings
    - b. Color: as indicated in the drawings
    - c. Acceptable Manufacturers:
      - 1) Landscape Rock Supply (760) 427-9522
      - 2) KRC (760) 744-1035
      - 3) Decorative Stone Solutions (800) 699-1878
      - 4) Southwest Boulder (800) 540-1147

#### **26.3.8 Filter Fabric**

- A. Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, 4.5 oz./sq. yd. minimum, with a tensile strength of 120 lbs, water flow reate of 135 g/mi/s.f. and UV Resistance of 70% composed of fibers formed into a stable network so that fibers retain their relative position. Fabric shall be inert to biological degradation and resist naturally-encountered chemicals, alkalis, and acids.
  - a. Product: "Mirafi 140 N" by Tencate, or approved equal

#### **26.3.9 Pesticides**

- A. Prior to using pesticides, contractor shall review procedures with the Owner's Representative and obtain written approval prior to using any pesticides.
- B. General: Pesticide registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- C. Contractor shall be licensed by the County to perform pesticide applications.
- D. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
  - 1. Acceptable Manufacturers:
    - a. Treflan
    - b. Surfland
    - c. Eptan
- E. Post-Emergent Herbicide: Round-up

**26.3.10      Tree Stabilization Materials**

- A. Stakes and Guys:
  - 1. Wood Stakes: Shaved, sound, new lodgepole pine, free of knots, branches, holes, cross grain, and other defects, of the length indicated on the Drawings, pointed at one end.
    - a. Stakes for 24" box trees or smaller shall be no less than 10 feet in length and 2" in diameter.
    - b. Stakes for 36" box trees and larger shall be no less than 12 feet in length and 3" in diameter.
    - c. Acceptable Manufacturers:
      - 1) Villa Root Barrier, Inc. (800) 654-4067
  - 2. Tree Ties: Flexible non-deteriorating self fastening, black vinyl ties of sizes required to adequately support trees.
    - a. Acceptable Manufacturers:
      - 1) Gro-Straight ties
      - 2) Cinch-Ties

**26.3.11      Aeration Tubes**

- A. Tubes: 4" dia. Schedule 40 PVC perforated pipe cut to lengths as shown on the Drawings.
  - 1. Acceptable Manufacturer: Pacific Plastics, Inc. (714)-990-9050.
- B. Grates: 4" dia.
  - 1. For Bark Chip Planting areas: round, black, plastic atrium drain grates;
  - 2. For Lawn areas: round, green, flat plastic drain grates;
  - 3. For Gravel and stone mulch planting areas: round, brown, flat plastic drain grates.
  - 4. Acceptable Manufacturer: National Diversified Sales (NDS).
- C. Filter fabric "sock": Spunbond, Typar 3341, Geoscape Landscape Fabric - 2.5 oz., Commercial Grade"
  - 1. Acceptable Manufacturer: ADS (800) 821-6710.

**26.3.12      Root Barrier**

- A. Root barrier shall be "Typar Biobarrier" root control root fabric with Treflan, 24" width unless otherwise noted in the plans.
  - 1. Acceptable Manufacturer: Dow Elanco., John Deere Landscapes (800) 233-6933.

**26.3.13      Miscellaneous Products**

- A. Wood Pressure-Preservative Treatment: AWPA C2, with waterborne preservative for soil and freshwater use, acceptable to authorities having jurisdiction, and containing no arsenic; including ammoniacal copper arsenate, ammoniacal copper zinc arsenate, and chromated copper arsenate.
- B. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
  - 1. Acceptable Manufacturer: Wilt Pruf

- C. Burlap: Non-synthetic, biodegradable.
- D. Planter Drainage Gravel: Washed, sound crushed stone or gravel complying with ASTM D 448 for Size No. 8.

## **26.4 Execution**

### **26.4.1 Examination**

- A. No work under this section shall commence until all submittals have been reviewed and approved. Do not proceed with installation until all unsatisfactory conditions have been corrected.
- B. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.
  - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
  - 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
  - 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  - 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Owner's Representative and replace with new planting soil.

### **26.4.2 Soil Test**

- A. At the conclusion of rough grading, collect soil samples in the locations indicated on the plans and as described in Part 1 Quality Assurance. Each soil test location identified on the plans shall be collected using a soil probe. Each soil test location shall be comprised of 12 separate soil test probings collected from the area immediately adjacent to the soil test location identified on the plans. Under no circumstance shall the soil sample be dug by shovel and bagged from a single location. Submit the samples to an approved agricultural soils laboratory for testing.

- B. Submit the test results and laboratory recommendations to the Owner's Representative for review. No amendments shall be applied prior to receipt of test results. Test recommendations shall include the amendments listed in this specification.
- C. The Owner's Representative shall recommend changes to the amendments and/or procedure listed herein, after review of the test results.
- D. Costs for testing and retesting the soil shall be included in the base bid.
- E. Costs for soil leaching shall be included in the base bid, but only performed if specifically identified in the soil test results.
- F. Soil testing is considered a long lead item, retesting may be required to confirm that recommended remediation measures were successful and soil test results are within the acceptable ranges for plant growth. The time frame for this work shall not be shortened because adequate time was not allowed for testing and retesting of the soils. The soils will need to be retested until an acceptable test result is attained.
- G. Cost change for soil preparation work shall be in accordance with the provisions of the General Conditions. Refer to Part 1 Quality Assurance for additional requirements.

#### **26.4.3 Weed Control**

- A. Prior to commencement of the planting operations, remove all weeds including the roots, remove existing plant material including stumps designated not to remain, dispose of cleared and grubbed material at a legal refuse site.
- B. Prior to using herbicides, review procedures with the Owner, and obtain written approval. Herbicide applications requiring government or agency approvals shall be performed by an operator licensed by the County. Protect existing plant material on site and on adjacent properties from exposure to herbicides and equipment.

#### **26.4.4 Preparation and Layout**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways
- C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Owner's



Representative's acceptance of layout before excavating or planting. Make minor adjustments as required.

#### **26.4.5 Protection of Existing Plant Material**

- A. Erect the tree protection enclosures prior to commencing with site demolition work. Maintain fence during the entire construction period and remove when no longer needed, obtain approval from the Owner's Representative prior to removal.
- B. Install the enclosure a minimum of 3' outside of the drip line of the tree or palm. Increase enclosure size for groupings of trees or in conditions where heavy equipment work may damage overhead branches. Set the posts a maximum of 10' on center, and stake to the ground. Perform work inside the enclosures by hand, where conditions permit alternative methods, obtain approvals from the Owner's Representative for such work.
- C. During the entire construction phase, provide ongoing maintenance of the existing plant materials, including watering, fertilizing, pest and disease control, and adjustments to the enclosures as directed by the Owner's Representative.
- D. Trees damaged by construction shall be inspected by a certified arborist. Repair damaged trees as directed by the arborist. Replace trees damaged beyond repair as determined by the arborist, with the same species and of similar size or value. Repair, replacement, and inspections by the arborist, shall be at not additional expense to the Owner.

#### **26.4.6 Soil Preparation**

- A. Proceed with this part of the work only after soil test analysis recommendations have been approved by the Owner's Representative.
- B. Apply 50 lbs/1,000 SF of Gypsum to subgrade prior to tilling.
- C. Rip or loosen native soil or subgrade for the entire extent of all planting areas to a minimum depth of 18 inches without adding soil conditioner.
- D. Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter to a depth of 18" below finish grade and legally dispose of them off Owner's property.
- E. Prepare areas within the driplines of existing trees by hand, do not use mechanical tillers.
- F. Spread soil amendments, remaining gypsum and other amendments over all planting areas and mechanically till and blend to a depth of 6 inches.
- G. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.

- H. Use the soil amendments listed below for bidding purposes only. Materials and application rates may be modified after receipt of soils tests noted Part 3 Soils Tests.

| Amendments                   | Rate or Quantity / 1,000 SF of planting. |             |
|------------------------------|--|-------------|
| Compost                      | 3  | cubic yards |
| Gypsum                       | 50                                       | lbs.        |
| Ammonium sulfate             | 5  | lbs.        |
| Potassium sulfate            | 10                                       | lbs.        |
| Triple superphosphate        | 5  | lbs.        |
| Mycorrhizal Soil Conditioner | 2  | lbs.        |
| Humic Acid                   | 50                                       | lbs.        |

- I. Float smooth and compact all soil preparation areas to 85% relative dry density, maintain positive drainage, flow lines, and swells to area drains, fine grade to within plus or minus 0.10 foot of the grades shown on the Drawings.
- J. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- K. Before planting, obtain Owner's Representative's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- L. Application of Mycorrhizal Fungi Soil Conditioner: Per the manufacturer's recommendations, broadcast dry product uniformly over prepared soil at application rates listed in the specifications.

**26.4.7 Pre Plant Weed Control**

- A. Clear and remove existing weeds at least one-inch (1") below the soil surface.
- B. Fertilize areas to receive planting with a 46-0-0 NPK commercial fertilizer at the rate of ½ lb. per 1,000 square feet.
- C. After fertilization, irrigate the soil thoroughly and continuously at the equivalent of four inches (4") of water distributed over a fourteen (14) – day period. The application of water shall be applied to the soil as needed to gradually soak through the soil profile and not allowed to run-off the surface. Employ a specific watering duration and frequency program designed to germinate all residual weeds.

- D. After sufficient weed germination is present, apply non-selective, post-emergent contact herbicide, in strict accordance to the Manufacturer's directions. Protect and buffer surrounding properties, buildings, and vegetation from overspray, as required.
- E. Allow for a sufficient time period to ensure that the weeds are dead and the herbicide has dissipated, per the Manufacturer's recommendation.
- F. Water planting areas thoroughly and continuously for a period of one (1) week after the application of the herbicide. Discontinue the watering process for one (1) day prior to the second application of the herbicide. Apply a second application of the herbicide. Avoid any irrigation for a minimum of four (4) days after the second application for effective weed kill.
- G. After the second application and waiting period, water planting areas thoroughly and continuously for three (3) consecutive days to saturate upper layers of the soil prior to commencing planting operations.
- H. Dead weeds shall be cleared and removed prior to planting.
- I. Maintain a weed-free Project Site until final acceptance by the Owner, utilizing mechanical, chemical or manual treatment.

#### **26.4.8 Excavation for Trees and Shrubs**

- A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are not acceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
  - 1. Retain first two subparagraphs below if applicable. Retain one of four options in first subparagraph to suit Project.
  - 2. Excavate approximately two times as wide as ball diameter for container-grown stock.
  - 3. Do not excavate deeper than depth of the root ball less one inch, measured from the root flare to the bottom of the root ball.
  - 4. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
  - 5. Maintain required angles of repose of adjacent materials as shown on the Drawings. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
  - 6. Maintain supervision of excavations during working hours.

7. Keep excavations covered or otherwise protected when unattended by Installer's personnel.
  8. Retain subparagraph below if applicable.
  9. If subdrainage is shown on Drawings or required under planting areas, coordinate planting operations with installation of subdraiange.
- B. Obstructions: Notify Owner's Representative if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
  - C. Drainage: Notify Owner's Representative if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.
  - D. Subsoil and topsoil removed from excavations may be amended and used as planting backfill mix.

#### **26.4.9 Percolation Testing**

- A. Locate and prepare the percolation test pits where indicated on the Drawings, and as described herein.
- B. Excavate the pits as described under the Excavation for Trees and Shrubs section, remove all loose material, and fill the pits with six inches (6") of water. After 12 hours refill with the same amount of water. Six hours after the second filling, inspect the pits with the Owner's Representative and document locations where water remains in the pit.
- C. It is very important to coordinate what is part of the base bid for the contractor and what will be a change order. Discuss this with the owner prior to bidding. Owner must be aware that drainage problems may occur and that the cost to correct the drainage problem may be expensive. Another option is to include the drilled or augered holes in the drawings as an add alternate to the contract.
- D. If percolation problems occur, drill (one) (two) 8-inch- (150-mm-) diameter holes, into free-draining strata or to a depth of 5 feet below the bottom of rootball whichever is less, and backfill with drainage gravel and 4" diameter perforated PVC pipe open to below. Cap with appropriate grate, see **Aeration Tubes**.

#### **26.4.10 Tree, Shrub, Ground Cover and Vine Planting**

- A. To leach saline and sodic salts from the soil, fill all excavations with water and allow to percolate away before positioning trees and shrubs.
- B. Notify the Owner's Representative of conditions where hardpan, adobe clay, or inadequate subgrade compaction are encountered. Planting operations at the locations identified shall be suspended pending corrective action.

- C. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- D. Shave and/or shovel cut the outer 1/8" to 1/4" of the rootball for shrubs up to 15 gallons and 1/2" to 1" for 24" box and larger plants to ensure that all circling roots on the exterior of the root ball's ends are roughly radial to the trunk to promote outward root growth. Remove any injured roots by cutting cleanly; do not break.
- E. Use the soil amendments listed below for bidding purposes only. Materials and application rates may be modified after receipt of soils tests noted Part 3 Soils Tests.

- 1. Backfill mixture for all plants except palms shall be thoroughly blended, consisting of the following:

|                                       |   |              |  |
|---------------------------------------|---|--------------|--|
| Soil Amendment                        | 1 | part         |  |
| Existing Soil                         | 3 | parts        |  |
| Potassium sulfate                     | 1 | lb/cy of mix |  |
| Triple superphosphate                 | 1 | lb/cy of mix |  |
| Agricultural Gypsum                   | 3 | lb/cy of mix |  |
| Mycorrhizal Inoculum Soil Conditioner | 5 | lb/cy of mix |  |
| Humic Acid                            | 5 | lb/cy of mix |  |

- F. Place planting tablets in the planting pits at the following rates:

| Plant Size                | Quantity | Tablet Size                      |
|---------------------------|----------|----------------------------------|
| liner and flat size plant | 1        | 5 gram                           |
| 1 gallon container        | 1        | 21 gram                          |
| 5 gallon container        | 2        | 21 gram                          |
| 15 gallon container       | 3        | 21 gram                          |
| Box specimen size         | 2        | 21 gram for each 12" of box size |

- G. Set container stock plumb and in center of planting pit or trench with root flare 1 inch (25 mm) above adjacent finish grades or as indicated in the Drawing.

1. Use planting soil listed above for backfill.
2. Do not use planting stock if root ball is cracked or broken before or during planting operations.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts listed in the specifications. Place tablets beside the root ball about 1 inch (25 mm) from root tips; do not place tablets in bottom of the hole and do not place plant tablets in direct contact with the rootball.
5. Continue backfilling process. Water again after placing and tamping final layer of soil.
6. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

#### **26.4.11      Aeration Tubes**

- A. Wrap tubes with the fabric and set plumb in opposite corners of the planting pit. Place gravel and backfill mix as shown on the Drawings. Tubes to remain open to below. Knot filter fabric sock to prohibit sediment from getting into tubes. Cut tubes to 2" above finish grade and cap with a drain grate

#### **26.4.12      Tree, Shrub, and Vine Pruning**

- A. Remove only dead, dying, or broken branches. Do not prune for shape.
- B. Do not apply pruning paint to wounds.

#### **26.4.13      Tree Stabilization**

- A. Upright Staking and Guying: Per the Drawings.
  1. Support trees with bands of flexible ties at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree. Trees with small caliper trunks may require two (2) sets of tree ties, one set 6" below lowest tree branch and at 12" above finish grade, in order to adequately support the tree.

#### **26.4.14      Root-Barrier Installation**

- A. Install root barrier where trees are planted within [60 inches (1500 mm)] of paving or other hardscape elements, such as walls, curbs, and walkways unless otherwise shown on Drawings.
- B. Align root barrier vertically and run it linearly along and adjacent to the paving or other hardscape elements to be protected from invasive roots.
- C. Install root barrier continuously for a distance of [60 inches (1500 mm)] in each direction from the tree trunk, for a total distance of [10 feet (3 m)] per tree. If trees are spaced closer, use a single continuous piece of root barrier.
  - 1. Position top of root barrier at finished grade of soil unless otherwise directed. Adhere root barrier product in place using fabric pins or other measures. Secure fabric every two feet for entire length of installation. Adhere to edging or hardscape.
  - 2. Overlap root barrier a minimum of 12 inches (300 mm) at joints.
  - 3. Do not distort or bend root barrier during construction activities.
  - 4. Do not install root barrier surrounding the root ball of tree.

#### **26.4.15 Plantin Area Mulching**

- A. The entire limit of all planting areas shall receive landscape mulch unless otherwise specifically stated. Note that the drawings do not show mulch hatch patterns underneath plant symbols for graphic purposes only. The intention is that the entire planted area including the areas underneath the planting symbols shall receive the same landscape mulching.
- B. Stone Mulch: At the completion of the planting work, rake smooth the areas indicated on the Drawings. Depth of rock mulch shall be as indicated on the Drawings. Keep mulch 2 feet away from tree trunks and 4-6" away from shrub stems.

#### **26.4.16 Plant Maintenance**

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.
- B. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

#### **26.4.17      Pesticide Application**

- A. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Written permission is required.
- C. Pre-Emergent Herbicides (Selective and Non-Selective): Apply to tree, shrub, and ground-cover areas in accordance with manufacturer's written recommendations. Do not apply to seeded areas.

#### **26.4.18      Cleanup and Protection**

- A. During planting, keep adjacent paving and construction clean and work area in an orderly condition.
- B. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.
- C. After installation and before Substantial Completion remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

#### **26.4.19      Disposal**

- A. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

### **26.5    Irrigation**

#### **Construction Drawings**

Due to the scale of the drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting, and architectural features.

All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications. When an item is shown on the plans but not shown on the specifications or vice versa, it shall be deemed to be as shown on both. The Landscape Architect shall have final authority for clarification.

The Contractor shall not willfully install the irrigation system as shown on the



drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect as soon as detected. In the event this notification is not performed, the Irrigation Contractor shall assume full responsibility for any revision necessary.

#### **26.5.1 Quality Assurance**

- A. Provide at least one English speaking person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the manufacturer's recommended methods of installation and who shall direct all work performed under this section.
- B. Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturer of articles used in this contract furnish directions covering points not shown in the drawings and specifications.
- C. 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 these specifications, and their provisions shall be carried out by the Contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of these specifications and drawings shall take precedence.
- D. All materials supplied for this project shall be new and free from any defects. All defective materials shall be replaced immediately at no additional cost to Owner.
- E. The Contractor shall secure the required licenses and permits including payments of charges and fees, give required notices to public authorities, verify permits secured or arrangements made by others affecting the work of this section.

#### **26.5.2 Submittals**

- A. Water Pressure Test
  - 1. After award of contract and before any irrigation system materials are ordered from suppliers or delivered to the job site, submit to the Owner a written verification of the existing water pressure on the project at each of the points of connection shown.
  - 2. The water pressure test shall be performed to measure the dynamic water pressure at the point of connection at the maximum flow rate of the proposed irrigation system as shown on the point of connection note. Dynamic water pressure is when water is flowing through the point of connection. Static water pressure readings, water is not flowing, are not acceptable.

3. Written dynamic water pressure test confirmation shall be made on the contractor's letterhead and include the flow rate during the test, the recorded water pressure, the date of the test and the time of the test.

The results of the water pressure test shall be submitted to the engineer, and the engineer shall determine if the pump is required.

B. Material List:

1. After award of contract and before any irrigation system materials are ordered from suppliers or delivered to the job site, submit to the Owner a complete list of all irrigation system materials, or processes proposed to be furnished and installed as part of this contract.
2. The submittals materials list shall include the following information:
  - a. A title sheet with the job name, the contractor's name, contractor's address and telephone number, submittal date and submittal number.
  - b. An index sheet showing the item number (i.e. 1,2,3, etc.); an item description (i.e. sprinkler head); the manufacturer's name (i.e. Hunter Industries); the item model number (i.e. I-40-ADV/36V); and the page(s) in the submittal set that contain the catalog cuts.
  - c. The catalog cuts shall be one or two pages copied from the most recent manufacturer's catalog that indicate the product submitted. Do not submit parts lists, exploded diagrams, price lists or other extra information.
  - d. The catalog cuts shall clearly indicate the manufacturer's name and the item model number. The item model number, all specified options and specified sizes shall be circled on the catalog cuts.
  - e. Submittals for equipment indicated on the legend without manufacturer names, or "as approved", shall contain the manufacturer, Class or Schedule, ASTM numbers and/or other certifications as indicated in these specifications.
3. Submittal materials list format requirements:
  - a. Submittals shall be provided as one complete package for the project. Multiple partial submittals will not be reviewed.
  - b. Submittal package shall be stapled or bound in such a way as to allow for disassembly for review processing. Submittals shall

not have tabs, tab sheets, spiral binding, or any other type of binding that will interfere with automated copying of submittals.

- c. Submittal package shall have all pages numbered in the lower right hand corner. Page numbers shall correspond with submittal index.
  - d. Re-submitted packages must be revised to include only the equipment being re-submitted. Equipment previously reviewed and accepted shall not be re-submitted in the materials list/index sheet or in the catalog cut sheet package.
- C. Substitutions: If the Irrigation Contractor wishes to substitute any equipment or materials for those equipment or materials listed on the irrigation drawings and specifications, he may do so by providing the following information to the Landscape Architect or Owner's authorized representative for approval.
- 1. Provide a written statement indicating the reason for making the substitution.
  - 2. Provide catalog cut sheets, technical data, and performance information for each substitute item.
  - 3. Provide in writing the difference in installed price if the item is accepted.
- D. The Landscape Architect or Owner's authorized representative will allow no substitutions without prior written acceptance
- E. No substitutions of pump manufacturers, distributors or assemblies will be accepted.
- F. Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.
- G. The Landscape Architect or Owner's authorized representative will not review the submittal package unless provided in the format described above.

### **26.5.3 Existing Conditions**

- A. The Contractor shall verify and be familiar with the locations, size and detail of points of connection provided as the source of water and electrical supply connection to the irrigation system.
- B. Irrigation design is based on the available static water pressure shown on the drawings. Contractor shall verify static water on the project prior to the start of construction. Should a discrepancy exist, notify the Landscape Architect and Owner's authorized representative prior to beginning construction.
- C. Prior to cutting into the soil, the Contractor shall locate all cables, conduits, sewer septic tanks, and other utilities as are commonly encountered underground and he

shall take proper precautions not to damage or disturb such improvements. If a conflict exists between such obstacles and the proposed work, the Contractor shall promptly notify the Landscape Architect and Owner who will arrange for relocations. The Contractor will proceed in the same manner if a rock layer or any other such conditions are encountered.

- D. The Contractor shall protect all existing utilities and features to remain on and adjacent to the project site during construction. Contractor shall repair, at his own cost; all damage resulting from his operations or negligence.
- E. The Irrigation Contractor shall coordinate with the General Contractor for installation of required sleeving as shown on the plans prior to paving operations.
- F. The Contractor shall verify and be familiar with the existing irrigation systems in areas adjacent to and within the Project area of work.
- G. The Contractor shall protect all existing irrigation systems, in areas adjacent to and within the project area of work, from damage due to his operations.
- H. Contractor shall notify Owner's Representative if any existing system is temporarily shut off, capped or modified. Provide 48-hour notice, prior to turning off or modifying any existing irrigation system.
- I. The Contractor shall repair or replace all existing irrigation systems, in areas adjacent to and within the project area of work, damaged by the construction of this project. Adjacent irrigation systems shall be made completely operational and provide complete coverage of the existing landscaped areas. All repairs shall be complete to the satisfaction of the Owner's Representative.

#### **26.5.4 Inspection**

- A. The Contractor shall permit the Owner's Representative to visit and inspect at all times any part of the work and shall provide safe access for such visits.
- B. Where the specifications require work to be tested by the Contractor, it shall not be covered over until accepted by the Owner's authorized representative. The Contractor shall be solely responsible for notifying the Owner's Representative a minimum of 48 hours in advance, where and when the work is ready for testing. Should any work be covered without testing or acceptance, it shall be, if so ordered, uncovered at the Contractor's expense.
- C. Inspections will be required for the following at a minimum:
  - 1. Pre-construction meeting.
  - 2. System layout.
  - 3. Pressure test of irrigation mainline (Four hours at 125 PSI or 120% of static water pressure, whichever is greater.) Mainline pressure loss during test shall not exceed 2 PSI.

4. Coverage test of irrigation system. Test shall be performed prior to any planting.
  5. Final inspection prior to start of maintenance period.
  6. Final acceptance prior to turnover.
- D. Site observations and testing will not commence without the field record drawings as prepared by the Irrigation Contractor. Record drawings must be complete and up to date for each site visit.
- E. Work that fails testing and is not accepted will be retested. Hourly rates and expenses of the Owner's Representative for re-inspection or retesting will be paid by the Irrigation Contractor at no additional expense to Owner.

#### **26.5.5 Storage and Handling**

- A. Use all means necessary to protect irrigation system materials before, during, and after installation and to protect the installation work and materials of all other trades. In the event of damage, immediately make all repairs and replacements necessary to the acceptance of the Landscape Architect and Owner and at no additional cost to the Owner.
- B. Exercise care in handling, loading, unloading, and storing plastic pipe and fittings under cover until ready to install. Transport plastic pipe only on a vehicle with a bed long enough to allow the pipe to lay flat to avoid undue bending and concentrated external load.

#### **26.5.6 Cleanup and Disposal**

- A. Dispose of waste, trash, and debris in accordance with applicable laws and ordinances and as prescribed by authorities having jurisdiction. Bury no such waste material and debris on the site. Burning of trash and debris will not be permitted. The Contractor shall remove and dispose of rubbish and debris generated by his work and workmen at frequent intervals or when ordered to do so by the Owner's authorized representative.
- B. At the time of completion the entire site will be cleared of tools, equipment, rubbish and debris which shall be disposed of off-site in a legal disposal area.

#### **26.5.7 Turnover Items**

- A. Record Drawings:
1. Record accurately on one set of drawings all changes in the work constituting departures from the original contract drawings and the actual final installed locations of all required components as shown below.

2. The record drawings shall be prepared to the satisfaction of the Owner. Prior to final inspection of work, submit record drawings to the Landscape Architect or Owner's authorized representative.
3. All record drawings shall be prepared using AutoCAD 2018 drafting software and the original irrigation drawings as a base. No manual drafted record drawings shall be acceptable. The Contractor may obtain digital base files from the Landscape Architect or Owner's authorized representative.
4. If the Contractor is unable to provide the AutoCAD drafting necessary for the record drawings the irrigation designer does provide record drawing drafting as a separate service.
5. Prior to final inspection of work, submit record drawings plotted onto vellum sheets for review by the Landscape Architect or Owner's authorized representative. After acceptance by the Landscape Architect or Owner's authorized representative re-plot the record drawings onto reproducible Mylar sheets. The Contractor shall also provide record drawing information on a digital AutoCAD Release 2018 drawing file. All digital files shall be provided on a compact disc (CD) clearly marked with the project name, file descriptions and date.
  - a. Record drawing information and dimensions shall be collected on a day-to-day basis during the installation of the pressure mainline to fully indicate all routing locations and pipe depths. Locations for all other irrigation equipment shall be collected prior to the final inspection of the work.
  - b. Two dimensions from two permanent points of reference such as buildings, sidewalks, curbs, streetlights, hydrants, etc. shall be shown for each piece of irrigation equipment shown below. Where multiple components are installed with no reasonable reference point between the components, dimensioning may be made to the irrigation equipment. All irrigation symbols shall be clearly shown matching the irrigation legend for the drawings. All lettering on the record drawings shall be minimum 1/8 inch in size.
6. Show locations and depths of the following items:
  - a. Point of connection (including water POC, backflow devices, master control valves, flow sensors, etc.)
  - b. Routing of sprinkler pressure main lines (dimensions shown at a maximum of 100 feet along routing)
  - c. Isolation valves

- d. Automatic remote control valves (indicate station number and size)
- e. Quick coupling valves
- f. Routing of control wires where separate from irrigation mainline
- g. Irrigation controllers (indicate controller number and station count)
- h. Related equipment (as may be directed)

B. Controller Charts:

1. Provide one controller chart for each automatic controller. Chart shall show the area covered by the particular controller. The areas covered by the individual control valves shall be indicated using colored highlighter pens. A minimum of six individual colors shall be used for the controller chart unless less than six control valves are indicated.
2. Landscape Architect or Owner's authorized representative must approve record drawings before controller charts are prepared.
3. The chart is to be a reduced copy of the actual "record" drawing. In the event the controller sequence is not legible when the drawing is reduced, it shall be enlarged to a readable size.
4. When completed and approved, the chart shall be hermetically sealed between two pieces of plastic, each piece being a minimum 20 mils in thickness.

C. Operation and Maintenance Manuals:

1. Two individually bound copies of operation and maintenance manuals shall be delivered to the Landscape Architect or Owner's authorized representative at least 10 calendar days prior to final inspection. The manuals shall describe the material installed and the proper operation of the system.
2. Each complete, bound manual shall include the following information:
3. Index sheet stating Contractor's address and telephone number, duration of guarantee period, list of equipment including names and addresses of local manufacturer representatives.
  - a. Operating and maintenance instructions for all equipment.

- b. Spare parts lists and related manufacturer information for all equipment.
- D. Equipment:
- 1. Supply as a part of this contract the following items:
    - a. Two (2) wrenches for disassembly and adjustment of each type of sprinkler head used in the irrigation system.
    - b. Three 30-inch sprinkler keys for manual operation of control valves.
    - c. Two keys for each automatic controller.
    - d. Two quick coupler keys with a 1" bronze hose bib, bent nose type with hand wheel and two coupler lid keys.
    - e. One valve box cover key or wrench.
    - f. Six extra sprinkler heads of each size and type.
    - g. For specified ball valves if required: One (1) 5-foot long valve handle, to fit the specified ball valves.
  - 2. The above equipment shall be turned over to Owner's authorized representative at the final inspection.

#### **26.5.8 Completion**

- A. At the time of the pre-maintenance period inspection, Owner's authorized representative will inspect the work, and if not accepted, will prepare a list of items to be completed by the Contractor. Punch list to be checked off by contractor and submitted to Owner's authorized representative prior to any follow-up meeting. This checked off list to indicate that all punch list items have been completed. At the time of the post-maintenance period or final inspection the work will be re-inspected and final acceptance will be in writing by Owner's authorized representative.
- B. The Owner's authorized representative shall have final authority on all portions of the work.
- C. After the system has been completed, the Contractor shall instruct Owner's authorized representative in the operation and maintenance of the irrigation system and shall furnish a complete set of operating and maintenance instructions.
- D. Any settling of trenches which may occur during the one-year period following acceptance shall be repaired to the Owner's satisfaction by the Contractor without any additional expense to the Owner. Repairs shall include the complete



restoration of all damage to planting, paving or other improvements of any kind as a result of the work.

### **26.5.9 Guarantee**

- A. The entire sprinkler system, including all work done under this contract, shall be unconditionally guaranteed against all defects and fault of material and workmanship, including settling of backfilled areas below grade, for a period of one (1) year following the filing of the Notice of Completion.
- B. Should any problem with the irrigation system be discovered within the guarantee period, it shall be corrected by the Contractor at no additional expense to Owner within ten (10) calendar days of receipt of written notice from Owner. When the nature of the repairs as determined by the Owner constitute an emergency (i.e. broken pressure line) the Owner may proceed to make repairs at the Contractor's expense. Any and all damages to existing improvement resulting either from faulty materials or workmanship, or from the necessary repairs to correct same, shall be repaired to the satisfaction of the Owner by the Contractor, all at no additional cost to the Owner.
- C. Guarantee shall be submitted on Contractors own letterhead as follows:

#### ***GUARANTEE FOR SPRINKLER IRRIGATION SYSTEM***

*We hereby guarantee that the sprinkler irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted. We agree to repair or replace any defective material during the period of one year from date of filing of the Notice of Completion and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the Owner. We shall make such repairs or replacements within 10 calendar days following written notification by the Owner. In the event of our failure to make such repairs or replacements within the time specified after receipt of written notice from Owner, we authorize the Owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand.*

***PROJECT NAME:***

***PROJECT LOCATION:***

***CONTRACTOR NAME:***

***ADDRESS:***

***TELEPHONE:***

***SIGNED:***

DATE:

## **26.6 Irrigation Materials**

### **26.6.1 Summary**

Use only new materials of the manufacturer, size and type shown on the drawings and specifications. Materials or equipment installed or furnished that do not meet Landscape Architect's and Owner's standards will be rejected and shall be removed from the site at no expense to the Owner.

### **26.6.2 Pipe**

- A. Pressure supply line between the water meter and the backflow prevention device shall be type K copper, one size larger than backflow device.
- B. Backflow prevention assemblies, and all other above grade assemblies, shall be constructed of threaded brass pipe and threaded brass fittings the same size as the backflow device, unless otherwise directed.
- C. Pressure supply lines 1 1/2 inches in diameter and smaller downstream of the backflow prevention unit shall be Schedule 40 solvent weld PVC conforming to ASTM D1785.
- D. Pressure supply lines 2 inches in diameter and up to 3 inches in diameter downstream of backflow prevention unit shall be Class 315 solvent weld PVC. Piping shall conform to ASTM D2241.
- E. Non-pressure lines 3/4 inch in diameter and larger downstream of the remote control valve shall be SCH 40 solvent weld PVC conforming to ASTM D1785.

### **26.6.3 Metal Pipe and Fittings**

- A. Brass pipe shall be 85 percent red brass, ANSI, IPS Standard 125 pounds, Schedule 40 screwed pipe.
- B. Fittings shall be medium brass, screwed 125-pound class.
- C. Copper pipe and fittings shall be Type "K" sweat soldered, or brazed as indicated on the drawings.

### **26.6.4 Plastic Pipe and Fittings**

- A. Pipe shall be marked continuously with manufacturer's name, nominal pipe size, schedule or class, PVC type and grade, National Sanitation Foundation approval, Commercial Standards designation, and date of extrusion.

- B. All plastic pipe shall be extruded of an improved PVC virgin pipe compound in accordance with ASTM D2672, ASTM D2241 or ASTM D1785.
- C. All solvent weld PVC fittings shall be standard weight Schedule 40 (and Schedule 80 where specified on the irrigation detail sheet, all mainline fittings shall be Schedule 80 PVC) and shall be injection molded of an improved virgin PVC fitting compound. Slip PVC fittings shall be the "deep socket" bracketed type. Threaded plastic fittings shall be injection molded. All tees and ells shall be side gated. All fittings shall conform to ASTM D2464 and ASTM D2466.
- D. All threaded nipples shall be standard weight Schedule 80 with molded threads and shall conform to ASTM D1785.
- E. All solvent cementing of plastic pipe and fittings shall be a two-step process, using primer and solvent cement applied per the manufacturer's recommendations. Cement shall be of a fluid consistency, not gel-like or ropy. Solvent cementing shall be in conformance with ASTM D2564 and ASTM D2855.
- F. When connection is plastic to metal, female adapters shall be hand tightened, plus one turn with a strap wrench. Joint compound shall be non-lead base Teflon paste, tape, or equal.
- G. All pressure mainlines installed with solvent weld PVC fittings shall be installed with concrete thrust blocking at all directional changes in the mainline routing. Concrete thrust blocking shall not be required when ductile iron fittings and mechanical restraints are specified.

#### **26.6.5 Bell and Gasket Fittings**

- A. Fittings for bell and gasket pressure supply lines shall be ductile iron deep bell type. Fittings shall be manufactured of ductile iron, Grade 65-45-12 in accordance with ASTM A-536. Fitting gaskets shall be in accordance with ASTM F-477. All ductile iron fittings shall be manufactured with exterior lugs. Ductile iron fittings shall be as manufactured by Leemco, Inc., Corona, California.
- B. All tee fittings used to connect remote control valve assemblies and quick coupler assemblies to the mainline shall be ductile iron deep bell type. The outlet side of the tee or ell to the valve assembly shall be sized per the diameter of the largest valve in the assembly or a minimum of 2 inches. Ductile iron deep bell type reducers when used with bolt on links are allowable in lieu of reducing tee or ells. The PVC pipe to the valve assembly shall be secured to the ductile iron fitting using a joint restraint.
- C. All ductile iron fittings and all bell and gasket joints within fifty (50) feet of a directional change in the mainline shall be equipped with mechanical joint restraints. The joint restraint shall be capable of securing the PVC pipe directly to the lugs on the ductile iron fittings without the use of bolts, links and adapters. The joint restraint shall be capable of securing PVC pipe to PVC pipe and PVC pipe to ring joint isolation valves without the use of threaded linkages. Joint restraints shall be as manufactured by Leemco, Inc., Corona, California.

#### **26.6.6 Backflow Prevention Units**

- A. The backflow prevention unit shall be of the manufacturer, size, and type indicated on the drawings.
- B. The backflow prevention unit shall be installed in accordance with the requirements set forth by local codes.
- C. The backflow enclosure shall be of the manufacturer, size, and type indicated on the drawings.

#### **26.6.7 Irrigation Booster Pump (Bid Alternate)**

- A. Booster pump (Bid Alternate) shall be factory pre-piped and pre-wired and mounted on a steel base hot dipped galvanized after fabrication, with a capacity (GPM) and pressure boost (TDH) as indicated on the drawings. Field assembled pump systems are not acceptable. Booster pump assembly shall be as manufactured by Barrett Engineered Pumps available from Green Product Sale. Contact Daryl Green, Tel. (949) 584-7311.
- B. Booster pump (Bid Alternate) shall be as indicated in the notes and details indicated on the drawings.
- C. The contractor shall contact the pump manufacturer / distributor indicated on the drawings and obtain a written price quote for the pump station prior to submitting his bid. The price quote shall contain the model number and a list of all components to be included on the pump assembly. The contractor shall submit a copy of the pump manufacturer / distributor's quote with his irrigation installation cost estimate as proof of contact and inclusion of the specified pump station in his cost estimate. No substitutions of pump manufacturers, distributors or assemblies will be accepted.

#### **26.6.8 Valves**

- A. Gate Valves:
  - 1. Gate valves shall be of the manufacturer, size, and type indicated on the drawings.
  - 2. Gate valves shall be constructed of a bronze body, gate and stem. Gate valves shall have threaded connections.
  - 3. All gate valves shall have a minimum working pressure of not less than 150 PSI and shall conform to AWWA standards.
- B. Ball Valves:
  - 1. Ball valves shall be of the manufacturer, size, and type indicated on the drawings.

2. Ball valves shall be constructed of a bronze or stainless steel body, stainless steel ball and stem. Ball valves shall have threaded connections.
  3. All ball valves shall have a minimum working pressure of not less than 150 PSI and shall conform to AWWA standards.
- C. Quick Coupler Valves:
1. Quick coupler valves shall be of the manufacturer, size, and type indicated on the drawings.
  2. Quick coupler valves shall be brass with a wall thickness guaranteed to withstand normal working pressure of 150 psi without leakage. Valves shall have 1" female threads opening at base, with two-piece body. Valves to be operated only with a coupler key, designed for that purpose. Coupler key is inserted into valve and a positive, watertight connection shall be made between the coupler key and valve.
- D. Automatic Control Valves:
1. Automatic control valves shall be of the manufacturer, size, and type indicated on the drawings.
  2. Automatic control valves shall be electrically operated.
  3. Provide Christy's valve ID tags for each remote control valve with valve number

#### **26.6.9 Valve Boxes**

- A. Valve boxes shall be fabricated from a durable, weather-resistant plastic material resistant to sunlight and chemical action of soils.
- B. The valve box cover shall be tan in color and secured with a hidden latch mechanism or bolts.
- C. Valve box extensions shall be by the same manufacturer as the valve box.
- D. The plastic irrigation valve box cover shall be an overlapping type.
- E. Automatic control valve, master valve, and flow sensor boxes shall be 17"x11"x12" 'nominal' rectangular size. Valve boxes for drip valve assemblies shall be Jumbo valve boxes size as required to fit assemblies. Valve box covers shall be marked "RCV" with the valve identification number, or "MV", "FS" "heat branded" onto the cover in 1-1/4 inch high letters / numbers.

- F. Quick coupler and ball valve boxes shall be 10" circular size. Valve box covers shall be marked with "QCV" or "BV" "heat branded" onto the cover in 1-1/4 inch high letters.

**26.6.10          Automatic Controller**

- A. Automatic controller shall be of the manufacturer, size, and type indicated on the drawings.
- B. Controller enclosure shall be of the manufacturer, size, and type indicated on the drawings.
- C. Controller shall be grounded according to local codes using equipment of the manufacturer, size, and type indicated on the drawings; or as required by local codes and ordinances.

**26.6.11          Electrical**

- A. All electrical equipment shall be NEMA Type 3, waterproofed for exterior installations.
- B. All electrical work shall conform to local codes and ordinances.

**26.6.12          Low Voltage Control Wiring**

- A. Remote control wire shall be direct-burial AWG-UF type, size as indicated on the drawings, and in no case smaller than 14 gauge.
- B. Remote control wire shall be 14 AWG solid core twisted pair, type as indicated on the irrigation drawings.
- C. Connections shall of the manufacturer, size, and type indicated on the drawings.
- D. Common wires shall be white in color. Control wires shall be red (where two or more controllers are used, the control wires shall be a different color for each controller. These colors shall be noted on the "Record Drawings" plans located on controller door).
- E. Ground wires shall be green in color or bare copper and in no case smaller than 6 gauge.

**26.6.13          Irrigation Heads and Point Source Drip Emitters**

- A. Irrigation heads and point source drip emitters shall be of the manufacturer, size, type, with radius of throw, operating pressure, and discharge rate indicated on the drawings.
- B. Irrigation heads and point source drip emitters shall be used as indicated on the drawings.

#### **26.6.14 Drip Irrigation Equipment**

Drip tubing equipment such as wye strainers and pressure regulators shall be of the manufacturer, size, and type indicated on the drawings.

#### **26.6.15 Miscellaneous Equipment**

- A. Landscape Fabric:
  - 1. Landscape fabric for valve box assemblies shall be 5.0- oz. weight woven polypropylene weed barrier. Landscape fabric shall have a burst strength of 225 PSI, a puncture strength of 60 lbs. and capable of water flow of 12 gallons per minute per square foot.
  - 2. Type: DeWitt Pro 5 Weed Barrier or approved equal.
- B. Equipment such as flow sensors, rain sensors, wye strainers, and master valves shall be of the manufacturer, size and type indicated on the drawings.

### **26.7 Irrigation Execution**

#### **26.7.1 Site Conditions**

- A. Inspections:
  - 1. Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
- B. Verify that irrigation system may be installed in strict accordance with all pertinent codes and regulations, the original design, the referenced standards, and the manufacturer's recommendations.
- C. Discrepancies:
  - 1. In the event of discrepancy, immediately notify the Landscape Architect or Owner's authorized representative.
  - 2. Do not proceed with installation in areas of discrepancy until all discrepancies have been resolved.
- D. Grades:
  - 1. Before starting work, carefully check all grades to determine that work may safely proceed, keeping within the specified material depths with respect to finish grade.
  - 2. Final grades shall be accepted by the Engineer before work on this section will be allowed to begin.

E. Field Measurements:

1. Make all necessary measurements in the field to ensure precise fit of items in accordance with the original design. Contractor shall coordinate the installation of all irrigation materials with all other work.
2. All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions prior to proceeding with work under this section.
3. Exercise extreme care in excavating and working near existing utilities. Contractor shall be responsible for damages to utilities, which are caused by his operations or neglect.

F. Diagrammatic Intent:

The drawings are essentially diagrammatic. The size and location of equipment and fixtures are drawn to scale where possible. Provide offsets in piping and changes in equipment locations as necessary to conform with structures and to avoid obstructions or conflicts with other work at no additional expense to Owner.

G. Layout:

1. Prior to installation, the Contractor shall stake out all pressure supply lines, routing and location of sprinkler heads, valves, backflow preventer, and automatic controller.
2. Layout irrigation system and make minor adjustments required due to differences between site and drawings. Where piping is shown on drawings under paved areas, but running parallel and adjacent to planted areas, install the piping in the planted areas.

H. Water Supply:

Connections to, or the installation of, the water supply shall be at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made at no additional expense to Owner.

I. Electrical Service:

1. Connections to the electrical supply shall be at the locations shown on the drawings. Minor changes caused by actual site conditions shall be made at no additional expense to Owner.
2. Contractor shall make electrical connections to the irrigation controller. Electrical power source to controller locations shall be provided by others.
3. Contractor shall make electrical connections to the irrigation controller. 230-volt single-phase electrical power source to pump assembly location shall be provided by others per NEC codes.



### **26.7.2 Trenching**

- A. Excavations shall be straight with vertical sides, even grade, and support pipe continuously on bottom of trench. Trenching excavation shall follow layout indicated on drawings to the depths below finished grade and as noted. Where lines occur under paved area, these dimensions shall be considered below subgrade.
- B. Provide minimum cover of 18 inches on pressure supply lines 2 ½ inches and smaller.
- C. Provide minimum cover of 18 inches for control wires within planters.
- D. Provide minimum cover of 24 inches for control wires within sleeves below paving.
- E. Provide minimum cover of 36 inches on pressure supply lines under vehicular travel ways.
- F. Provide minimum cover of 12 inches for non-pressure lines.
- G. Pipes installed in a common trench shall have a 4-inch minimum space between pipes.

### **26.7.3 Thrust Blocks**

- A. Thrust blocks must be constructed of Class "B" concrete.
- B. Thrust blocks shall be poured against undisturbed site soil.
- C. PVC fitting joints shall be kept free of concrete. Do not encase fitting in concrete.
- D. Thrust blocking shall be sized to provide the minimum bearing areas as shown below. Bearing areas indicated have been calculated for Class 200 PVC pipe at a test pressure of 150 PSI in soil with 2,000 PSI bearing capacity. Increase thrust block sizing as necessary for varying soil conditions.
  - 1. Provide a minimum thrust block bearing area of 2.0 square feet on all bends (all degrees) and tees installed on pressure supply lines 4 inches and smaller.

### **26.7.4 Backfill**

- A. Backfill material on all lines shall be the same as adjacent soil free of debris, litter, and rocks over 1/2 inches in diameter.
- B. Backfill shall be tamped in 6-inch layers under the pipe and uniformly on both sides for the full width of the trench and the full length of the pipe. Backfill materials shall be sufficiently damp to permit thorough compaction, free of voids. Backfill shall be compacted to dry density equal to adjacent undisturbed soil and shall conform to adjacent grades.

- C. Flooding in lieu of tamping is not allowed.
- D. Under no circumstances shall truck wheels be used to compact backfill.
- E. Provide sand backfill a minimum of 6 inches over and under all piping under paved areas.

#### **26.7.5 Piping**

- A. Piping under existing pavement may be installed by jacking, boring, or hydraulic driving. No hydraulic driving is permitted under asphalt pavement.
- B. Cutting or breaking of existing pavement is not permitted.
- C. Carefully inspect all pipe and fittings before installation, removing dirt, scale, burrs, and reaming. Install pipe with all markings up for visual inspection and verification.
- D. Remove all dented and damaged pipe sections.
- E. All lines shall have a minimum clearance of 4 inches from each other and 12 inches from lines of other trades.
- F. Parallel lines shall not be installed directly over each other.
- G. In solvent welding, use only the specified primer and solvent cement and make all joints in strict accordance with the manufacturer's recommended methods including wiping all excess solvent from each weld. Allow solvent welds at least 15 minutes setup time before moving or handling and 24 hours curing time before filling.
- H. PVC pipe shall be installed in a manner, which will provide for expansion and contraction as recommended by the pipe manufacturer.
- I. Center load all plastic pipe prior to pressure testing.
- J. All threaded plastic-to-plastic connections shall be assembled using Teflon tape or Teflon paste.
- K. For plastic-to-metal connections, work the metal connections first. Use a non-hardening pipe dope on all threaded plastic-to-metal connections, except where noted otherwise. All plastic-to-metal connections shall be made with plastic male adapters.

#### **26.7.6 Controller**

- A. The exact location of the controller shall be approved by the Owner's authorized representative before installation. The electrical service shall be coordinated with this location.
- B. The Irrigation Contractor shall be responsible for the final electrical hook up to the irrigation controller.

- C. The irrigation system shall be programmed to operate during the periods of minimal use of the design area.

#### **26.7.7 Controller Wiring**

- A. Low voltage control wiring shall occupy the same trench and shall be installed along the same route as the pressure supply lines whenever possible.
- B. Where more than one wire is placed in a trench, the wiring shall be taped together in a bundle at intervals of 10 feet. Bundle shall be secured to the mainline with tape at intervals of 20 feet.
- C. All connections shall be of an approved type and shall occur in a valve box. Provide an 18-inch service loop at each connection.
- D. An expansion loop of 12 inches shall be provided at each wire connection and/or directional change, and one of 24 inches shall be provided at each remote control valve.
- E. A continuous run of wire shall be used between a controller and each remote control valve. Under no circumstances shall splices be used without prior approval.

#### **26.7.8 Valves**

- A. Automatic control valves, quick coupler, and ball valves are to be installed in the approximate locations indicated on the drawings.
- B. Valve shall be installed in shrub areas whenever possible.
- C. Install all valves as indicated in the detail drawings.
- D. Valves to be installed in valve boxes shall be installed one valve per box.
- E. Provide valve ID tags for each remote control valve with valve number.

#### **26.7.9 Valve Boxes**

- A. Valve boxes shall be installed in shrub areas whenever possible.
- B. Each valve box shall be installed on a foundation of 3/4 inch gravel backfill, 3 cubic feet minimum. Valve boxes shall be installed with their tops 1/2 inch above the surface of surrounding finish grade in lawn areas and 2 inches above finish grade in ground cover areas.

#### **26.7.10 Irrigation Heads and Point Source Drip Emitters**

- A. Irrigation heads and drip point source emitters be installed as indicated on the drawings.

#### **26.7.11 Backflow Prevention Units**

- A. Backflow Prevention Units shall be installed as indicated on the drawings. The backflow prevention unit shall be installed in accordance with the requirements set forth by local codes.
- B. The exact location of the backflow device shall be approved by the owner's authorized representative before installation.
- C. The contractor shall be responsible for the testing and certification of the backflow device for proper operation. Testing and certification shall be performed by a state qualified backflow tester.

#### **26.7.12 Miscellaneous Equipment**

- A. Install all assemblies specified herein according to the respective detail drawings or specifications, using best standard practices.
- B. Quick coupler valves shall be set approximately 18 inches from walks, curbs, header boards, or paved areas where applicable.
- C. Install devices such as rain sensors, flush valves, air relief valves, master valves, and flow sensors as indicated on the drawings and as recommended by the manufacturer.

#### **26.7.13 Flushing the System**

- A. Prior to installation of irrigation heads, the valves shall be opened and a full head of water used to flush out the lines and risers.
- B. Irrigation heads shall be installed after flushing the system has been completed.

#### **26.7.14 Adjusting the System**

- A. Contractor shall adjust valves, align heads, and check the coverage of each system prior to coverage test.
- B. If it is determined by the Landscape Architect or Owner's authorized representative that additional adjustments or nozzle changes will be required to provide proper coverage, all necessary changes or adjustments shall be made prior to any planting.
- C. The entire system shall be operating properly before any planting operations commence.
- D. Automatic control valves are to be adjusted so that the irrigation heads and point source drip emitters at the pressure recommended by the manufacturer.

#### **26.7.15 Testing and observation**

- A. Do not allow or cause any of the work of this section to be covered up or enclosed until it has been observed, tested and accepted by the Owner's Representative.

- B. The Contractor shall be solely responsible for notifying the Owner's Representative, a minimum of 48 hours in advance, where and when the work is ready for testing.
- C. When the sprinkler system is completed, the Contractor shall perform a coverage test of each system in its entirety to determine if the water coverage for the planted areas is complete and adequate in the presence of the Landscape Architect.
- D. The Contractor shall furnish all materials and perform all work required to correct any inadequacies of coverage due to deviations from the plans, or where the system has been willfully installed as indicated on the drawings when it is obviously inadequate, without bringing this to the attention of the Landscape Architect. This test shall be accepted by the Landscape Architect and accomplished before starting any planting.
- E. Areas to be maintained for the formal maintenance period shall start maintenance at the same time, as directed by the Owner's Representative. Partial areas will not be released into maintenance prior to completion of items listed in the pre-maintenance review. The maintenance period may not be phased.
- F. If, after the maintenance review, the irrigation systems are not accepted by the Landscape Architect, the contractor shall reimburse the Architect for additional site visits, or additional time required to review work. All additional time will be billed at the Owner's hourly rate and will be paid for by the contractor at no additional cost to the owner.
- G. Final inspection will not commence without record drawings as prepared by the Irrigation Contractor.

#### **26.7.16 Maintenance**

During the maintenance period the Contractor shall adjust and maintain the irrigation system in a fully operational condition providing complete irrigation coverage to all intended plantings.

#### **26.7.17 Completion Cleaning**

Clean up shall be made as each portion of the work progresses. Refuse and excess dirt shall be removed from the site, all walks and paving shall be swept, and any damage sustained on the work of others shall be repaired to original conditions.

**END OF SECTION**

**Appendix A**

**CALIFORNIA STATE**

**GENERAL PREVAILING WAGE RATES**

**THE CONTRACTOR SHALL CHECK WITHIN 10 DAYS OF  
THE BID OPENING THE LATEST WAGE RATES**

**Appendix B**  
**FEDERAL PREVAILING WAGE**

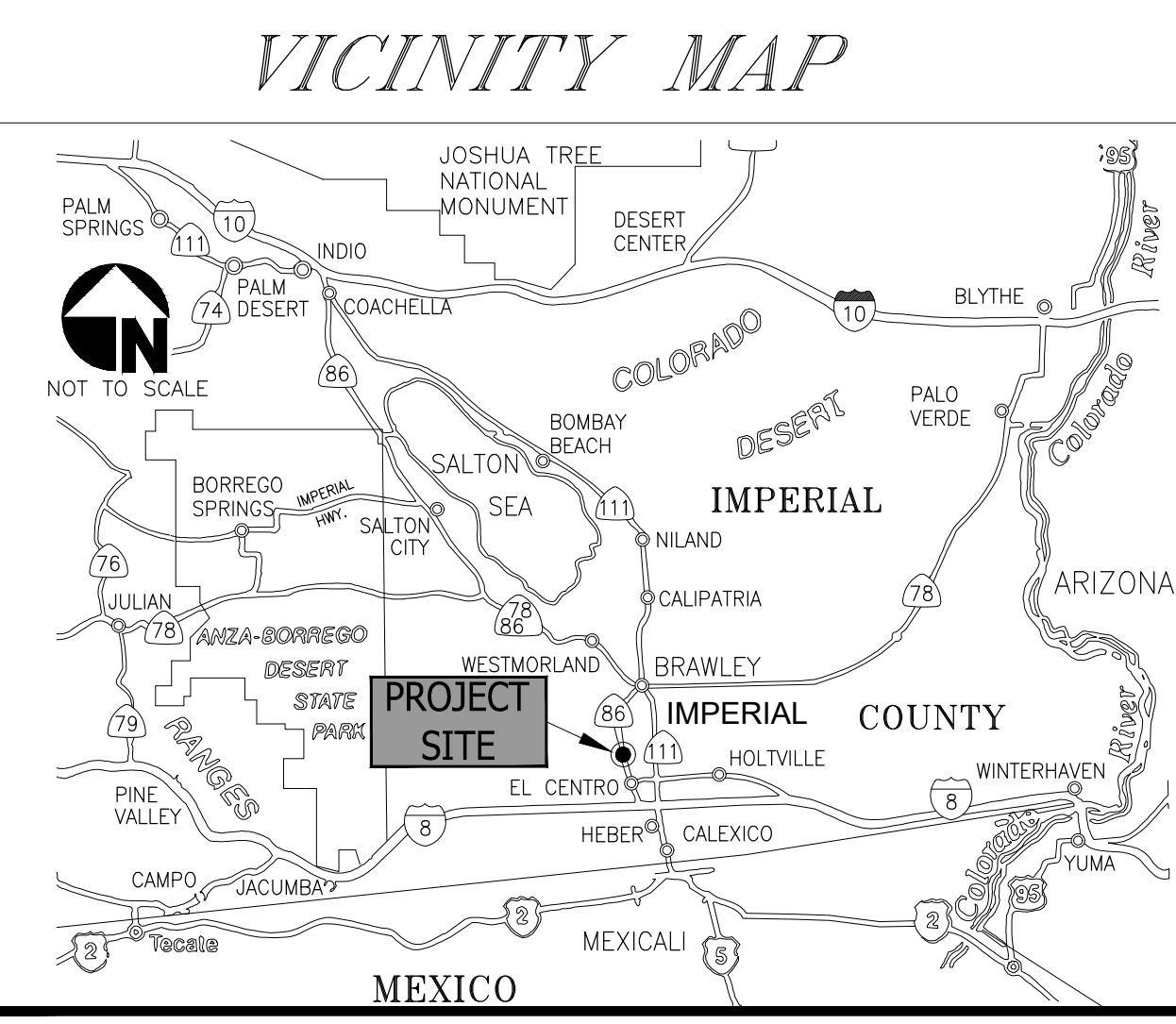
**APPENDIX C**  
**CONSTRUCTION PROJECT PLANS**



# CITY OF IMPERIAL - AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1 PROJECT

## IN THE CITY OF IMPERIAL, CALIFORNIA

JULY 2024



### PROJECT INFORMATION

**OWNER**  
 CITY OF IMPERIAL  
 420 S. IMPERIAL AVE.  
 IMPERIAL, CA 92251  
 TEL. 760-355-4373

**ENGINEER**  
 CR ASSOCIATES  
 3900 FIFTH AVENUE, SUITE 310  
 SAN DIEGO, CA 92103  
 TEL. (619) 795-6086

### AGENCY CONTACTS

**CITY OF IMPERIAL**  
 OTHON MORA, MCM, CBO  
 COMMUNITY DEVELOPMENT DIRECTOR  
 400 S. IMPERIAL AVE, STE 101  
 IMPERIAL, CA 92251  
 PHONE: 760-355-1152

**JESUS VILLEGAS**  
 ENGINEERING DEPARTMENT  
 400 S. IMPERIAL AVE, STE 101  
 IMPERIAL, CA 92251  
 PHONE: 760-355-3840

**GAS COMPANY**  
 GERARDO TABARES  
 PLANNING & ENGINEERING, SOUTHEAST REGION/REDLANDS  
 1981 WEST LUGONIA  
 REDLANDS, CA 92374-9796  
 PHONE: 213-231-1840

**AT&T**  
 ABIGAIL BECKER  
 AT&T ENGINEERING  
 855 COPLAY DRIVE  
 SAN DIEGO, CA 92121  
 PHONE: 858-368-3148

**IMPERIAL IRRIGATION DISTRICT**  
 ESAU PEREZ  
 ENGINEERING AID II  
 333 E. BARIONI BLVD.  
 IMPERIAL, CA 92251  
 PHONE: 760-339-9274

### CITY COUNCIL

|                     |                |
|---------------------|----------------|
| ROBERT AMPARANO     | MAYOR          |
| JAMES TUCKER        | MAYOR PRO-TEM  |
| KATHERINE BURNWORTH | COUNCIL MEMBER |
| STACY MENDOZA       | COUNCIL MEMBER |
| IDA OBESO-MARTINEZ  | COUNCIL MEMBER |

**NOTE TO CONTRACTOR**  
 CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

**ENGINEER'S NOTE TO CONTRACTOR**  
 THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS.

### STREET IMPROVEMENT GENERAL NOTES

- APPROVALS:** ALL WORK PERFORMED AND MATERIAL FURNISHED FOR COMPLETION OF IMPROVEMENTS CALLED FOR ON THESE DRAWINGS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF AUTHORIZED REPRESENTATIVES OF THE CITY AND DEVELOPER AND SHALL NOT BE COVERED, BURIED, OR OTHERWISE CONCEALED UNTIL SUCH HAS BEEN SO INSPECTED AND APPROVED. ALL UNDERGROUND CONDUIT AND APPURTENANCES FOR ELECTRICAL POWER, TELEPHONE AND CABLE TELEVISIONS SYSTEM SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF AUTHORIZED REPRESENTATIVES OF THE SERVING UTILITIES. ALL EARTHWORKS SHALL BE SUBJECT TO INSPECTION, TESTING AND APPROVAL OF THE SOILS TESTING FIRM THAT FURNISHED THE SOILS REPORT REFERENCED WITHIN THESE DRAWINGS. EACH SUBCONTRACTOR SHALL GIVE THE INSPECTING AUTHORITY NO LESS THAN 24 HOUR NOTICE OF HIS NEED FOR INSPECTION OR TESTING.
- SITE CONDITIONS:** EACH SUBCONTRACTOR DOING WORK ON THIS PROJECT SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE SAFETY OF ALL PERSONS AND PROPERTY WITHIN HIS WORK AREA, DAY AND NIGHT, DURING BOTH WORKING AND NONWORKING HOURS; AND SHALL PROVIDE BARRICADES, SHORING, FLAG MEN, SIGNS, LIGHTING, AND OTHER DEVICES REQUIRED THEREFORE.
- STANDARD SPECIFICATIONS:** THE STANDARD SPECIFICATIONS REFERENCED IN THESE SPECIFICATION SHALL BE THOSE OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) DATED JULY 2023. COPIES OF SUCH ARE OBTAINABLE FROM: CALTRANS, CENTRAL PUBLICATION DISTRIBUTION UNIT, 1900 ROYAL OAKS DRIVE, SACRAMENTO, CA 95815-3800. ALL THE WORK SHOWN OR CALLED FOR ON THESE DRAWING SHALL CONFORM TO THESE SPECIFICATIONS REFERENCED HEREIN, INCLUDING THOSE OTHER SECTIONS AND ASTM, AWWA, AND AASHTO STANDARDS THEREIN REFERENCED.
- UNDERGROUND CONDUIT:** PLANS, DETAILS AND SPECIFICATIONS FOR CONSTRUCTION OF UNDERGROUND CONDUIT AND APPURTENANCES FOR THE ELECTRICAL POWER, TELEPHONE AND CABLE TELEVISIONS SYSTEM HAVE BEEN PREPARED BY OR IN ACCORDANCE WITH THE REQUIREMENTS AND APPROVALS OF THE SERVING UTILITY COMPANIES. ALL SUCH WORK SHALL CONFORM TO THOSE REFERENCED DOCUMENTS TO SAME EXTENT AS IF THEY WERE SHOWN, DETAILED AND SPECIFIED WITH THESE DRAWINGS AND RELATED DOCUMENTS. QUESTIONS REGARDING DESIGN AND DETAILS OF SUCH WORK SHALL BE DIRECTED TO THE UTILITY INVOLVED THEREWITH.
- TRAFFIC CONTROL:** EACH SUBCONTRACTOR SHALL PROVIDE TRAFFIC CONTROL SIGNS, LIGHTS, FLAG MEN, AND OTHER DEVICES NECESSARY TO PROTECT HIS WORK AND EXCAVATIONS AND TO PROTECT VEHICULAR AND PEDESTRIAN TRAFFIC PASSING THROUGH OR NEAR THE WORK AREA IN ACCORDANCE WITH THE "MANUAL OF TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE WORKS ZONES", AS PUBLISHED BY THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS). COPIES OF SAID MANUAL MAY BE OBTAINED FROM THAT ADDRESS REFERENCED IN SECTION C.
- TESTING:** EACH SUBCONTRACTOR SHALL INCLUDE AS A PART OF HIS WORK ALL TESTING OF MATERIAL AND WORKMANSHIP REQUIRED BY THE CITY AND OTHER AGENCIES AND UTILITIES HAVING JURISDICTION OVER THE WORK. TESTING SHALL BE BY AN INDEPENDENT LABORATORY APPROVED BY THAT AGENCY OR UTILITY REQUIRING SAME, EXCEPT ALL TRENCH BACK FILL, INCLUDING COMPACTION OF SAME, SHALL BE TESTED BY THAT FIRM WHICH FURNISHED THE SOILS REPORT REFERENCED FOR EARTHWORK WITHIN THE DRAWINGS. COPIES OF ALL TEST REPORTS SHALL BE PROVIDED TO THE CITY AND OTHER AGENCIES AND UTILITIES REQUIRING TESTS. MATERIALS AND WORKMANSHIP FOUND DEFICIENT SHALL BE REMOVED, REPAIRED OR OTHERWISE CORRECTED TO THE SATISFACTION OF THE GOVERNING AGENCY OR UTILITY AND THE DEVELOPER.
- TRENCH SAFETY:** EACH SUBCONTRACTOR SHALL PROVIDE SHORING, SHEETING, SHIELDS AND EXCAVATED SLOPES IN TRENCH EXCAVATIONS CONFORMING TO THE REQUIREMENTS OF THE CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT (CAL/OSHA) AS ADMINISTERED BY THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS AND DEPICTED IN THE "TRENCH AND EXCAVATIONS SAFETY GUIDE" AVAILABLE FROM CAL/OSHA COMMUNICATIONS, 1515 CLAY STREET, SUITE 1901 OAKLAND, CA 94612.
- CERTIFICATES OF COMPLIANCE:** SUBCONTRACTORS DOING CONCRETE AND PAVING ITEMS OF WORK SHALL PROVIDE WRITTEN AND SIGNED CERTIFICATIONS FROM CONCRETE AND PAVING SUPPLIES CERTIFYING THAT ALL MATERIALS SUPPLIED BY HIM TO PROJECT COMPLY WITH THESE SPECIFICATIONS. CERTIFICATES SHALL BE APPROVED OF FORM AND CONTENT, SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE PRODUCT SUPPLIES AND ENDORSED BY THE SUBCONTRACTOR INSTALLING THE PRODUCT. WET SIGNED COPIES OF SAID CERTIFICATES SHALL BE FURNISHED TO THE CITY AND DEVELOPER IMMEDIATELY UPON COMPLETION OF THE WORK.
- ENCROACHMENT PERMIT CONDITIONS AND PROVISIONS** SHALL TAKE PRECEDENCE OVER THE APPROVE PLANS AND SPECIFICATIONS.
- PRE-CAST CONCRETE:** WHERE IN THE DRAWINGS REINFORCED CAST-IN-PLACE CONCRETE STRUCTURES ARE SHOWN OR DETAILED, PRE-CAST CONCRETE STRUCTURES MAY BE USED IN THEIR PLACE. PRE-CAST STRUCTURES SHALL BE OF EQUAL QUALITY, SIZE AND DESIGN TO THAT SHOWN OR DETAILED AND SHALL BE SUBJECT TO THE REVIEW AND ACCEPTANCE OF THE CITY OR UTILITY PRIOR TO DELIVERY TO PROJECT SITE. NO LESS THAN THREE COPIES OF THE DETAILS AND SPECIFICATIONS FOR THE PRE-CAST STRUCTURES SHALL BE PROVIDED FOR REVIEW, COMMENTS OR APPROVAL.
- PRE CONSTRUCTION:** A PRE CONSTRUCTION MEETING SHALL BE HELD INCLUDING REPRESENTATIVES OF THE CITY, DEVELOPER AND ALL PARTIES DOING WORK PURSUANT TO THE DRAWINGS; AT SAID MEETING, THE NAME OF ALL PARTIES, THEIR ADDRESSES AND PHONE NUMBERS SHALL BE PROVIDED ALONG WITH ESTIMATED DATES WHEN EACH TYPE OF WORK WILL BE UNDER WAY. OTHER DATA RELATIVE TO LICENSE NUMBERS, CONTRACTORS INSURANCE MAY ALSO BE REQUIRED FROM EACH SUBCONTRACTOR DOING WORK ON THE PROJECT. NO LESS THAN 3 DAYS NOTICE WILL BE GIVEN FOR SAID MEETING.

- DESIGN MIXES:** SUBCONTRACTORS PROVIDING ASPHALTIC CONCRETE PAVING, BASE AGGREGATE AND ANY KIND OF PORTLAND CEMENT CONCRETE REQUIRED FOR THRUST BLOCK, POST FOOTINGS AND PIPELINE ENCASEMENTS, SHALL BE THE PRODUCT OF AN INDIVIDUAL QUALIFIED AND LICENSED TO PROVIDE SUCH SERVICES AND WHEN APPROVED BY THE CITY, SHALL BECOME A REQUIREMENT OF THESE SPECIFICATIONS TO THE SAME EXTENT AS IF FULLY SET OUT HEREIN.
  - EXISTING UTILITIES:** UTILITIES SHOWN ON THE PLANS SHOULD BE LOCATED WITH AS MUCH CARE AS POSSIBLE WITH THE AID OF AVAILABLE RECORDS. HOWEVER THE LOCATIONS SHOWN MUST BE CONSIDERED APPROXIMATE ONLY. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL UTILITY COMPANIES AND SHALL LOCATE ALL LINES ACCURATELY BY EXCAVATION AND MEASUREMENT. PRIOR TO ANY EXCAVATION THE CONTRACTOR SHALL CALL THE 1-800-422-4133 ALERT NUMBER.
- UTILITIES COORDINATION**
- CITY OF IMPERIAL (760) 427-4238
  - IMPERIAL IRRIGATION DISTRICT (POWER) (800) 303-7756
  - IMPERIAL IRRIGATION DISTRICT (WATER) (760) 339-9169
  - SOUTHERN CALIFORNIA GAS COMPANY (800) 423-1391
  - AT & T (510) 645-2929
  - SPECTRUM (260) 335-4818
- SAFETY:** THE CONTRACTOR SHALL PROVIDE ALL MEANS AND DEVICES NECESSARY AND/OR REQUIRED TO PROTECT HIS EMPLOYEES AND ALL OTHERS FROM INJURY OR DAMAGE INCLUDING BUT NOT LIMITED TO: TRENCH, SHORING, TRAFFIC BARRICADES, LIGHTING, FLAGMEN, WARNING DEVICES, JOB COORDINATION AND SUPERVISION. ALL COORDINATION, EQUIPMENT, AND OTHER LABOR REQUIRED FOR DETOUR SHALL BE PROVIDED BY THE CONTRACTOR.
  - THE STRUCTURAL SECTION** SHALL BE IN ACCORDANCE WITH THE CITY OF IMPERIAL STANDARDS OR COUNTY OF IMPERIAL DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN GUIDELINES ADDITIONAL NOTES ARE DESIGNED AS "SPECIFIC CONDITIONS NOTES" IF IN COUNTY RIGHT-OF-WAY AND AS APPROVED BY THE PUBLIC WORKS DIRECTOR.
  - PRIOR TO ANY DEMOLITION OR EXCAVATION** FOR THIS CONTRACT, CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS HAS BEEN OBTAINED FROM AVAILABLE RECORDS ONLY AND MAY NOT REFLECT ALL EXISTING UTILITIES. LOCATION OF ALL EXISTING UTILITIES SHALL BE CONFIRMED BY FIELD MEASUREMENTS AND POTHOLING BY CONTRACTOR PRIOR TO CONSTRUCTION OF WORK. CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN HEREON AND ANY OTHER EXISTING LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. ACCURATE VERIFICATION AS TO SIZE, LOCATION AND DEPTH OF EXISTING UNDERGROUND SERVICES SHALL BE THE CONTRACTORS RESPONSIBILITY. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITY AGENCIES PRIOR TO STARTING HIS WORK WITH UTILITY REPRESENTATIVES. FOR LOCATION OF UNDERGROUND UTILITIES AND APPURTENANCES, CONTACT "UNDERGROUND SERVICE ALERT": AT 1-800 422 4133
  - LOCATION AND ELEVATION** OF IMPROVEMENTS TO BE MET BY WORK TO BE DONE SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF NEW WORK. CONTRACTOR WILL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES.
  - CONSTRUCT** A PUBLIC STREET LIGHT SYSTEM CONFORMING TO APPROPRIATE STANDARDS AND STREET LIGHT SPECIFICATIONS. POWER SOURCES AND RUNS SHALL BE SHOWN ON THE "AS-BUILT" IMPROVEMENT DRAWINGS. ALL POWER SOURCES SHALL BE LOCATED WITHIN THE DEDICATED RIGHT-OF-WAY
  - NO PAVING** SHALL BE DONE UNTIL EXISTING POWER POLES ARE RELOCATED OUTSIDE THE AREAS TO BE PAVED.
  - CONTRACTOR** SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ANY STRIPING, PAVEMENT MARKERS, OR LEGENDS OBLITERATED BY THE CONSTRUCTION OF THIS PROJECT.
  - ALL UNDERGROUND UTILITIES** WITHIN THE STREET RIGHT-OF-WAY SHALL BE CONSTRUCTED, CONNECTED AND TESTED PRIOR TO CONSTRUCTION OF BERM, CURB, CROSS-GUTTER AND PAVING.
  - ALL SIGNS** TO BE ALUMINUM WITH 3M HIGH INTENSITY TYPE REFLECTIVE FACE OR EQUIVALENT
  - ANY EXISTING SURVEY MONUMENTS** OR CITY RECOGNIZED BENCHMARKS SHALL BE PROTECTED BY THE CONTRACTOR. SHOULD ANY SUCH MONUMENTS OR BENCHMARKS BE REMOVED, DAMAGED, OBLITERATED OR ALTERED BY THE CONTRACTORS OPERATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER RESETTING OF THE SAME AS PER THE SUBDIVISION MAP ACT, THE PROFESSIONAL LAND SURVEYORS ACT AND TO THE SATISFACTION OF THE CITY OF IMPERIAL CITY ENGINEER/PUBLIC SERVICES DIRECTOR. SUCH POINTS SHALL BE REFERENCED AND REPLACED WITH APPROPRIATE MONUMENTATION BY A LICENSED LAND SURVEYOR OR A REGISTERED CIVIL ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE SHALL BE FILED BY THE LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER

### DEMOLITION NOTES

- PRIOR TO THE REMOVAL** OF ANY PRIVATE IMPROVEMENTS (INCLUDING LANDSCAPING AND IRRIGATION) THE CONTRACTOR SHALL OBTAIN APPROVAL FOR THE REMOVAL FOR THE CITY ENGINEER. CONTRACTOR SHALL COORDINATE WITH THE CITY ENGINEER FOR SITE INSPECTION OF THE IMPROVEMENTS PLANNED FOR REMOVAL. THE LIMITS OF REMOVAL SHALL BE ADJUSTED AS DIRECTED BY THE CITY ENGINEER.
- ALL PRIVATE IMPROVEMENTS** OUTSIDE OF THE PUBLIC RIGHT OF WAY REMOVED TO FACILITATE THE CONSTRUCTION OF THE NEW IMPROVEMENTS SHALL BE REPLACED IN-KIND BY THE CONTRACTOR.
- THE LIMITS OF REMOVAL** SHOWN ON THE PLANS FOR PRIVATE CONCRETE DRIVEWAYS AND WALKWAYS ARE APPROXIMATE. THE ACTUAL LIMITS SHALL BE EXTENDED, WHERE NEEDED, TO EXISTING CONSTRUCTION JOINTS WHEN THE LIMITS SHOWN ON THE PLANS FALL WITHIN 5' OF THE EXISTING CONSTRUCTION JOINT. CONTRACTOR SHALL REVIEW THE PROPOSED LIMITS OF PRIVATE CONCRETE DRIVEWAY AND WALKWAY REMOVALS WITH THE CITY ENGINEER PRIOR TO THE WORK BEING DONE. DRIVEWAY PROFILES SHALL BE ADJUSTED ACCORDINGLY.
- VERIFY THAT ANY UTILITIES** SHOWN TO BE RELOCATED BY OTHERS HAVE BEEN RELOCATED AND NO LONGER IN CONFLICT.

### ABBREVIATIONS

|       |                                   |      |                                    |      |                |
|-------|-----------------------------------|------|------------------------------------|------|----------------|
| AC    | ASPHALT CONCRETE                  | HMA  | HOT MIX ASPHALT                    | SS   | SANITARY SEWER |
| ADA   | AMERICANS WITH DISABILITY ACT     | IID  | IMPERIAL IRRIGATION DISTRICT       | ST   | STREET         |
| APN   | ASSESSORS PARCEL NUMBER           | LN   | LANE                               | STD  | STANDARD       |
| ARAM  | ASPHALT RUBBER AGGREGATE MEMBRANE | LSCP | LANDSCAPE                          | SDWK | SIDEWALK       |
| ARHM  | ASPHALT RUBBER HOT MIX            | LT   | LEFT                               | STA  | STATION        |
| ASPH  | ASPHALT                           | ME   | MATCH EXISTING                     | TC   | TOP OF CURB    |
| AVE   | AVENUE                            | MH   | MANHOLE                            | TELE | TELECOM        |
| BEG   | BEGIN                             | MIN  | MINIMUM                            | TS   | TRAFFIC SIGNAL |
| BCR   | BEGINNING OF CURB RETURN          | MOD  | MODIFIED                           | TYP  | TYPICAL        |
| BFP   | BACKFLOW PREVENTER                | N    | NORTH                              | WB   | WESTBOUND      |
| BLVD  | BOULEVARD                         | NB   | NORTHBOUND                         | WTR  | WATER          |
| BSW   | BACK OF SIDEWALK                  | NTS  | NOT TO SCALE                       | WM   | WATER METER    |
| C&G   | CURB AND GUTTER                   | O.C. | ON CENTER                          | WV   | WATER VALVE    |
| C/L   | CENTERLINE                        | OHE  | OVERHEAD ELECTRIC                  |      |                |
| CMU   | CONCRETE MASONRY UNIT             | PB   | PULL BOX                           |      |                |
| COMP  | COMPACTED                         | PCC  | PORTLAND CEMENT CONCRETE           |      |                |
| CONC  | CONCRETE                          | PMVT | PAVEMENT                           |      |                |
| DWY   | DRIVEWAY                          | PP   | POWER POLE                         |      |                |
| EB    | EASTBOUND                         | PROP | PROPOSED                           |      |                |
| ECR   | END OF CURB RETURN                | PVC  | POLY VINYL CHLORIDE                |      |                |
| EG    | EXISTING GROUND                   | PVT  | PRIVATE                            |      |                |
| ELEC  | ELECTRICAL                        | RCP  | REINFORCED CONCRETE PIPE           |      |                |
| EOP   | EDGE OF PAVEMENT                  | RD   | ROAD                               |      |                |
| EQUIP | EQUIPMENT                         | RRFB | RECTANGULAR RAPID FLASHING BEACONS |      |                |
| ETW   | EDGE OF TRAVELED WAY              | RSP  | REVISED STANDARD PLANS             |      |                |
| EX    | EXISTING                          | RT   | RIGHT                              |      |                |
| FG    | FINISHED GRADE                    | RW   | RIGHT-OF-WAY                       |      |                |
| FH    | FIRE HYDRANT                      | S    | SOUTH                              |      |                |
| FL    | FLOW LINE                         | SB   | SOUTHBOUND                         |      |                |
| FS    | FINISHED SURFACE                  | SD   | STORM DRAIN                        |      |                |
| GG    | GAP GRADED                        | SL   | STREET LIGHT                       |      |                |

### DECLARATION OR RESPONSIBLE CHARGE

I, BLANCA H. SOTO, HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF IMPERIAL IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR THE PROJECT DESIGN.

By: *Blanca Soto* DATE: 06/21/2024  
 BLANCA H. SOTO  
 R.C.E. 86597  
 EXPIRATION DATE, 03/31/2025

### SHEET INDEX

|       |  |
|-------|--|
| 01    | TITLE SHEET, VICINITY MAP, AND GENERAL NOTES |
| 02    | KEY MAP                                      |
| 03    | CONSTRUCTION DETAILS                         |
| 04    | TYPICAL SECTIONS                             |
| 05-18 | IMPROVEMENT PLANS                            |
| 19    | TRAFFIC SIGNAL PLAN                          |
| 20-27 | SIGNAGE AND STRIPING PLANS                   |
| 28-49 | LANDSCAPE AND IRRIGATION PLANS               |
| 50-52 | CITY OF IMPERIAL STANDARD DRAWINGS           |

| NO. | REVISIONS: | APPROVED | DATE |
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|     |            |          |      |
|     |            |          |      |

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

**CITY OF IMPERIAL**  
 420 South Imperial Avenue  
 Imperial, CA 92251  
 Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
 SEE SHEET 2 FOR BENCHMARK INFORMATION

PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
 BLANCA H. SOTO  
 R.C.E. NO. 86597  
 06/21/2024 DATE  
 03/31/2025 REG. EXP.

APPROVED BY DIRECTOR OF PUBLIC SERVICES  
 CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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Underground Service Alert  
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**COR**  
 3900 Fifth Avenue, Suite 310 • San Diego, CA 92103 • 619.795.6086

SCALE: N/A  
 DRAWN BY: BS  
 REVIEWED BY: RD  
 JUNE 2024

SHEET **01**  
 OF 52 SHEETS  
 JOB NO. CIP#823

| SR 86 CONSTRUCTION GEOMETRIC DATA |          |                      |          |         |           |         |
|-----------------------------------|----------|----------------------|----------|---------|-----------|---------|
|                                   | LENGTH   | LINE/CHORD DIRECTION | R        | T       | DELTA     | REMARKS |
| C2                                | 737.30'  | N04°03'44"E          | 4000.00' | 369.70' | 10°33'40" |         |
| L4                                | 1073.69' | N09°20'34"E          |          |         |           |         |
| C3                                | 676.60'  | N04°29'05"E          | 3990.00' | 339.11' | 9°42'57"  |         |
| L5                                | 3914.85' | N00°22'23"W          |          |         |           |         |

| S IMPERIAL AVE CONSTRUCTION CENTERLINE GEOMETRIC DATA |          |                      |   |   |       |         |
|---|----------|----------------------|---|---|-------|---------|
|   | LENGTH   | LINE/CHORD DIRECTION | R | T | DELTA | REMARKS |
| L20   | 577.88'  | N00°24'22"W          |   |   |       |         |
| L21   | 1700.70' | N00°21'55"W          |   |   |       |         |
| L22   | 329.97'  | N00°19'21"W          |   |   |       |         |
| L23   | 2991.45' | N00°24'50"W          |   |   |       |         |

| W WORTHINGTON RD CONSTRUCTION CENTERLINE GEOMETRIC DATA |          |                      |          |        |          |         |
|---|----------|----------------------|----------|--------|----------|---------|
|   | LENGTH   | LINE/CHORD DIRECTION | R        | T      | DELTA    | REMARKS |
| L30   | 489.53'  | N89°38'09"E          |          |        |          |         |
| L31   | 1300.71' | N89°38'04"E          |          |        |          |         |
| L32   | 304.37'  | N89°38'05"E          |          |        |          |         |
| C30   | 91.31'   | N87°01'08"E          | 1000.00' | 45.69' | 5°13'54" |         |
| L33   | 347.31'  | N84°24'11"E          |          |        |          |         |
| C31   | 91.31'   | N87°01'08"E          | 1000.00' | 45.69' | 5°13'54" |         |
| L34   | 4367.35' | N89°38'05"E          |          |        |          |         |
| L35   | 1908.11' | N89°38'40"E          |          |        |          |         |

| B ST CONSTRUCTION CENTERLINE GEOMETRIC DATA |          |                      |   |   |       |         |
|---|----------|----------------------|---|---|-------|---------|
|   | LENGTH   | LINE/CHORD DIRECTION | R | T | DELTA | REMARKS |
| L40   | 1500.00' | N00°23'55"W          |   |   |       |         |

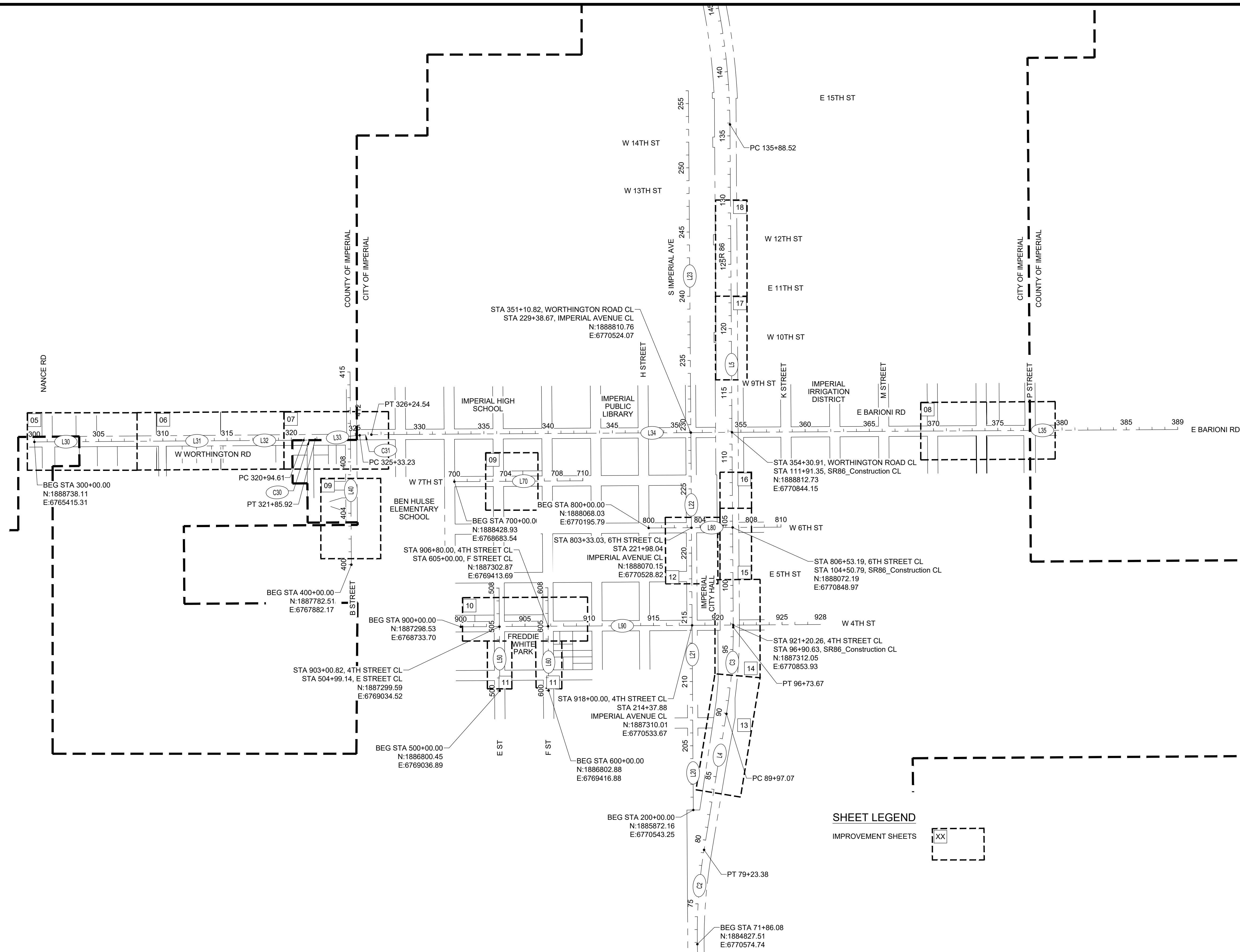
| E ST CONSTRUCTION CENTERLINE GEOMETRIC DATA |         |                      |   |   |       |         |
|---|---------|----------------------|---|---|-------|---------|
|   | LENGTH  | LINE/CHORD DIRECTION | R | T | DELTA | REMARKS |
| L50   | 800.00' | N00°21'55"W          |   |   |       |         |

| F ST CONSTRUCTION CENTERLINE GEOMETRIC DATA |         |                      |   |   |       |         |
|---|---------|----------------------|---|---|-------|---------|
|   | LENGTH  | LINE/CHORD DIRECTION | R | T | DELTA | REMARKS |
| L60   | 800.00' | N00°21'55"W          |   |   |       |         |

| W 7TH ST CONSTRUCTION CENTERLINE GEOMETRIC DATA |          |                      |   |   |       |         |
|---|----------|----------------------|---|---|-------|---------|
|   | LENGTH   | LINE/CHORD DIRECTION | R | T | DELTA | REMARKS |
| L70   | 1000.00' | N89°38'05"E          |   |   |       |         |

| W 6TH ST CONSTRUCTION CENTERLINE GEOMETRIC DATA |          |                      |   |   |       |         |
|---|----------|----------------------|---|---|-------|---------|
|   | LENGTH   | LINE/CHORD DIRECTION | R | T | DELTA | REMARKS |
| L80   | 1030.00' | N89°38'05"E          |   |   |       |         |

| W 4TH ST CONSTRUCTION CENTERLINE GEOMETRIC DATA |          |                      |   |   |       |         |
|---|----------|----------------------|---|---|-------|---------|
|   | LENGTH   | LINE/CHORD DIRECTION | R | T | DELTA | REMARKS |
| L90   | 2800.00' | N89°38'05"E          |   |   |       |         |



**BENCHMARK**

THE STATION MARK IS A STANDARD BENCHMARK DISK SET IN A RETAINING WALL BY THE RAILROAD TRACKS STAMPED "D 1225 1971". THE STATION IS 1.4 MILES SOUTH ALONG THE SOUTHERN PACIFIC COMPANY RAILROAD FROM THE CROSSING OF MAIN STREET AT IMPERIAL, 0.15 MILE NORTH OF THE CROSSING OF ATEN ROAD, AT THE JUNCTION OF A SPUR TRACK SOUTH, IN THE TOP AND 1.0 FOOT SOUTH OF THE NORTH END OF THE EAST CONCRETE HEADWALL OF A 12-INCH PIPE CULVERT UNDER THE SPUR TRACK, 34.0 FEET EAST OF THE EAST RAIL OF THE MAIN TRACK, 9.0 FEET EAST OF THE EAST RAIL OF THE SPUR TRACK, AND ABOUT 1-FOOT LOWER THAN THE MAIN TRACK.

PROJECT ELEVATION: 945.57'

| NO. | REVISIONS: | APPROVED | DATE |
|-----|------------|----------|------|
|     |            |          |      |
|     |            |          |      |

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.



**CITY OF IMPERIAL**  
 420 South Imperial Avenue  
 Imperial, CA 92251  
 Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
 SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
 BLANCA H. SOTO R.C.E. NO. 86597  
 DATE: 06/21/2024 REG. EXP. 03/31/2025

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
 SHEET CONTENT: KEY MAP

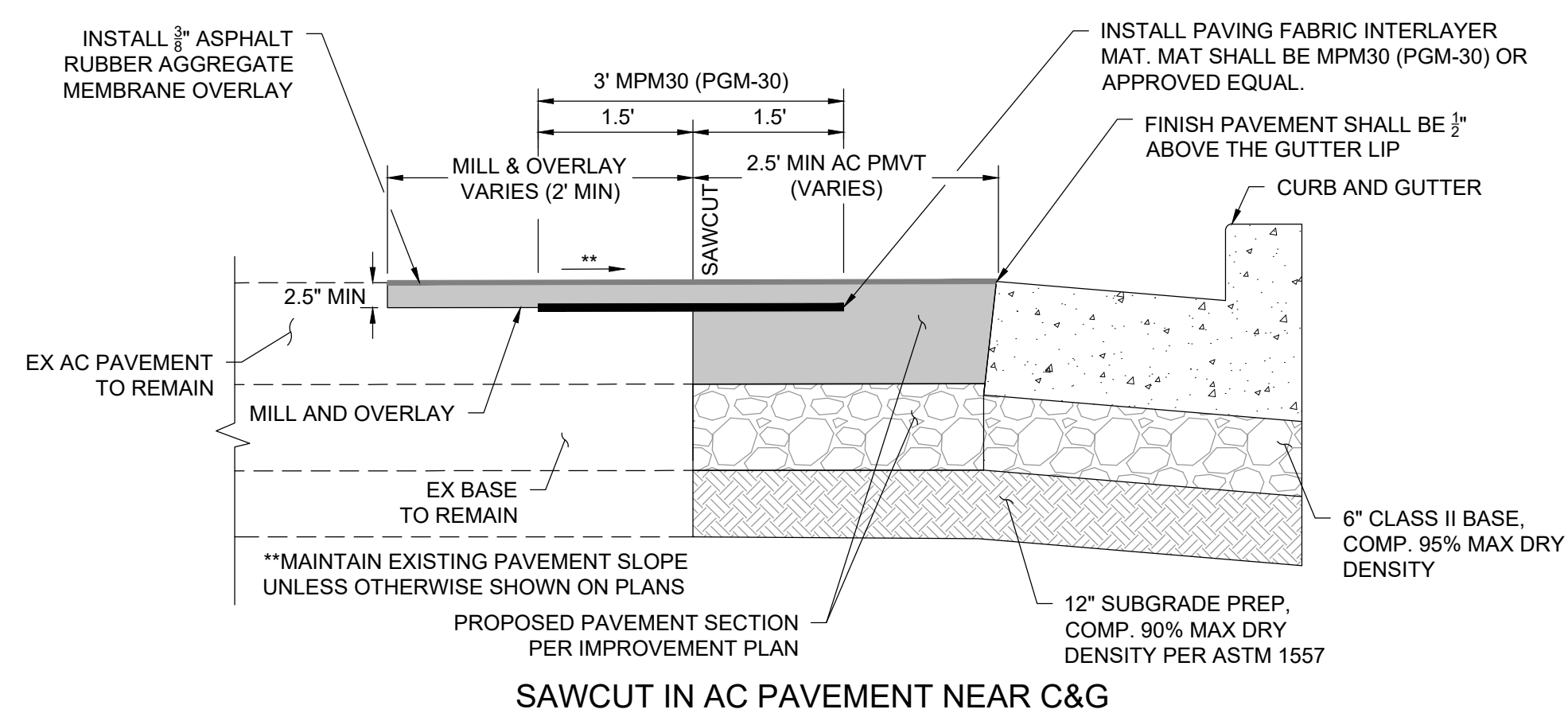
SCALE: N/A  
 DRAWN BY: BS  
 REVIEWED BY: RD  
 SHEET NO. 02 OF 52 SHEETS  
 JOB NO. CIP#823  
 JUNE 2024

APPROVED BY DIRECTOR OF PUBLIC SERVICES  
 CITY OF IMPERIAL, CA  
 BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

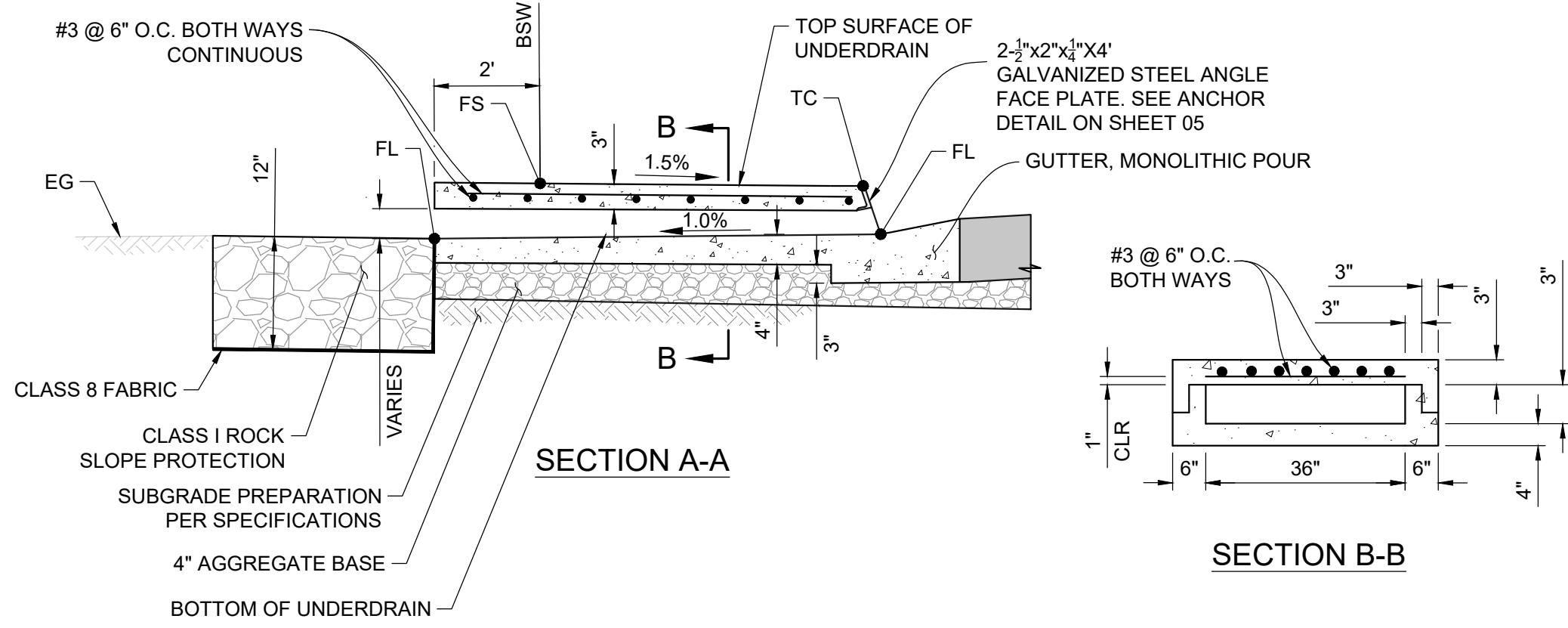
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P:\Projects\2021\Imperial\CD\Drawings\868997.dwg: 06/21/2024 10:50:11 AM



**SAWCUT IN AC PAVEMENT NEAR C&G**

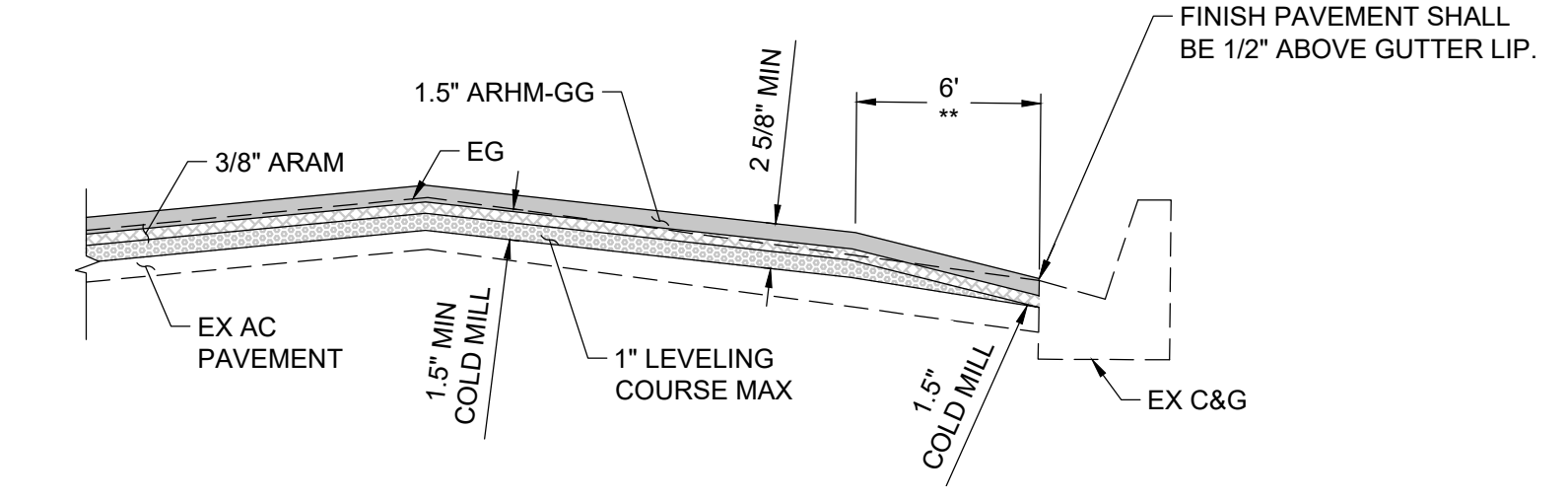


**SECTION A-A**

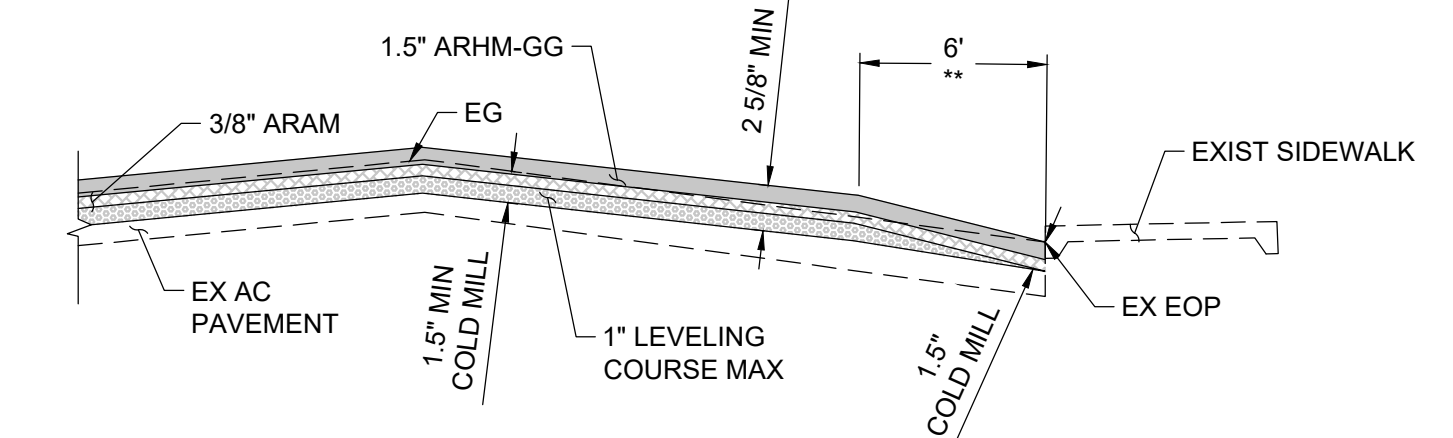
**SECTION B-B**

- NOTES:**
- TROWEL FINISH BOTTOM OF UNDERDRAIN AND TOP SURFACE OF UNDERDRAIN BEYOND THE BACK OF "SIDEWALK" (BSW). TOP SURFACE OF UNDERDRAIN WITHIN THE "SIDEWALK" SHALL MATCH THE ADJACENT SIDEWALK FINISH. PROVIDE A SCORE MARK WITHIN THE TOP OF UNDERDRAIN ALONG THE BACK OF SIDEWALK LINE.
  - MODIFIED SIDEWALK UNDERDRAIN SHALL CONFORM WITH CITY OF IMPERIAL STANDARD DETAIL NO. 407 UNLESS OTHERWISE SHOWN.

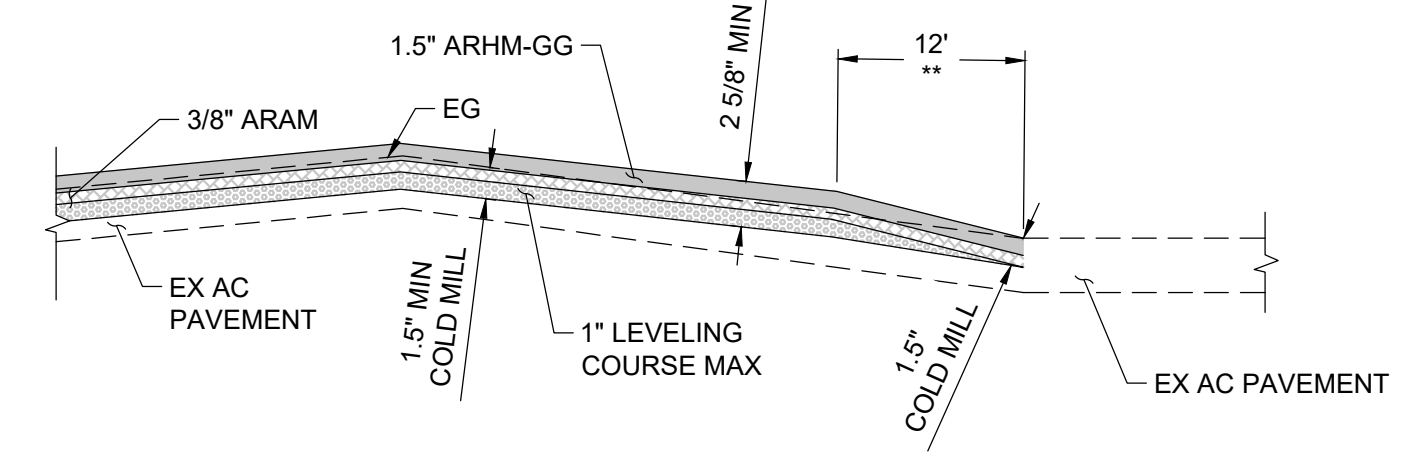
**C MODIFIED SIDEWALK UNDERDRAIN**  
NOT TO SCALE



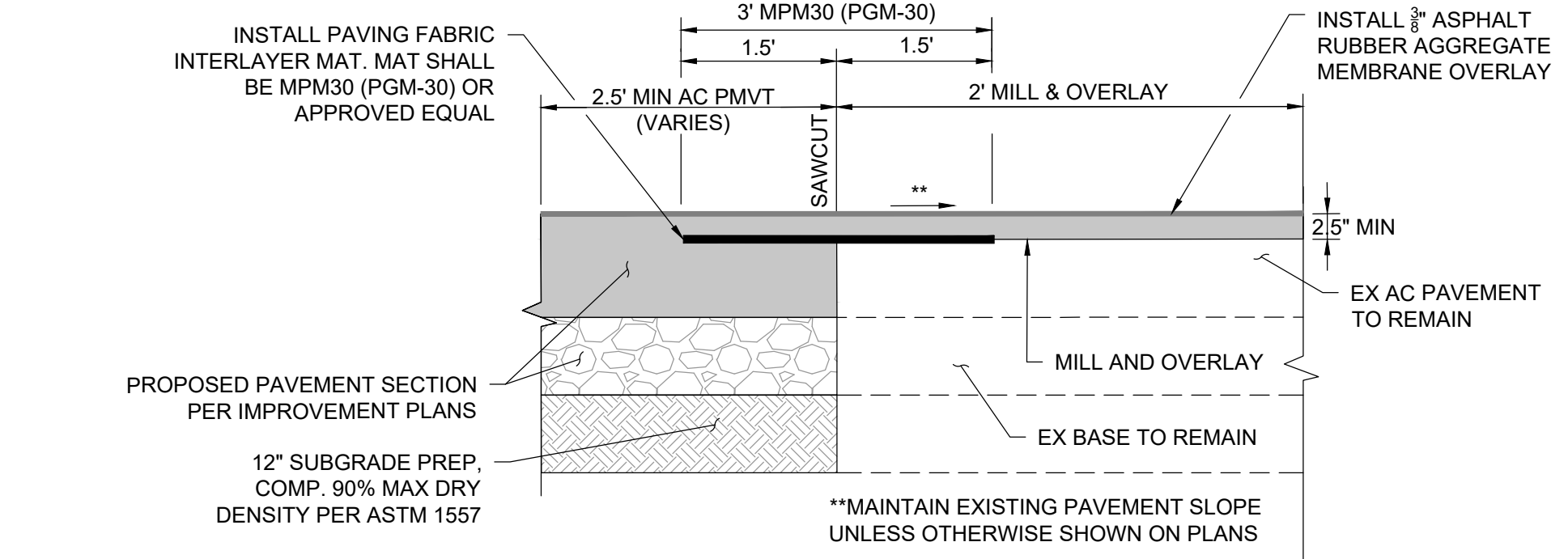
**D MILL AND OVERLAY NEXT TO EXISTING CURB AND GUTTER\*\***  
NOT TO SCALE



**E MILL AND OVERLAY NEXT TO EXISTING SIDEWALK\*\***  
NOT TO SCALE

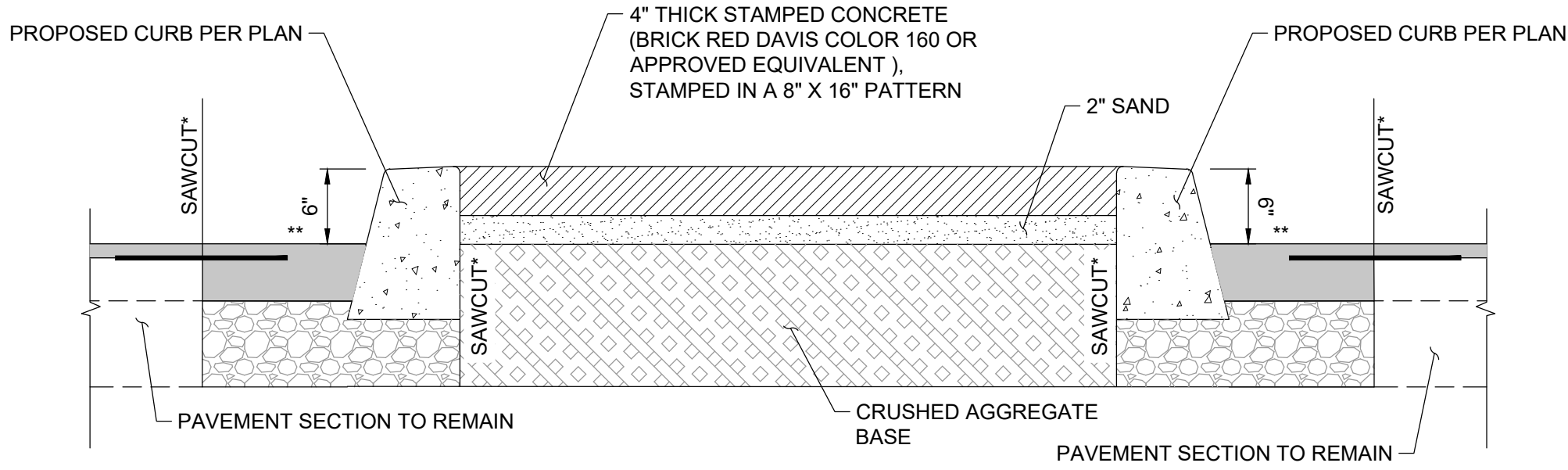


**F MILL AND OVERLAY NEXT TO EXISTING EDGE OF PAVEMENT\*\***  
NOT TO SCALE

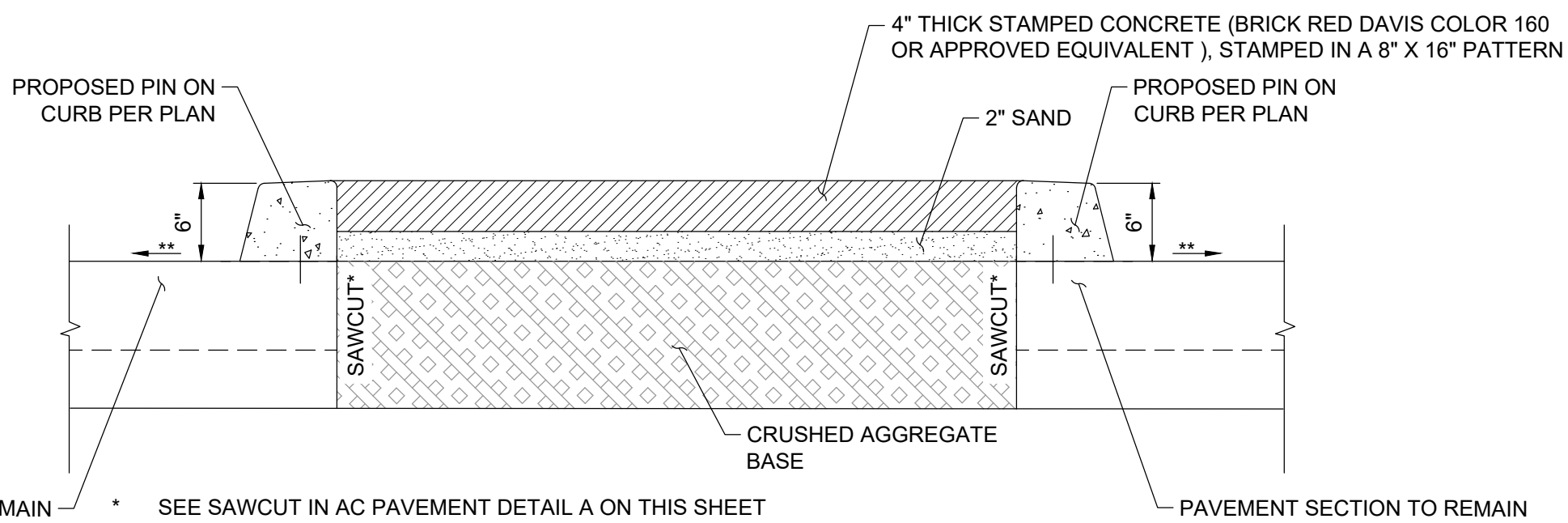


**ROADWAY SAWCUT DETAIL**

**A SAWCUT IN AC PAVEMENT**  
NOT TO SCALE

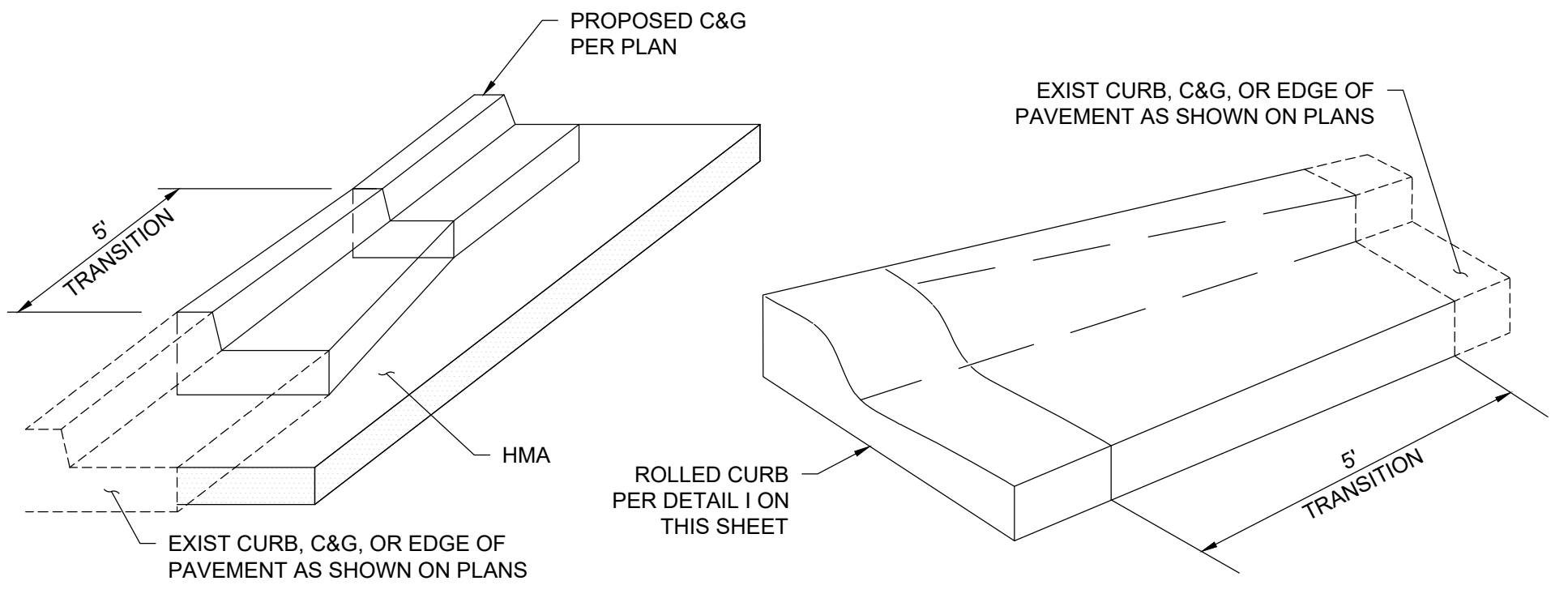


**PCC BARRIER CURB**

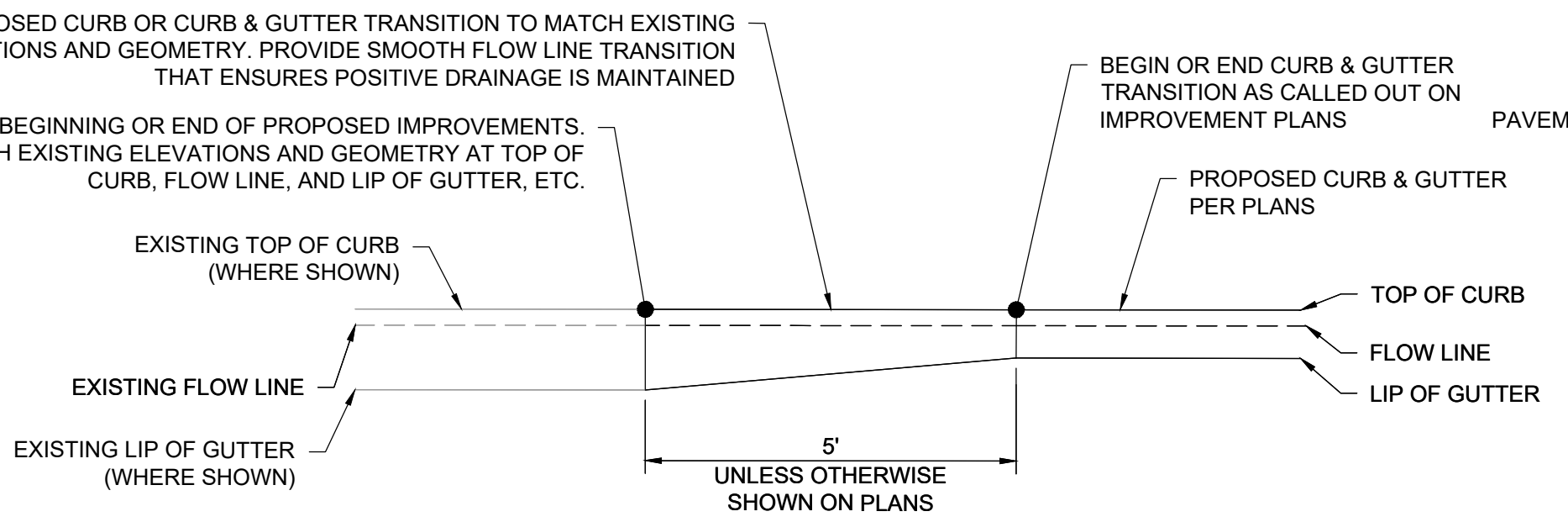


**PIN ON CURB**

**H PCC MEDIAN INFILL**  
NOT TO SCALE



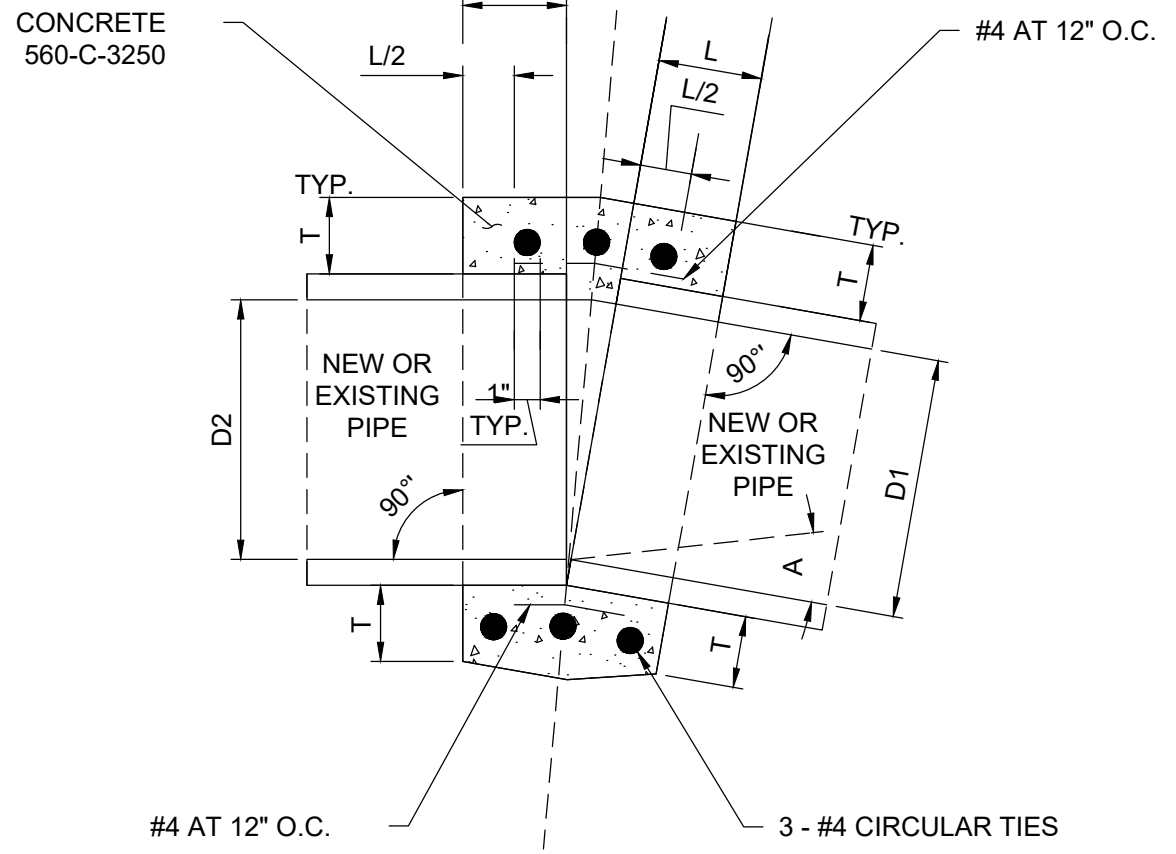
**ROLED CURB**



**B CURB & GUTTER TRANSITION**  
NOT TO SCALE

- NOTES:**
- WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR, L AND T SHALL BE THOSE OF THE LARGER PIPE. D=D1 OR D2 WHICHEVER IS GREATER.
  - OMIT REINFORCING ON PIPES 24" AND LESS IN DIAMETER AND ON ALL PIPES WHERE ANGLE A IS LESS THAN 10°.
  - WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE  $D = (2 \times \text{WALL THICKNESS}) + 8"$ .
  - PIPE MAY BE CORRUGATED METAL PIPE, CONCRETE PIPE OR REINFORCED CONCRETE PIPE.

| D   | L     | T  |
|-----|-------|----|
| 12" | 2'-0" | 6" |
| 18" | 2'-0" | 6" |
| 24" | 2'-0" | 6" |
| 36" | 2'-0" | 8" |



**G PIPE COLLAR DETAIL**  
NOT TO SCALE

**SEE SHEETS 50 - 52 FOR CITY OF IMPERIAL STANDARD DETAILS**

APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.

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422-4133  
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|     |            |          |      |

**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO  
06/21/2024  
DATE

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

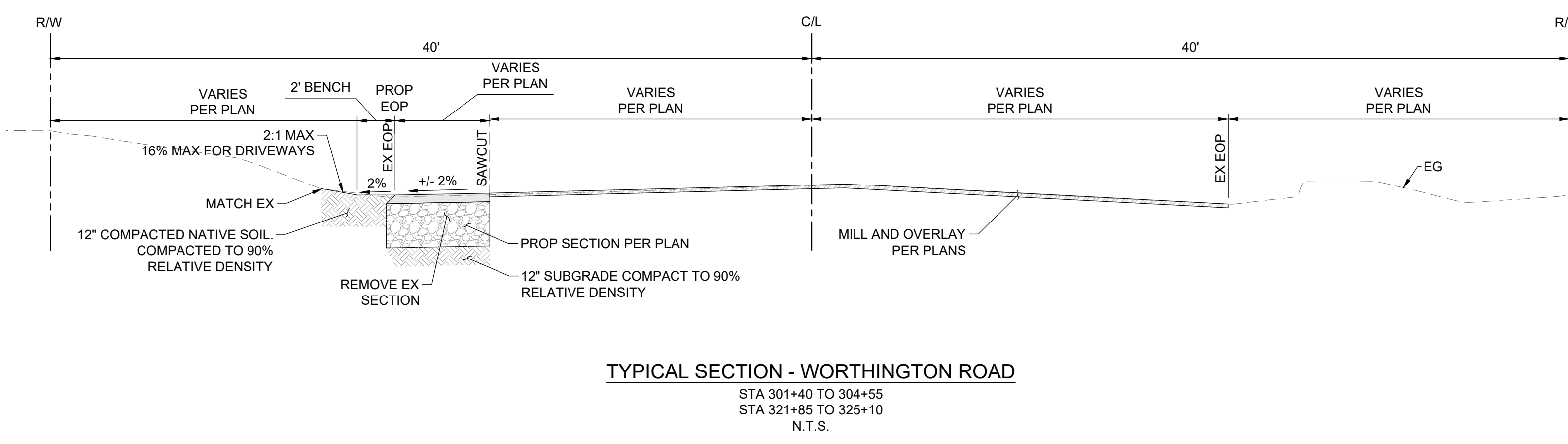
SHEET CONTENT: CONSTRUCTION DETAILS

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024

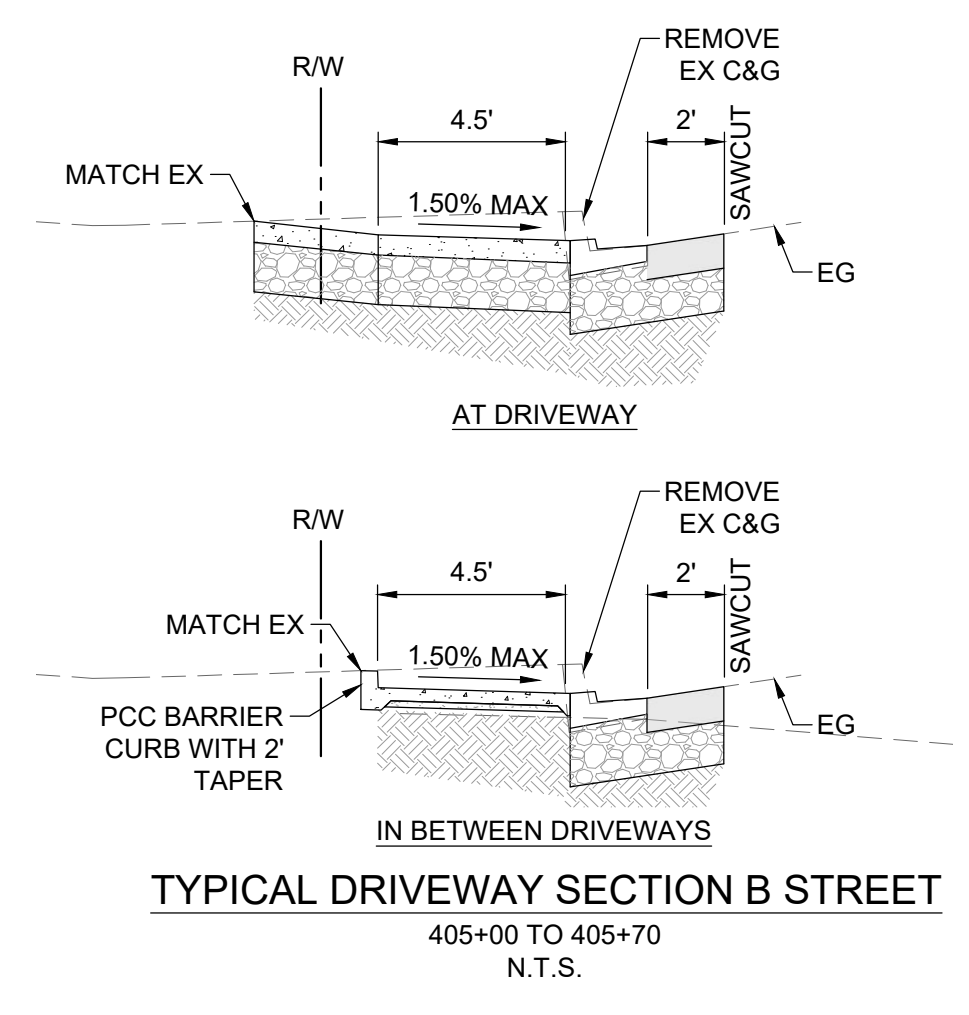
SHEET **03**  
OF 52 SHEETS  
JOB NO. CIP#823

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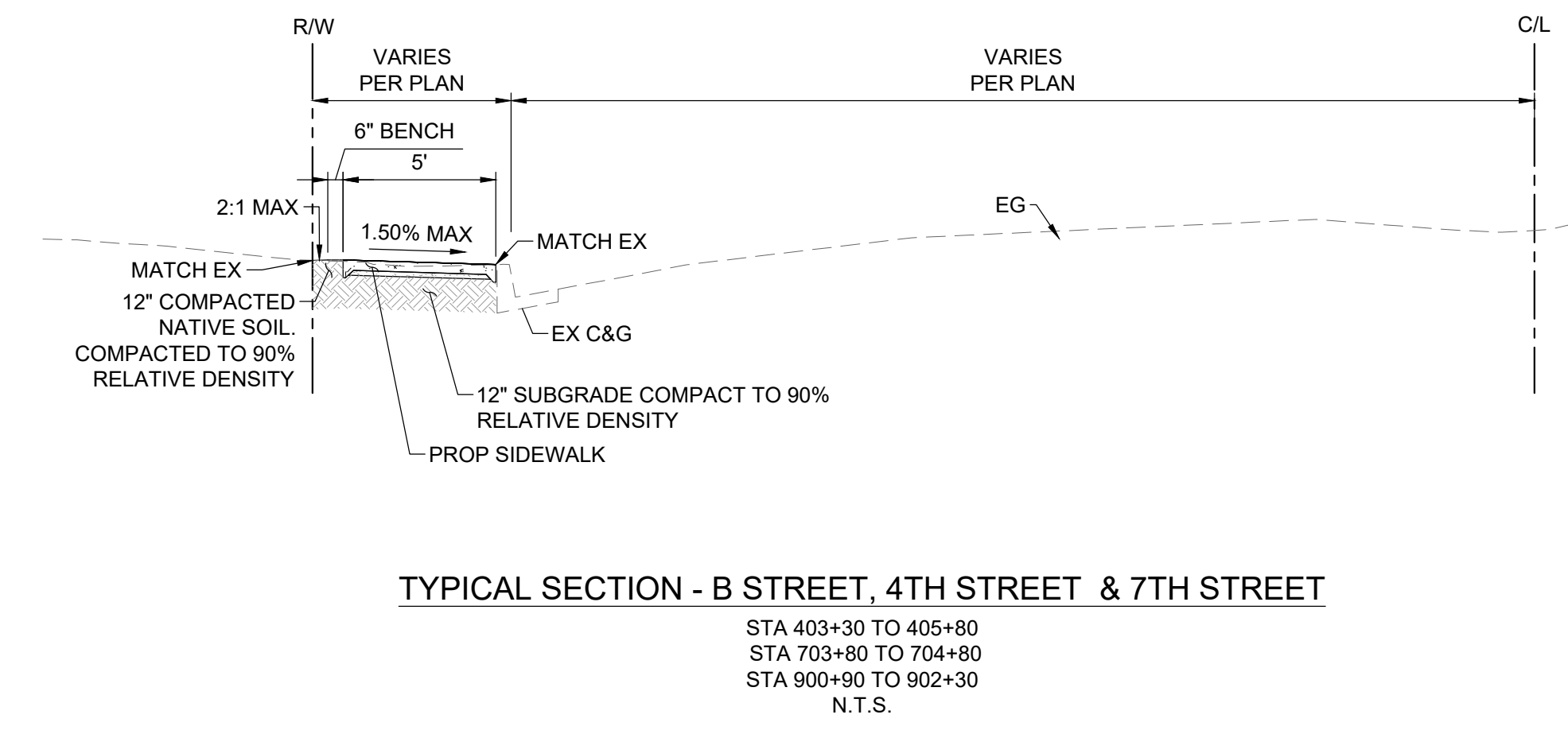
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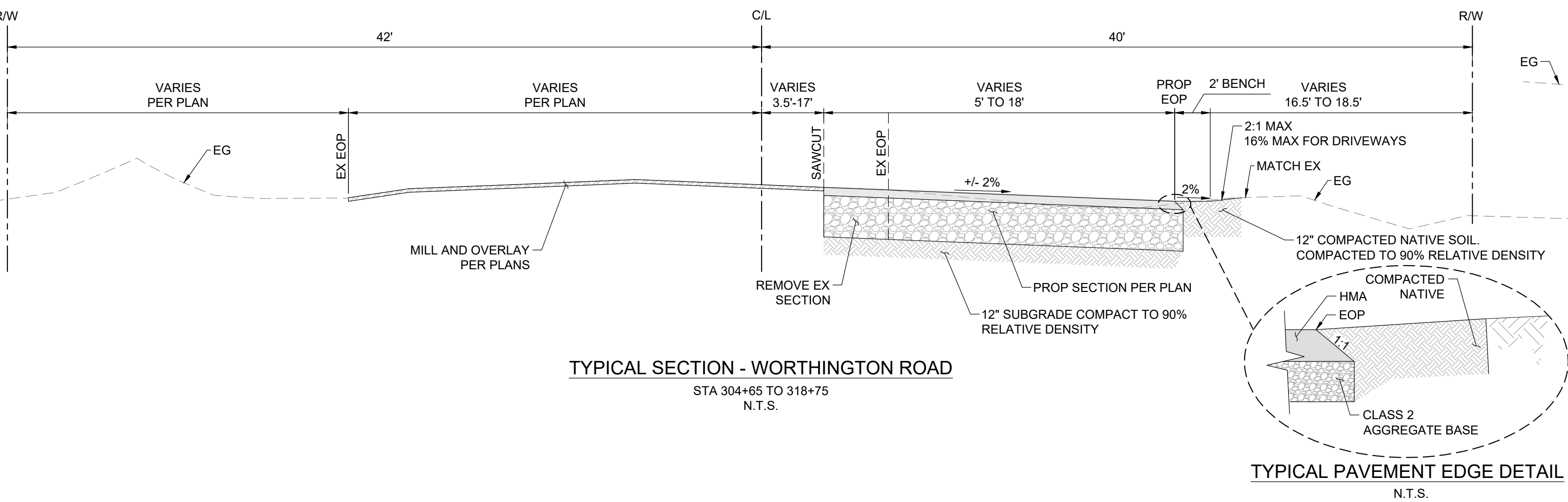
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 STA 301+40 TO 304+55  
 STA 321+85 TO 325+10  
 N.T.S.



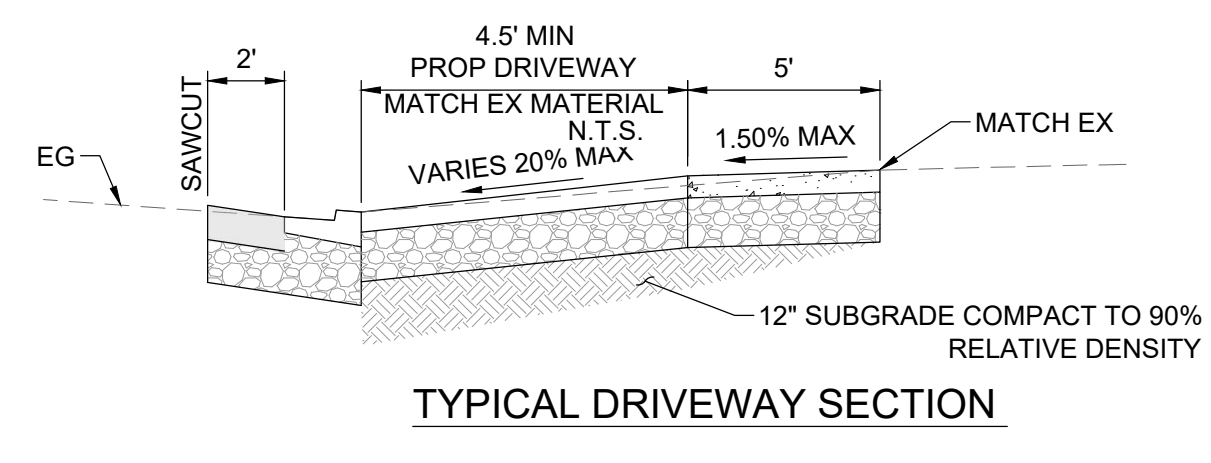
**TYPICAL DRIVEWAY SECTION B STREET**  
 405+00 TO 405+70  
 N.T.S.



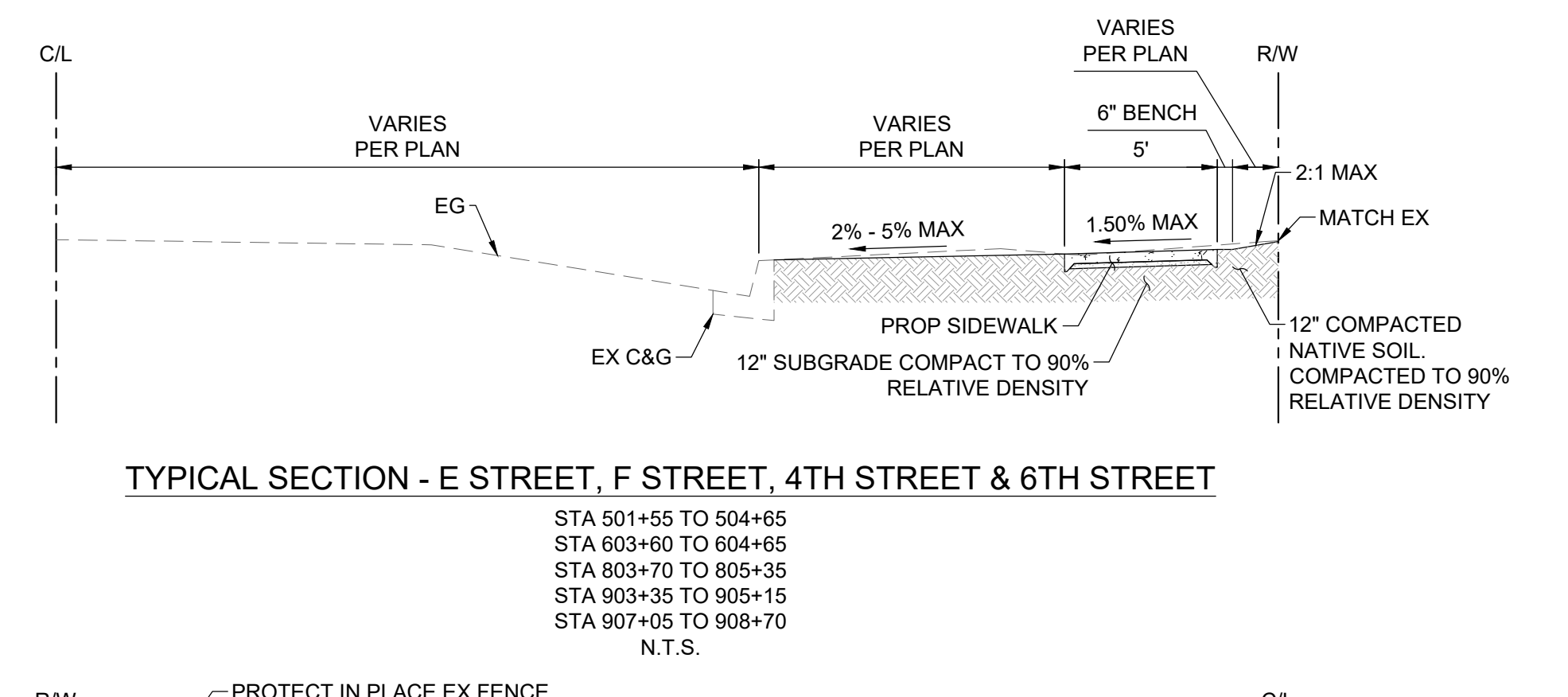
**TYPICAL SECTION - B STREET, 4TH STREET & 7TH STREET**  
 STA 403+30 TO 405+80  
 STA 703+80 TO 704+80  
 STA 900+90 TO 902+30  
 N.T.S.



**TYPICAL SECTION - WORTHINGTON ROAD**  
 STA 304+65 TO 318+75  
 N.T.S.



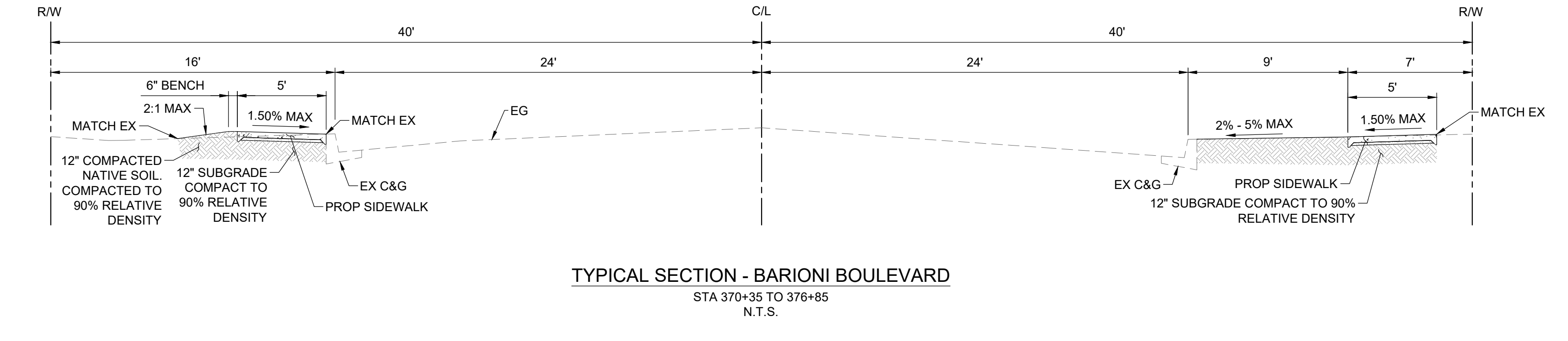
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 N.T.S.



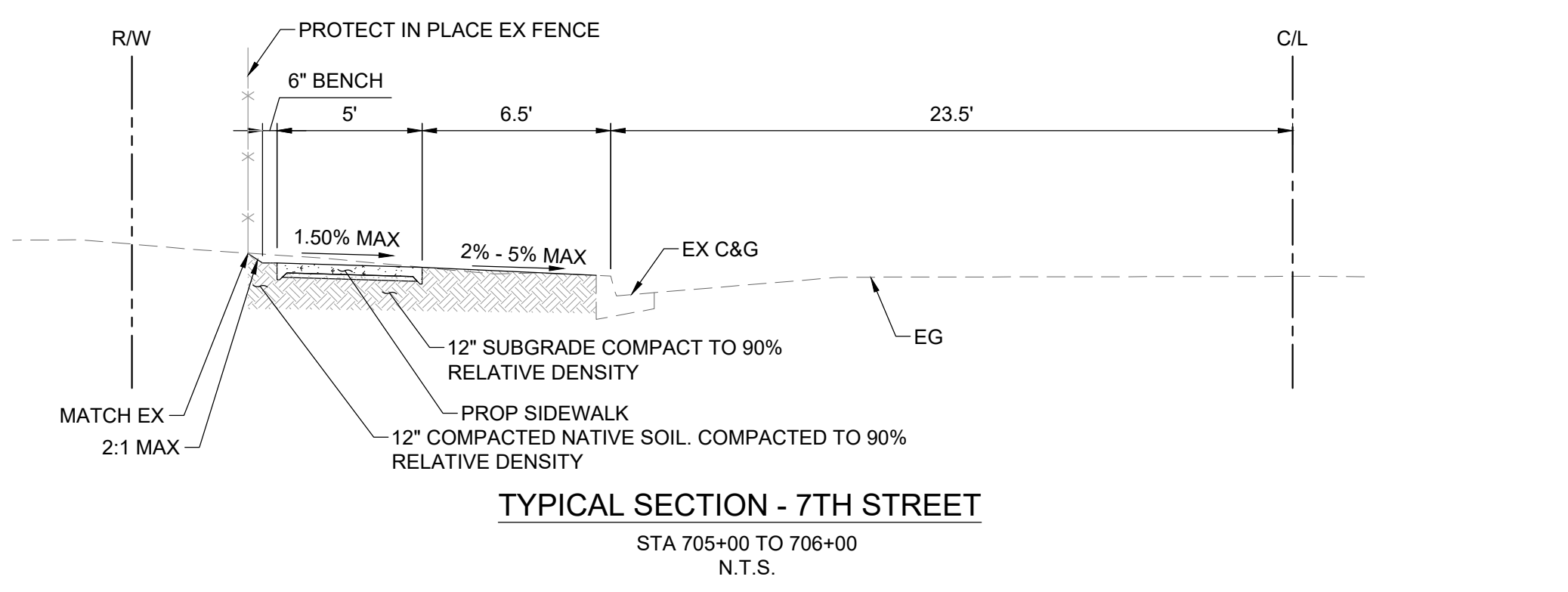
**TYPICAL SECTION - E STREET, F STREET, 4TH STREET & 6TH STREET**  
 STA 501+55 TO 504+65  
 STA 603+60 TO 604+65  
 STA 803+70 TO 805+35  
 STA 903+35 TO 905+15  
 STA 907+05 TO 908+70  
 N.T.S.



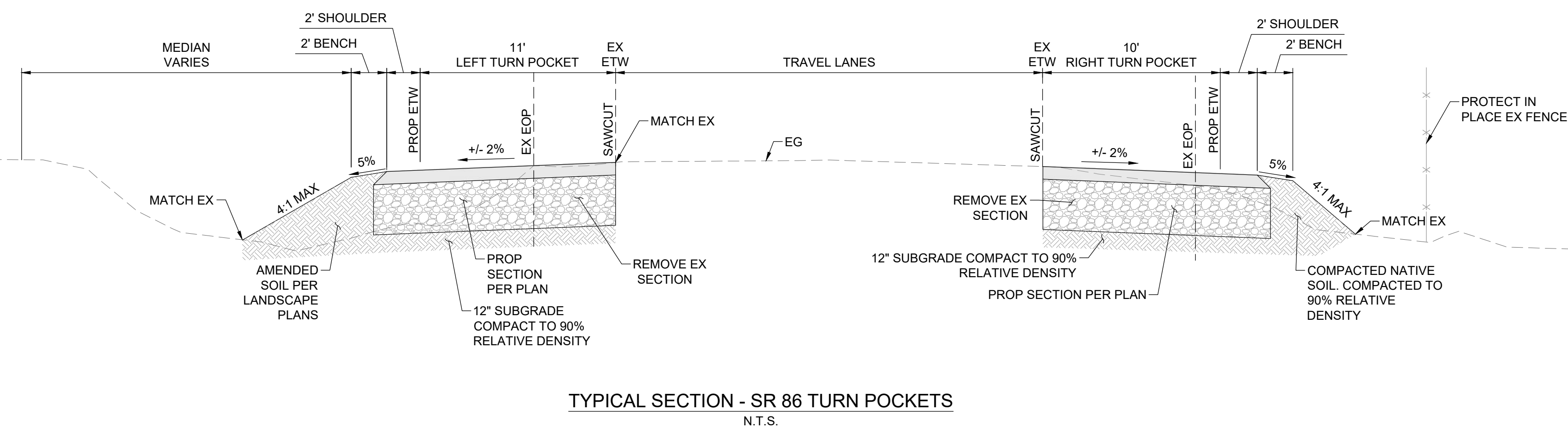
**TYPICAL PAVEMENT EDGE DETAIL**  
 N.T.S.



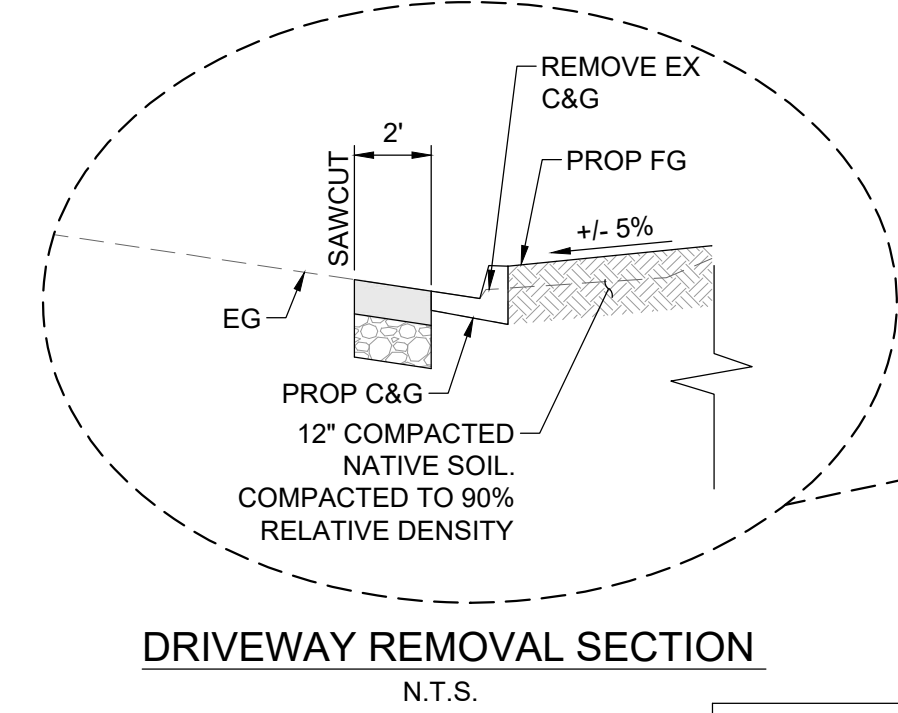
**TYPICAL SECTION - BARIONI BOULEVARD**  
 STA 370+35 TO 376+85  
 N.T.S.



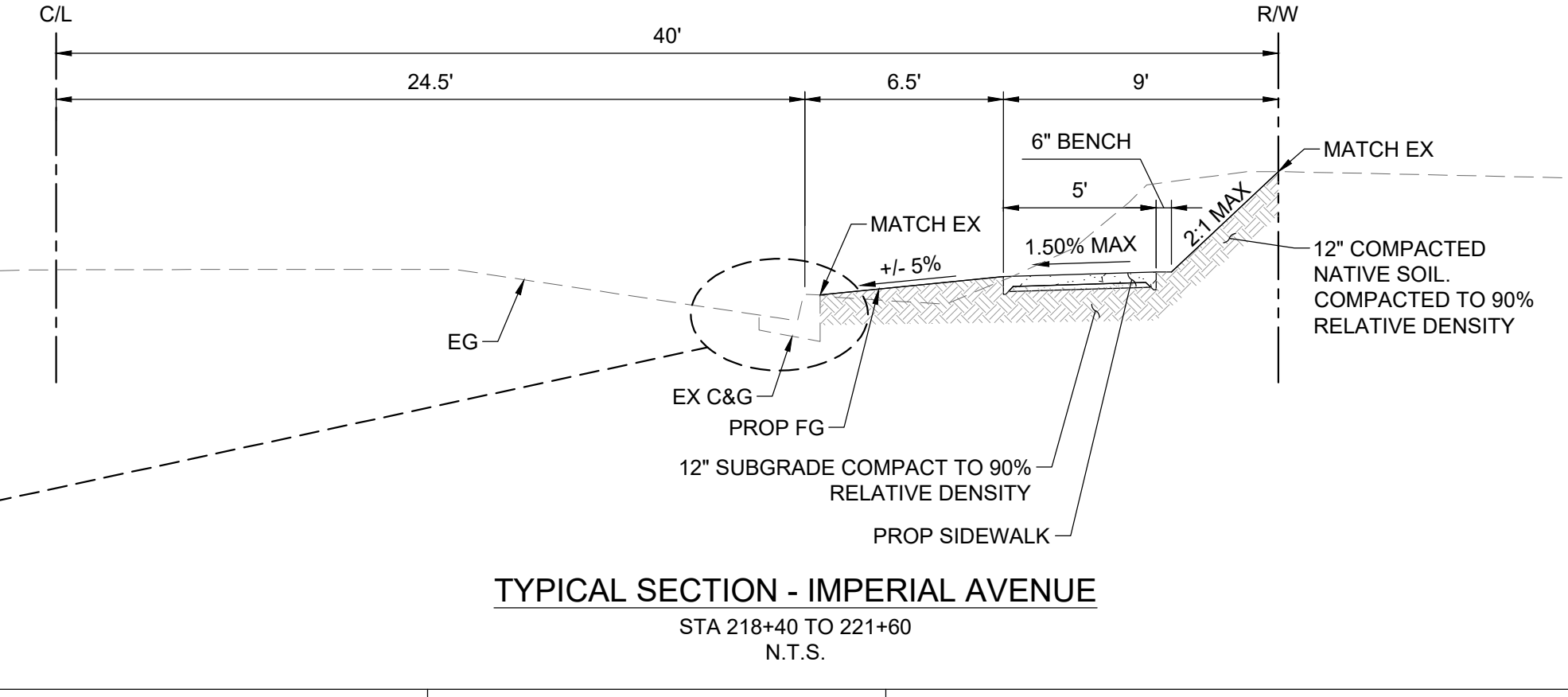
**TYPICAL SECTION - 7TH STREET**  
 STA 705+00 TO 706+00  
 N.T.S.



**TYPICAL SECTION - SR 86 TURN POCKETS**  
 N.T.S.



**DRIVEWAY REMOVAL SECTION**  
 N.T.S.



**TYPICAL SECTION - IMPERIAL AVENUE**  
 STA 218+40 TO 221+60  
 N.T.S.

APPROVED BY DIRECTOR OF PUBLIC SERVICES  
 CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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**CITY OF IMPERIAL**  
 420 South Imperial Avenue  
 Imperial, CA 92251  
 Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
 SEE SHEET 2 FOR BENCHMARK INFORMATION



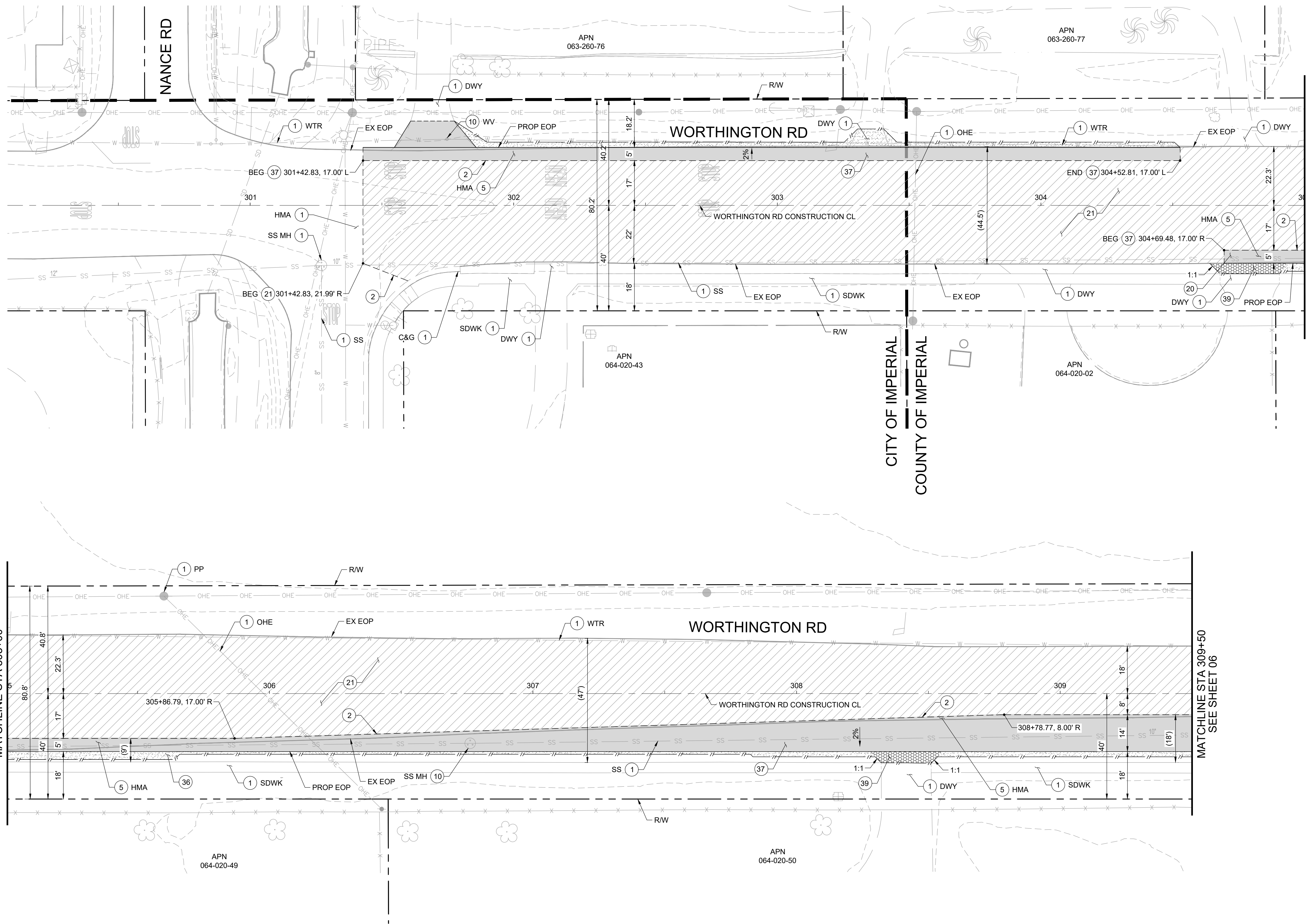
PREPARED UNDER THE DIRECT SUPERVISION OF:  
Blanca Soto 86597  
 BLANCA H. SOTO R.C.E. NO.  
 DATE: 06/21/2024 REG. EXP. 03/31/2025

**PROJECT TITLE:** CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
**SHEET CONTENT:** TYPICAL SECTIONS

SCALE: N/A  
 DRAWN BY: BS  
 REVIEWED BY: RD  
 SHEET: 04 OF 52 SHEETS  
 JOB NO. CLP#823  
 JUNE 2024

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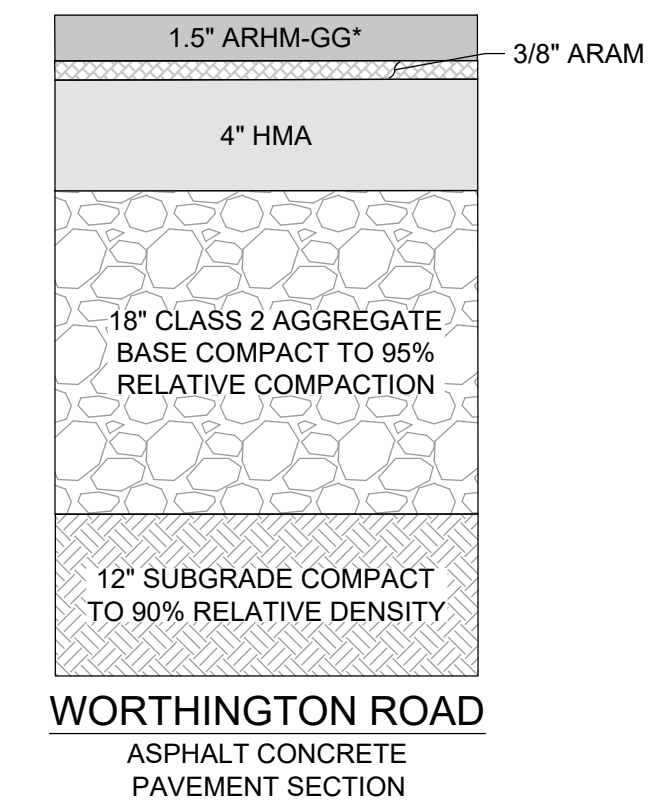
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**CONSTRUCTION NOTES**

- 1 PROTECT IN PLACE
- 2 SAWCUT PER DETAIL A ON SHEET 03
- 5 REMOVE AND DISPOSE
- 10 ADJUST TO GRADE
- 21 MILL AND OVERLAY PER DETAILS D, E, AND F ON SHEET 3
- 36 PLACE 12" COMPACTED NATIVE SOIL, COMPACTED TO 90% RELATIVE DENSITY
- 37 CONSTRUCT PAVEMENT SECTION PER DETAIL ON SHEET 05, WORTHINGTON ROAD ASPHALT CONCRETE PAVEMENT SECTION
- 39 CONSTRUCT 4" THICK CLASS 2 AGGREGATE BASE COMPACTED TO 95% OF ASTM D1557 MAXIMUM DRY DENSITY

MATCHLINE STA 305+00  
SEE BELOW LEFT



**LEGEND:**

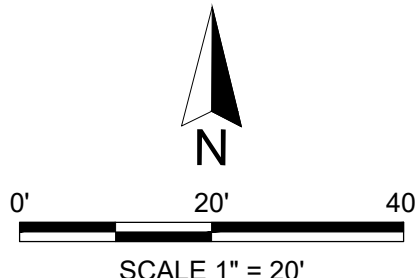
- RIGHT OF WAY LINE
- SAWCUT LINE
- DAYLIGHT LINE
- EXISTING FENCE LINE
- HMA PAVEMENT
- PCC PAVING
- MILL AND OVERLAY
- LANDSCAPE PER LANDSCAPE PLANS
- COMPACTED NATIVE SOIL
- CLASS 2 AGGREGATE BASE

**GENERAL NOTES:**

- 1. SEE TITLE SHEET FOR IMPROVEMENT NOTES AND DEMOLITION NOTES.
- 2. VERIFY THE EXISTENCE AND HORIZONTAL/VERTICAL LOCATION OF ALL UTILITIES WITHIN THE PROJECT AREA THAT MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. EXISTING UTILITIES MAY BE PRESENT EVEN IF NOT SHOWN ON PLAN.
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- 4. AREAS OF FULL DEPTH REPLACEMENT LESS THAN 2' WIDE MAY UTILIZE FULL DEPTH HMA.
- 5. THE REMOVAL OF HMA INCLUDES ASPHALT AND BASE SECTION.
- 6. THE CONTRACTOR SHALL DETERMINE THE LIMITS AND LAYOUT OF WORK. PRIOR TO DEMOLITION, THE LIMITS AND LAYOUT OF THE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY EITHER SHOP DRAWING OR FIELD MARK OUTS.

SEE ABOVE RIGHT  
MATCHLINE STA 305+00

MATCHLINE STA 309+50  
SEE SHEET 06



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CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

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420 South Imperial Avenue  
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Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



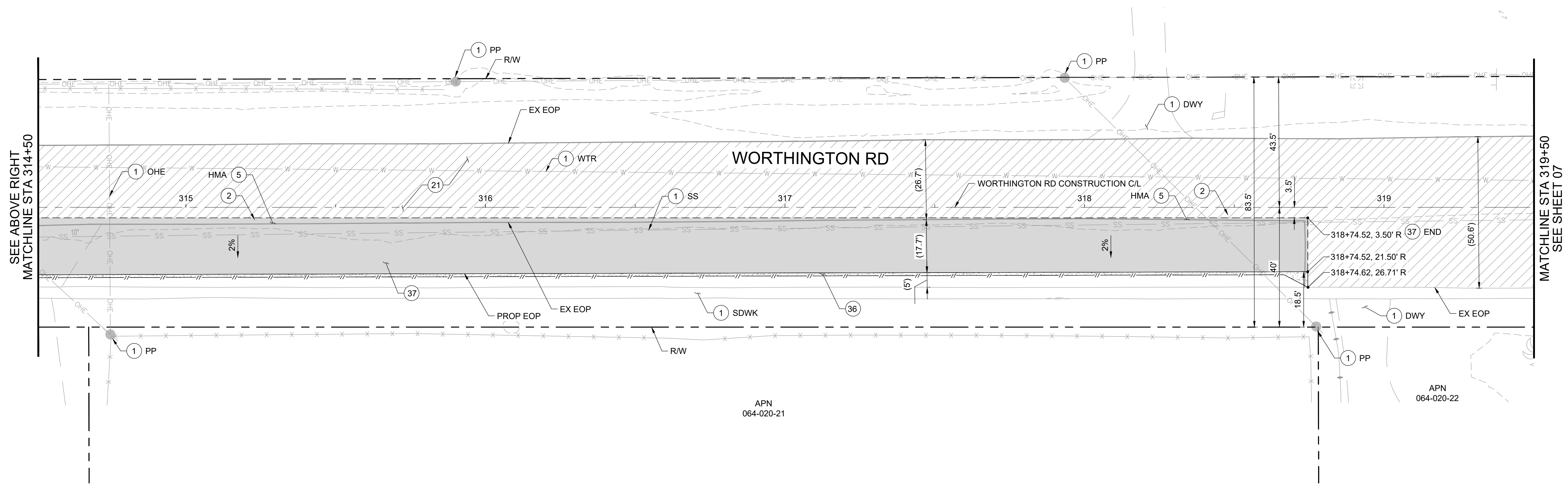
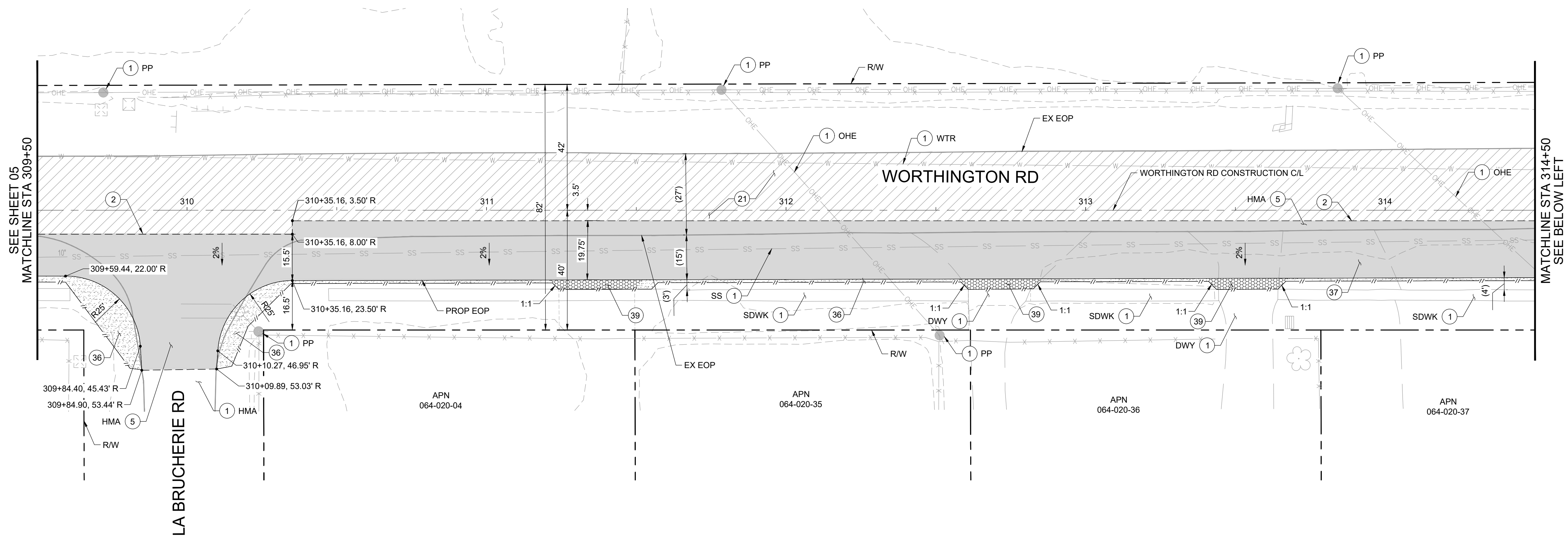
PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
Blanca H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: IMPROVEMENT PLANS WORTHINGTON ROAD

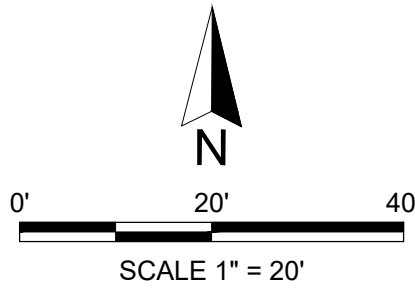
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|-----------------|-----------------|
| SCALE: N/A      | SHEET 05        |
| DRAWN BY: BS    | OF 52 SHEETS    |
| REVIEWED BY: RD | JOB NO. CLP#823 |
| JUNE 2024       |                 |

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

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- GENERAL NOTES:**
1. SEE TITLE SHEET FOR IMPROVEMENT NOTES AND DEMOLITION NOTES.
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CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

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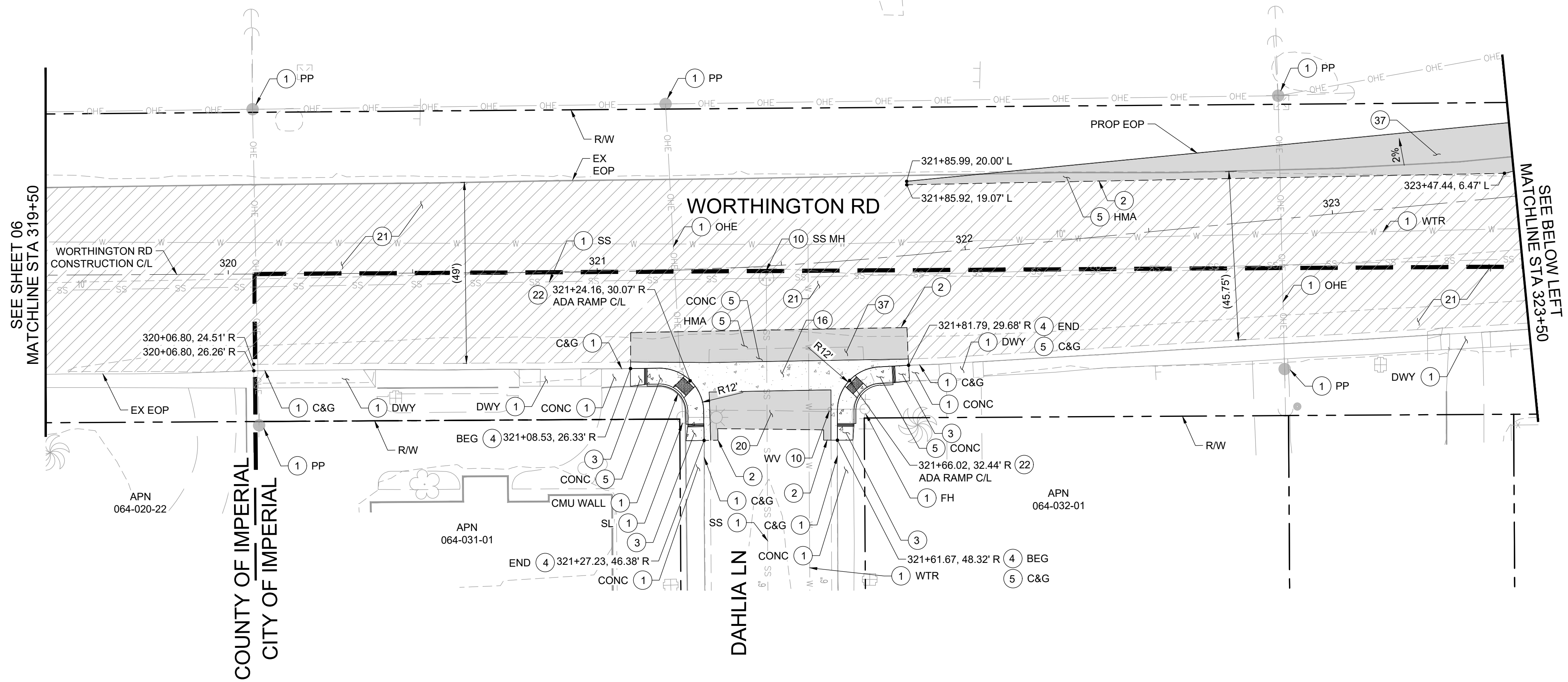
PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

**PROJECT TITLE:** CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
**SHEET CONTENT:** IMPROVEMENT PLANS WORTHINGTON ROAD

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024  
SHEET **06** OF 52 SHEETS  
JOB NO. CIP#823

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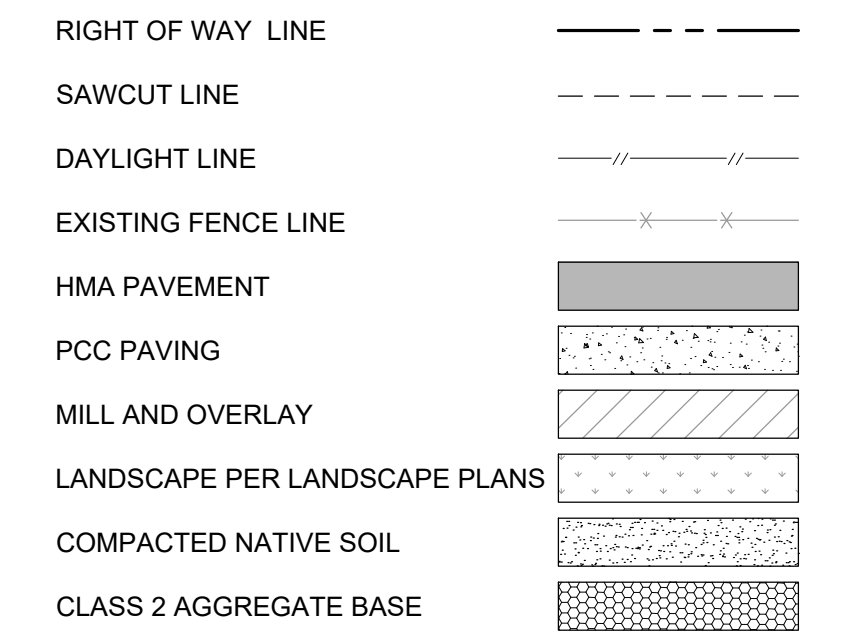
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CONSTRUCTION NOTES

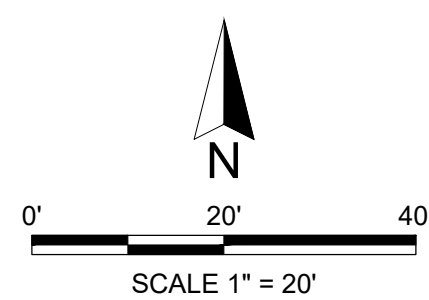
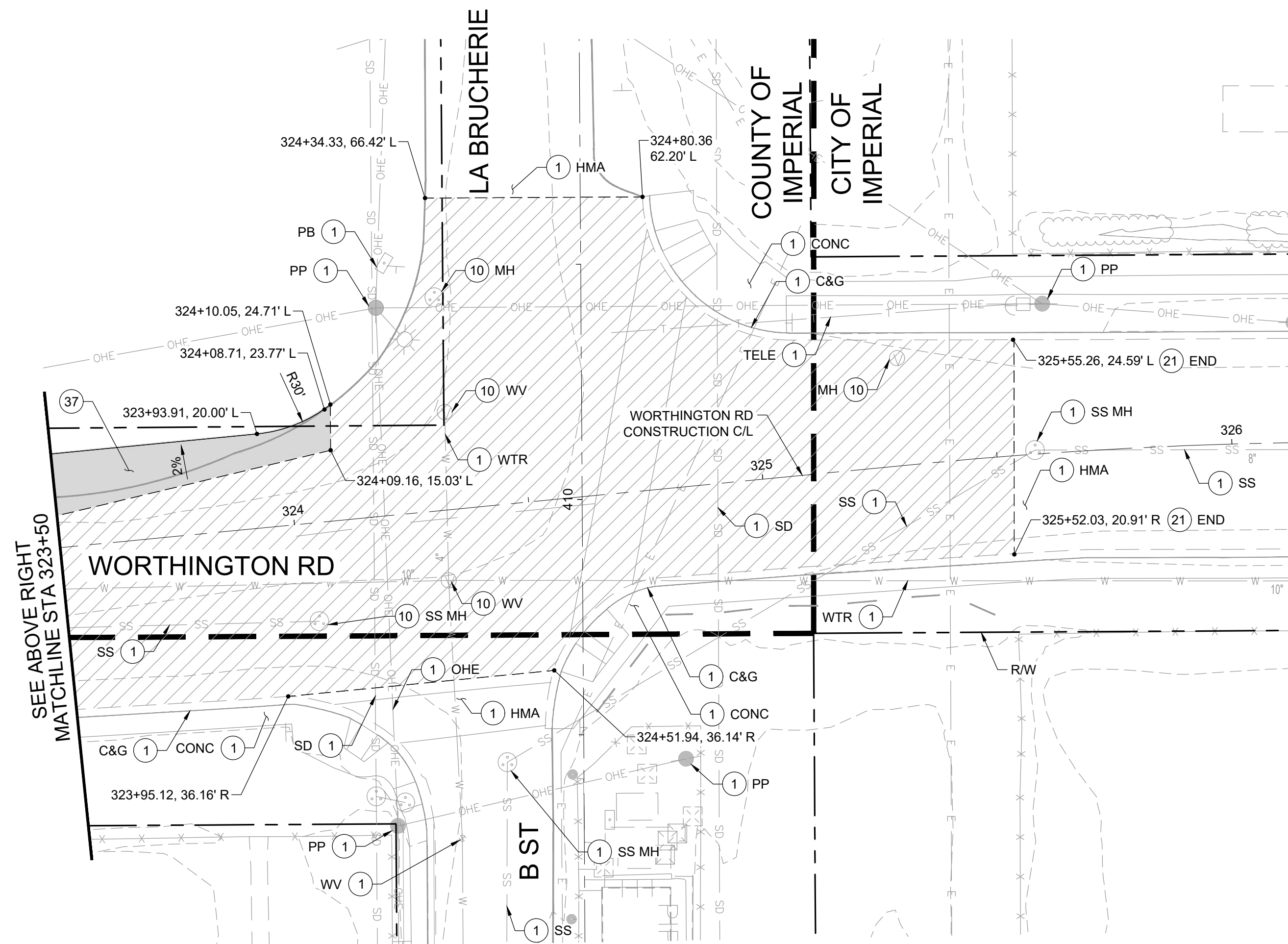
- 1 PROTECT IN PLACE
2 SAWCUT PER DETAIL A ON SHEET 03
3 CONSTRUCT PCC SIDEWALK PER CITY OF IMPERIAL STD. DET. NO. 407-A
4 CONSTRUCT PCC CURB AND GUTTER PER CITY OF IMPERIAL STD. DET. NO. 400. CONSTRUCT TRANSITION TO EXISTING PCC CURB AND GUTTER PER DETAIL B, SHEET 3
5 REMOVE AND DISPOSE
9 CONSTRUCT PCC SPANDREL PER CITY OF IMPERIAL STD. DET. NO. 410
10 ADJUST TO GRADE
16 CONSTRUCT PCC CROSS GUTTER PER CITY OF IMPERIAL STD. DET. NO. 411
20 CONSTRUCT 4" HMA OVER 18" CLASS 2 AGGREGATE BASE
21 MILL AND OVERLAY PER DETAILS D, E, AND F ON SHEET 3
22 CONSTRUCT PCC ADA RAMP PER CITY OF IMPERIAL STD. NO. 409-B
37 CONSTRUCT PAVEMENT SECTION PER DETAIL ON SHEET 05, WORTHINGTON ROAD ASPHALT CONCRETE PAVEMENT SECTION

LEGEND:



GENERAL NOTES:

- 1. SEE TITLE SHEET FOR IMPROVEMENT NOTES AND DEMOLITION NOTES.
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CITY OF IMPERIAL, CA
BY: DAVID DALE, P.E., P.L.S. DATE:

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Table with columns: NO., REVISIONS, APPROVED, DATE

CITY OF IMPERIAL
420 South Imperial Avenue
Imperial, CA 92251
Ph: (760) 355-4371 Fax: (760) 355-4718

BENCHMARK:
SEE SHEET 2 FOR BENCHMARK INFORMATION



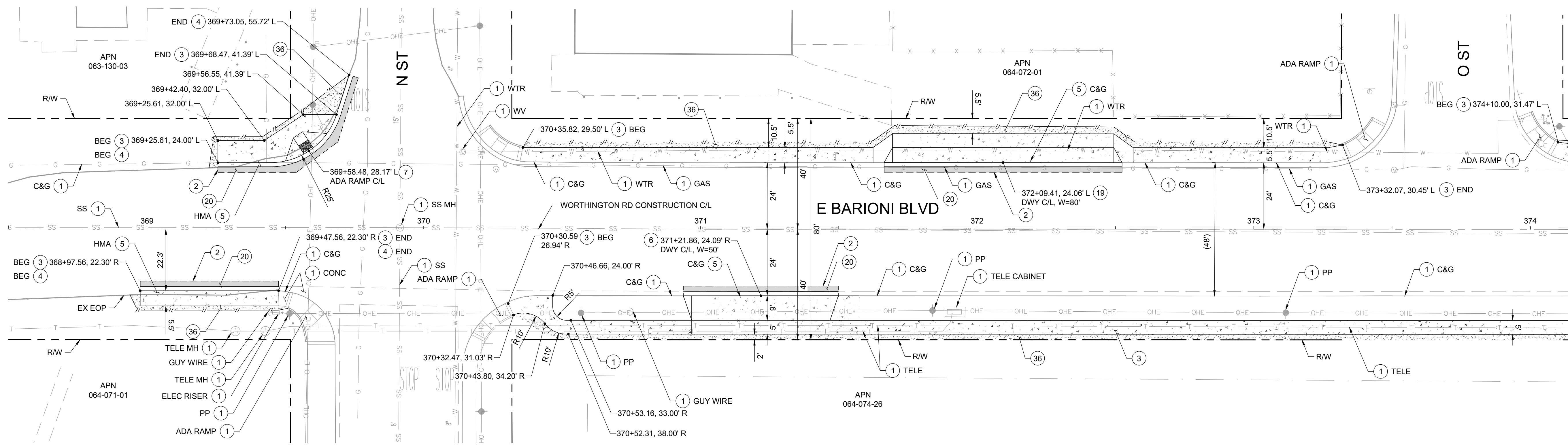
PREPARED UNDER THE DIRECT SUPERVISION OF:
Blanca Soto
Blanca H. SOTO
06/21/2024
DATE

PROJECT TITLE: CITY OF IMPERIAL
AHSC-ARPA/HWY 86 BEAUTIFICATION
PHASE 1
SHEET CONTENT: IMPROVEMENT PLANS
WORTHINGTON ROAD

SCALE: N/A
DRAWN BY: BS
REVIEWED BY: RD
JUNE 2024
SHEET 07 OF 52 SHEETS
JOB NO. CLP#823

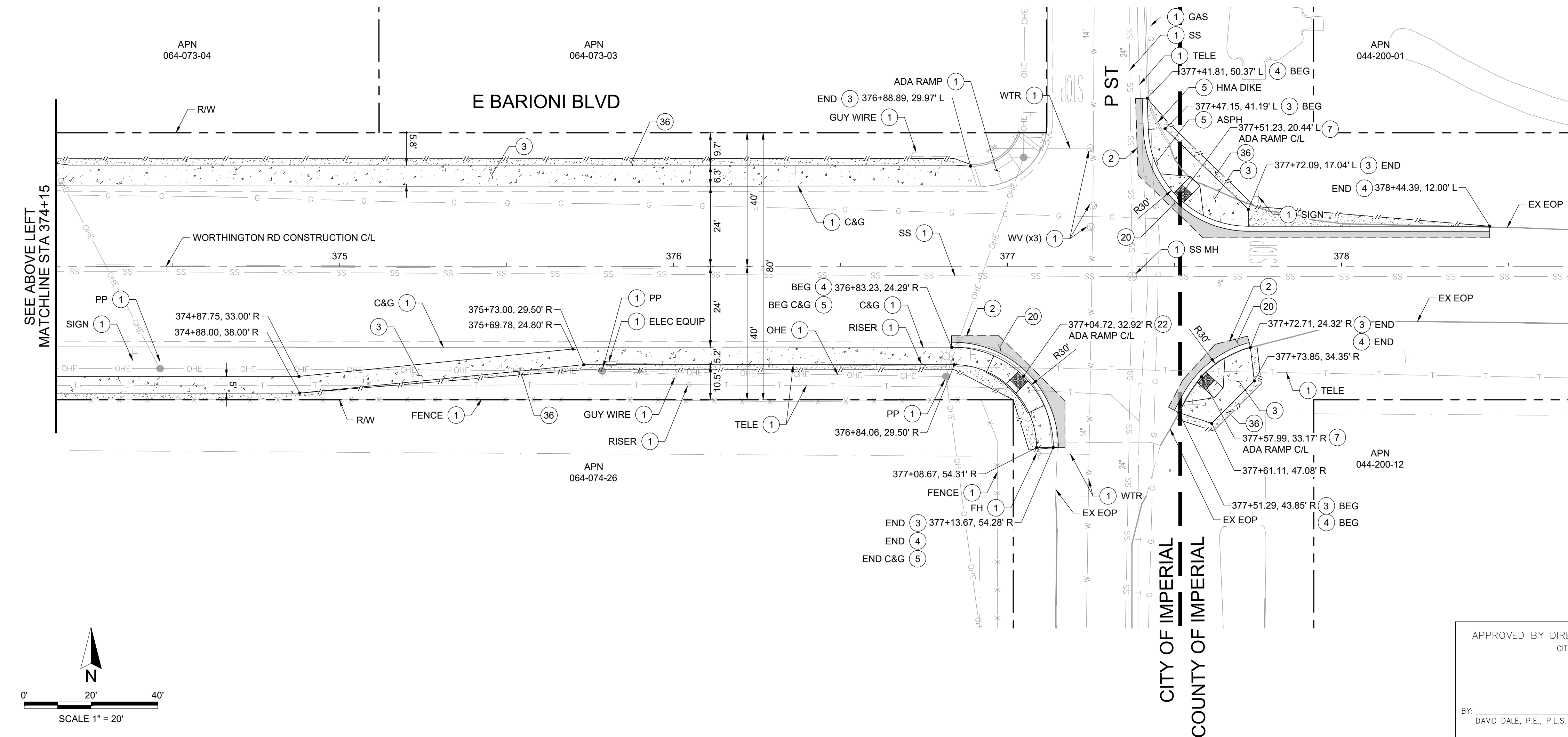
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Project: 2021-08-15, City of Imperial, CA, Project No. 2021-08-15, Date: 06/21/2024, 1:27:11 PM



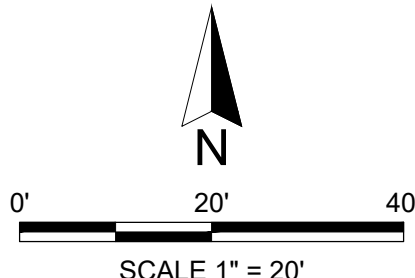
- CONSTRUCTION NOTES**
- 1 PROTECT IN PLACE
  - 2 SAWCUT PER DETAIL A ON SHEET 03
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  - 5 REMOVE AND DISPOSE
  - 6 CONSTRUCT PARKWAY PCC DRIVEWAY APPROACH PER CITY OF IMPERIAL STD. DET. NO. 404
  - 7 CONSTRUCT PCC TYPICAL CORNER ONE ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409
  - 19 CONSTRUCT PCC DRIVEWAY APPROACH PER CITY OF IMPERIAL STD. DET. NO. 403
  - 20 CONSTRUCT 4" HMA OVER 18" CLASS 2 AGGREGATE BASE
  - 22 CONSTRUCT PCC ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409-B
  - 36 PLACE 12" COMPACTED NATIVE SOIL, COMPACTED TO 90% RELATIVE DENSITY

MATCHLINE STA 374+15  
SEE BELOW LEFT



- LEGEND:**
- RIGHT OF WAY LINE
  - SAWCUT LINE
  - DAYLIGHT LINE
  - EXISTING FENCE LINE
  - HMA PAVEMENT
  - PCC PAVING
  - MILL AND OVERLAY
  - LANDSCAPE PER LANDSCAPE PLANS
  - COMPACTED NATIVE SOIL
  - CLASS 2 AGGREGATE BASE

- GENERAL NOTES:**
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  7. POWER POLE LOCATION ON PLANS ARE APPROXIMATE. CONTRACTOR TO MAINTAIN 6" BETWEEN EDGE OF SIDEWALK AND POWER POLE.



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

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420 South Imperial Avenue  
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Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
Blanca H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: IMPROVEMENT PLANS E BARIONI ROAD

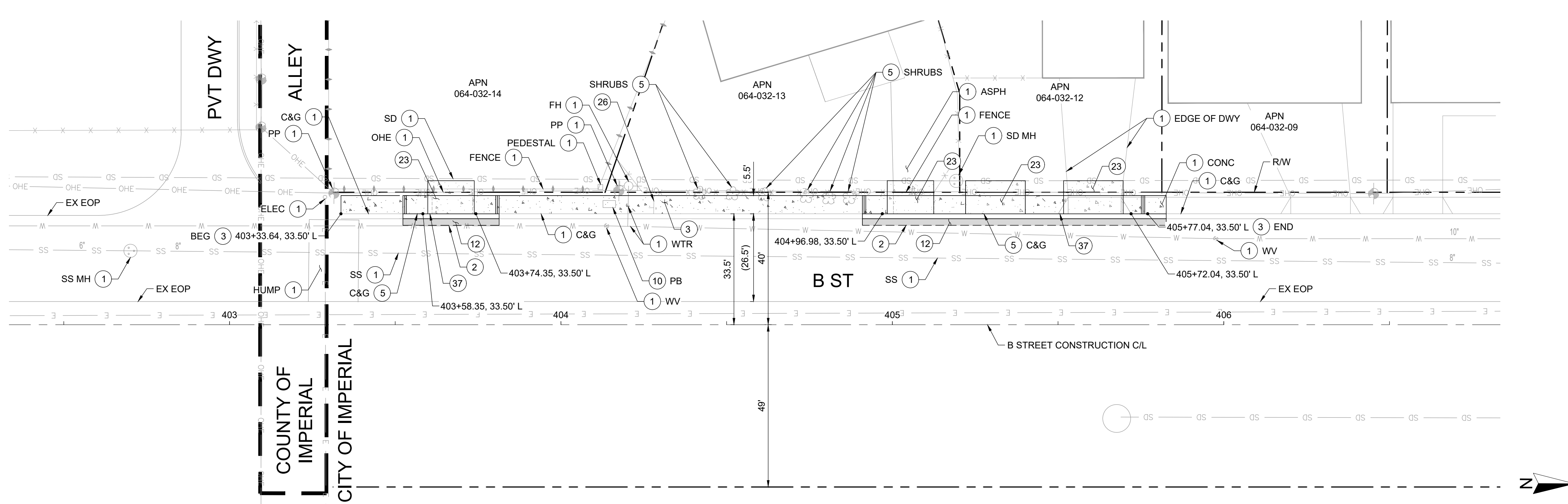
SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024

SHEET 08 OF 52 SHEETS  
JOB NO. CIP#823

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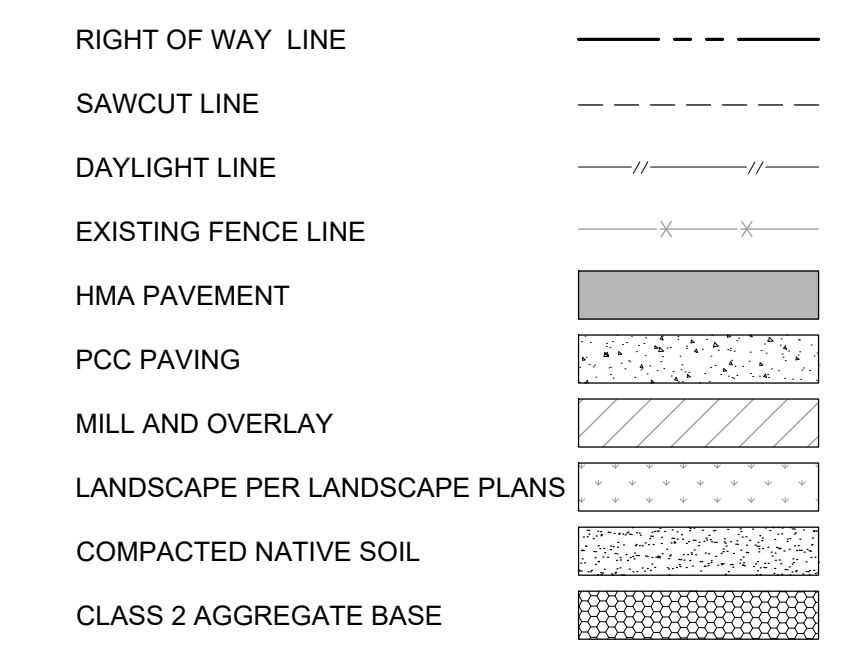
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**CONSTRUCTION NOTES**

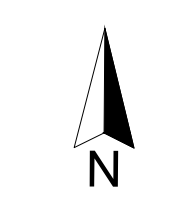
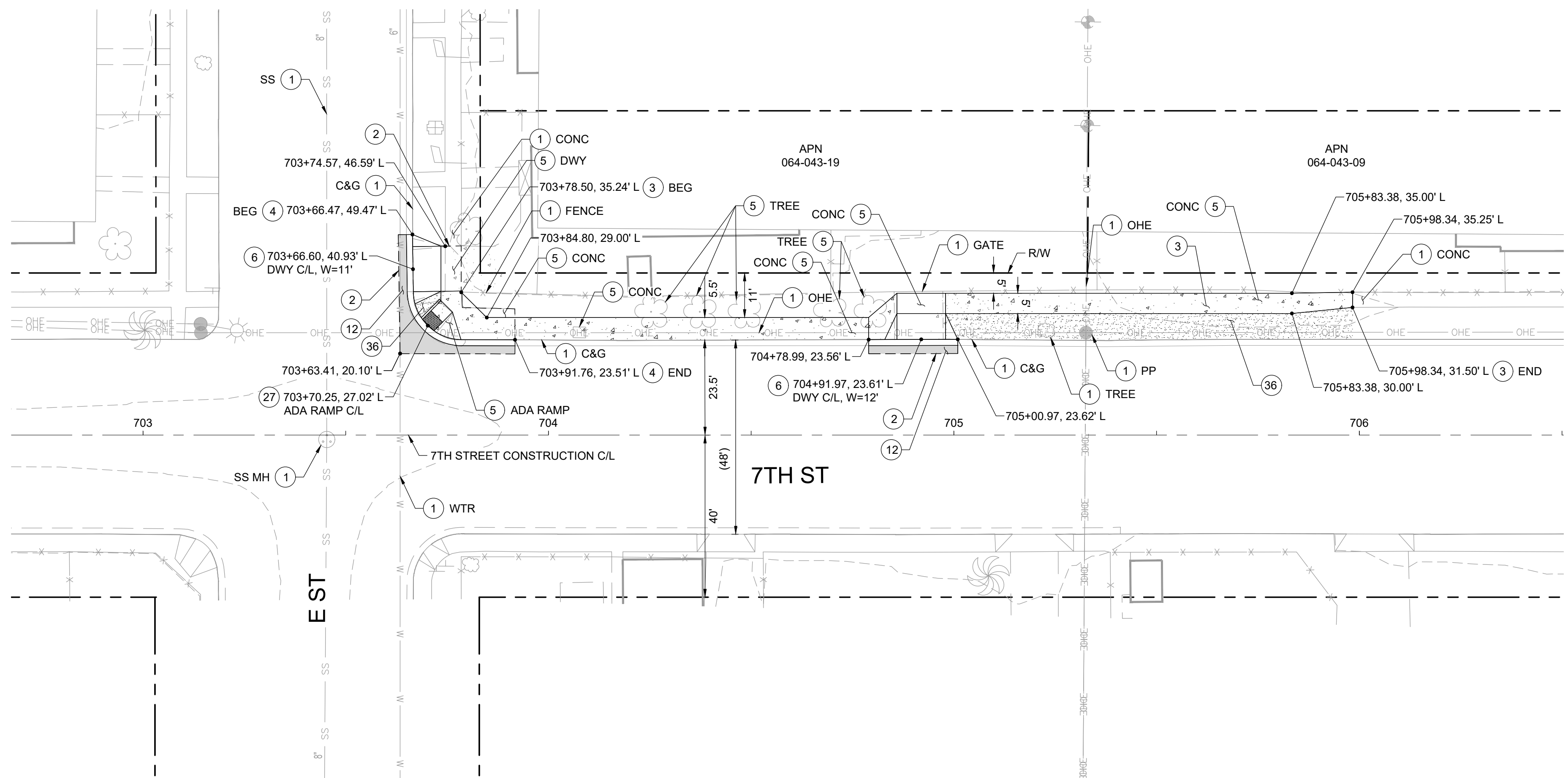
- 1 PROTECT IN PLACE
- 2 SAWCUT PER DETAIL A ON SHEET 03
- 3 CONSTRUCT PCC SIDEWALK PER CITY OF IMPERIAL STD. DET. NO. 407-A
- 4 CONSTRUCT PCC CURB AND GUTTER PER CITY OF IMPERIAL STD. DET. NO. 400. CONSTRUCT TRANSITION TO EXISTING PCC CURB AND GUTTER PER DETAIL B, SHEET 3
- 5 REMOVE AND DISPOSE
- 6 CONSTRUCT PARKWAY PCC DRIVEWAY APPROACH PER CITY OF IMPERIAL STD. DET. NO. 404
- 10 ADJUST TO GRADE
- 12 CONSTRUCT 3" HMA OVER 14" CLASS 2 AGGREGATE BASE
- 23 CONSTRUCT PCC DRIVEWAY APPROACH PER CITY OF IMPERIAL STD. DET. NO. 406
- 26 REMOVE AND REINSTALL EXISTING SIGN
- 27 CONSTRUCT MODIFIED PCC OBSTRUCTED ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409-D
- 36 PLACE 12" COMPACTED NATIVE SOIL. COMPACTED TO 90% RELATIVE DENSITY
- 37 CONSTRUCT ROLLED CURB PER DETAIL I ON SHEET 52. CONSTRUCT TRANSITION TO EXISTING PCC CURB AND GUTTER PER DETAIL B, SHEET 3

**LEGEND:**



**GENERAL NOTES:**

- 1. SEE TITLE SHEET FOR IMPROVEMENT NOTES AND DEMOLITION NOTES.
- 2. VERIFY THE EXISTENCE AND HORIZONTAL/VERTICAL LOCATION OF ALL UTILITIES WITHIN THE PROJECT AREA THAT MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. EXISTING UTILITIES MAY BE PRESENT EVEN IF NOT SHOWN ON PLAN.
- 3. TO THE EXTENT POSSIBLE, CONTRACTOR SHALL PROTECT IN PLACE ALL SURVEY MONUMENTS DURING THE COURSE OF CONSTRUCTION. CONTRACTOR'S LAND SURVEYOR SHALL INDEPENDENTLY VERIFY/DETERMINE ANY AND ALL SURVEY MONUMENTS THAT MAY OR WILL BE DISTURBED OR DESTROYED BY THE CONTRACTOR'S ACTIVITIES. CONTRACTOR'S LAND SURVEYOR SHALL FILE WITH THE OFFICE OF THE COUNTY SURVEYOR CORNER RECORDS AND/OR RECORD(S) OF SURVEY PRIOR TO SUCH DISTURBANCE AND UPON RE-ESTABLISHMENT OF THE SURVEY MONUMENT(S).
- 4. AREAS OF FULL DEPTH REPLACEMENT LESS THAN 2' WIDE MAY UTILIZE FULL DEPTH HMA.
- 5. THE REMOVAL OF HMA INCLUDES ASPHALT AND BASE SECTION.
- 6. THE CONTRACTOR SHALL DETERMINE THE LIMITS AND LAYOUT OF WORK. PRIOR TO DEMOLITION, THE LIMITS AND LAYOUT OF THE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY EITHER SHOP DRAWING OR FIELD MARK OUTS.
- 7. CONTRACTOR TO VERIFY WITH CITY ENGINEER PRIOR TO REMOVAL OF EXISTING TREES NEAR IMPROVEMENTS.
- 8. POWER POLE LOCATION ON PLANS ARE APPROXIMATE, CONTRACTOR TO MAINTAIN 6" BETWEEN EDGE OF SIDEWALK AND POWER POLE.



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. \_\_\_\_\_ DATE \_\_\_\_\_

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**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO R.C.E. NO. 86597  
DATE 06/21/2024 REG. EXP. 03/31/2025

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

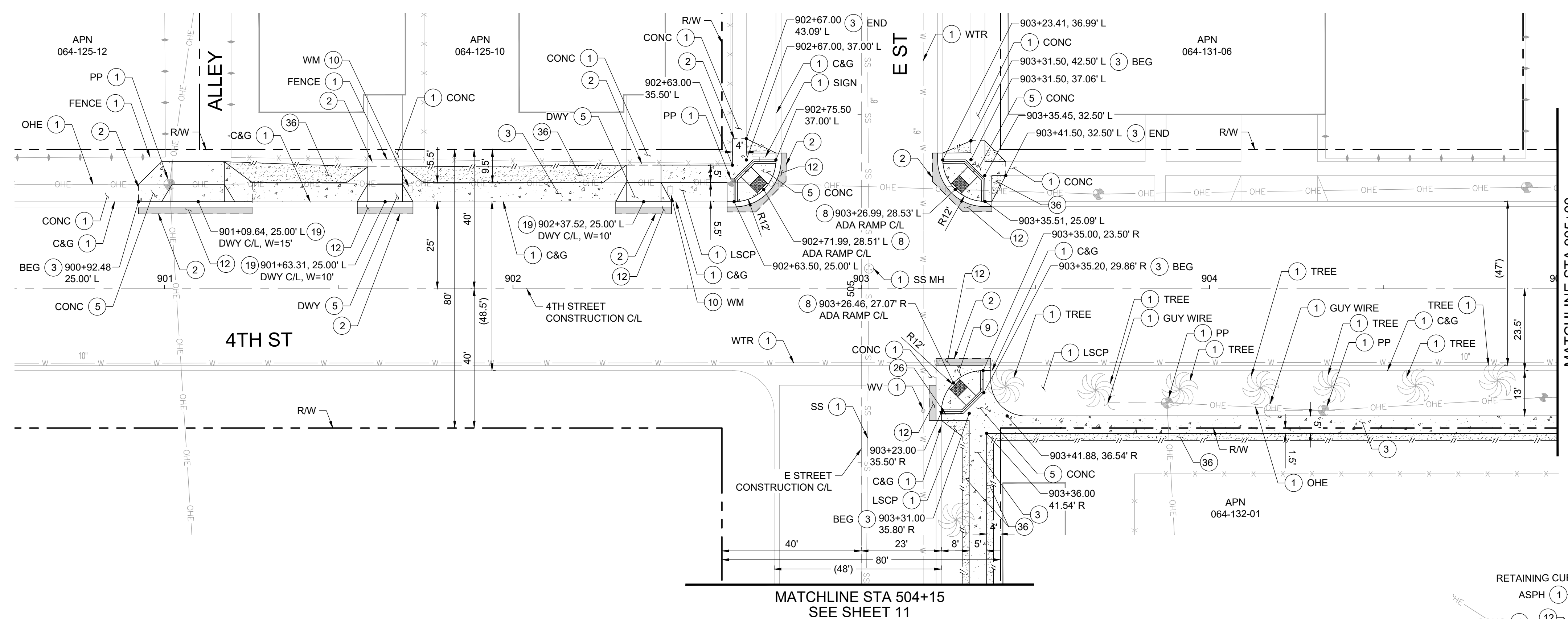
SHEET CONTENT:  
IMPROVEMENT PLANS  
B AND 7TH STREET

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024

SHEET  
**09**  
OF 52 SHEETS  
JOB NO.  
CIP#823

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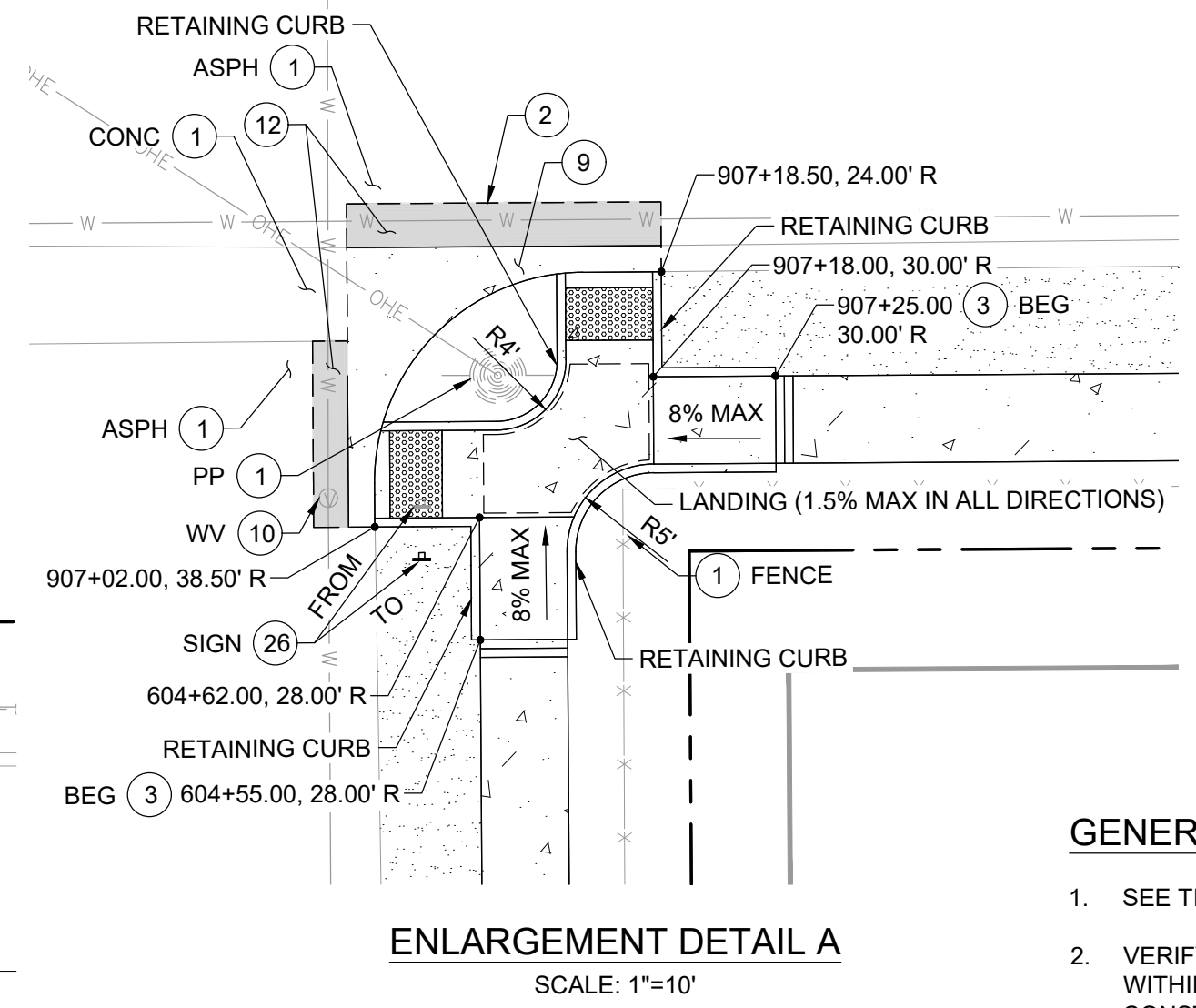
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MATCHLINE STA 504+15  
SEE SHEET 11

MATCHLINE STA 905+00  
SEE BELOW LEFT

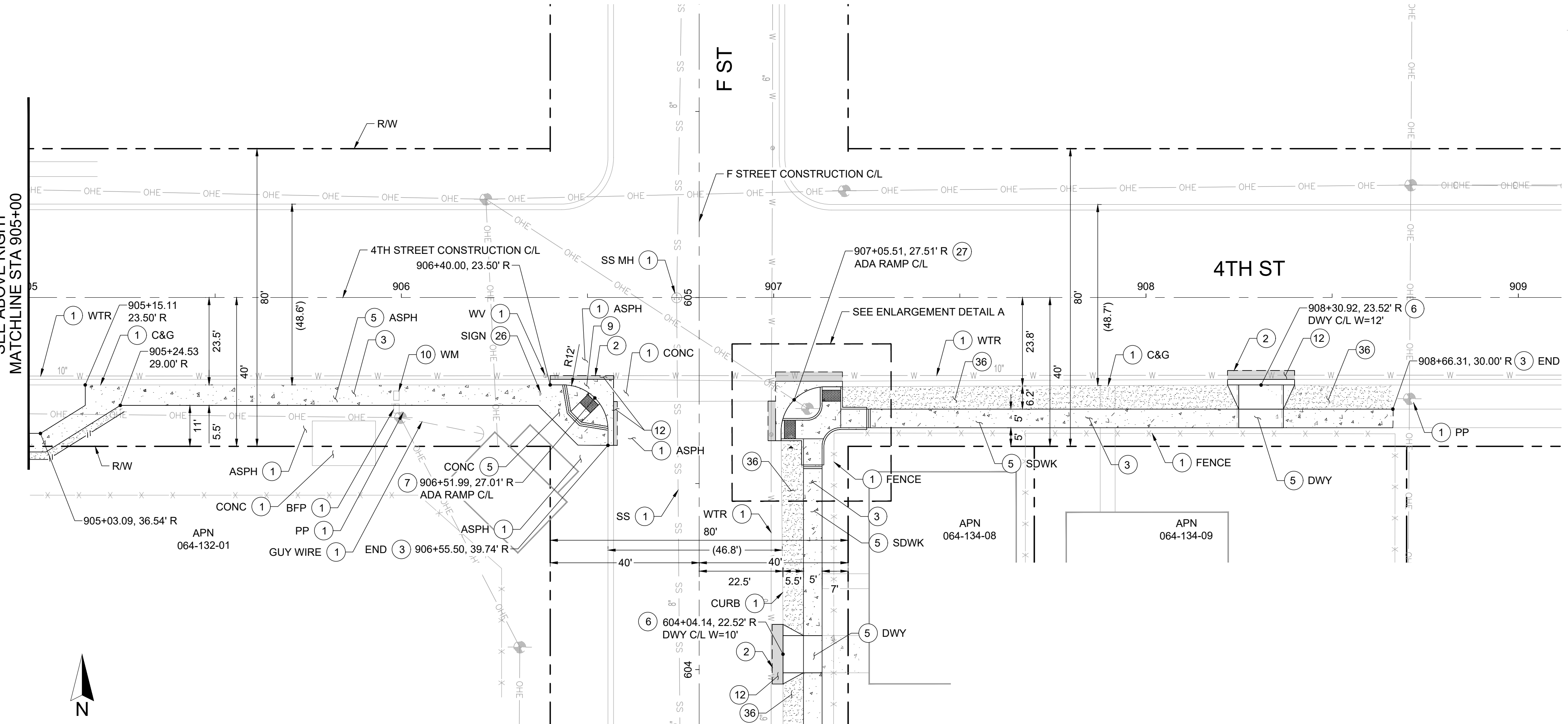
- ### CONSTRUCTION NOTES
- 1 PROTECT IN PLACE
  - 2 SAWCUT PER DETAIL A ON SHEET 03
  - 3 CONSTRUCT PCC SIDEWALK PER CITY OF IMPERIAL STD. DET. NO. 407-A
  - 5 REMOVE AND DISPOSE
  - 6 CONSTRUCT PARKWAY PCC DRIVEWAY APPROACH PER CITY OF IMPERIAL STD. DET. NO. 404
  - 7 CONSTRUCT PCC TYPICAL CORNER ONE ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409
  - 8 CONSTRUCT PCC FULL CORNER ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409-A
  - 9 CONSTRUCT PCC SPANDREL PER CITY OF IMPERIAL STD. DET. NO. 410
  - 10 ADJUST TO GRADE
  - 12 CONSTRUCT 3" HMA OVER 14" CLASS 2 AGGREGATE BASE
  - 19 CONSTRUCT PCC DRIVEWAY APPROACH PER CITY OF IMPERIAL STD. DET. NO. 403
  - 26 REMOVE AND REINSTALL EXISTING SIGN
  - 27 CONSTRUCT MODIFIED PCC OBSTRUCTED ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409-D
  - 36 PLACE 12" COMPACTED NATIVE SOIL, COMPACTED TO 90% RELATIVE DENSITY



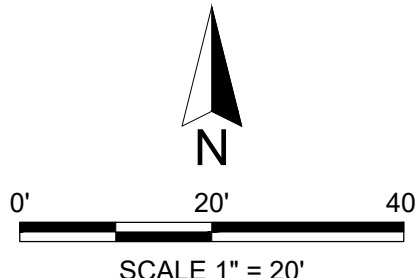
- ### LEGEND:
- RIGHT OF WAY LINE
  - SAWCUT LINE
  - DAYLIGHT LINE
  - EXISTING FENCE LINE
  - HMA PAVEMENT
  - PCC PAVING
  - MILL AND OVERLAY
  - LANDSCAPE PER LANDSCAPE PLANS
  - COMPACTED NATIVE SOIL
  - CLASS 2 AGGREGATE BASE

- ### GENERAL NOTES:
1. SEE TITLE SHEET FOR IMPROVEMENT NOTES AND DEMOLITION NOTES.
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  7. POWER POLE LOCATION ON PLANS ARE APPROXIMATE. CONTRACTOR TO MAINTAIN 6" BETWEEN EDGE OF SIDEWALK AND POWER POLE.

SEE ABOVE RIGHT  
MATCHLINE STA 905+00



MATCHLINE STA 603+85  
SEE SHEET 11



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

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**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



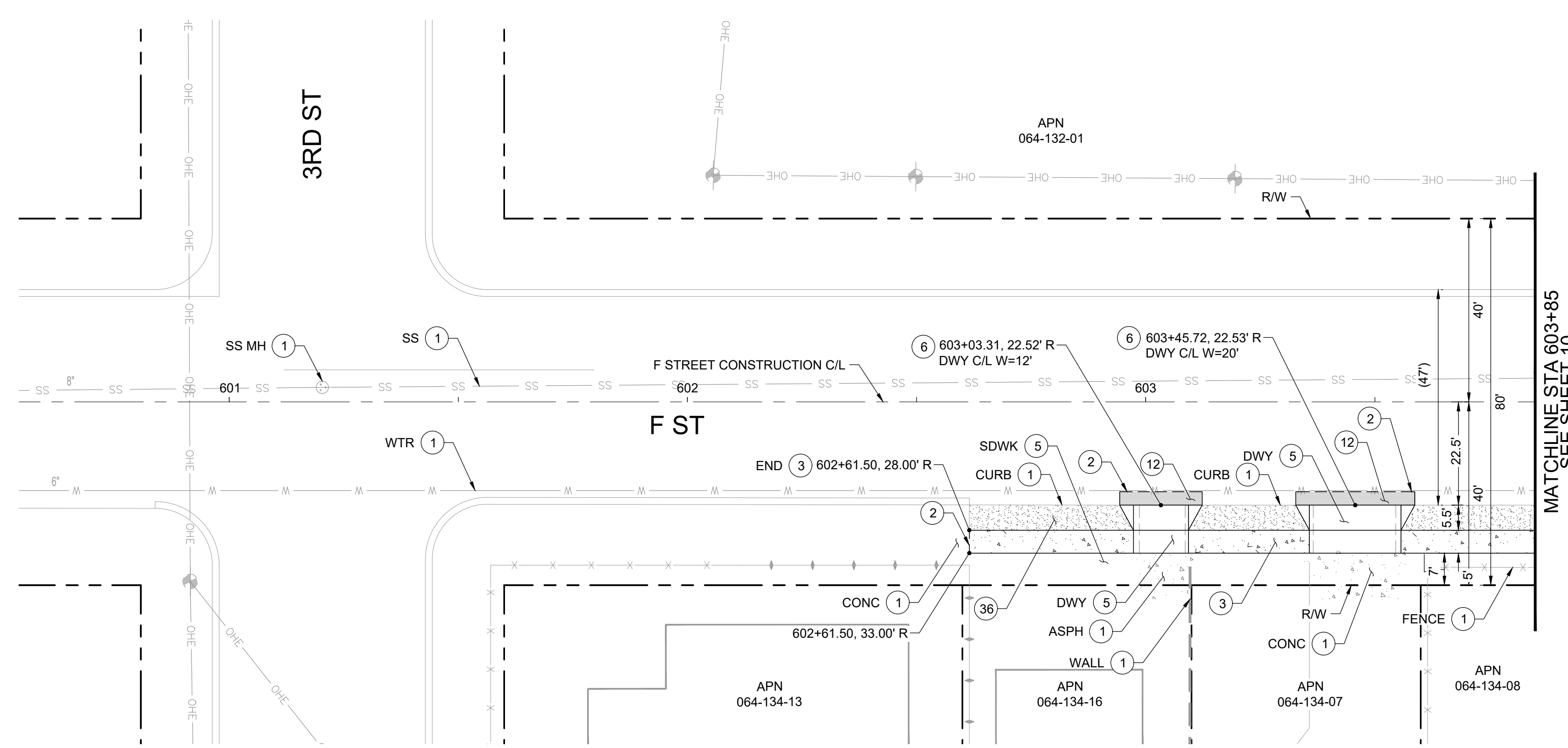
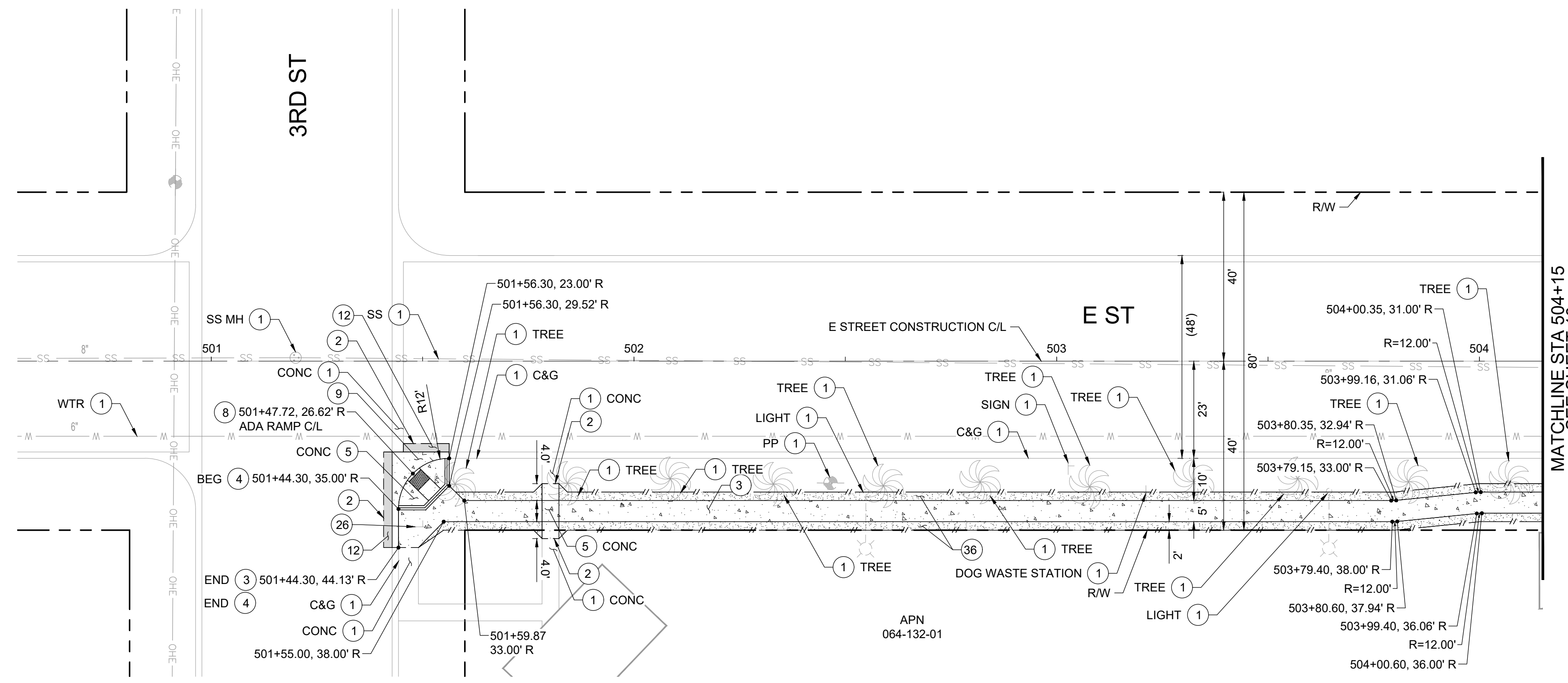
PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

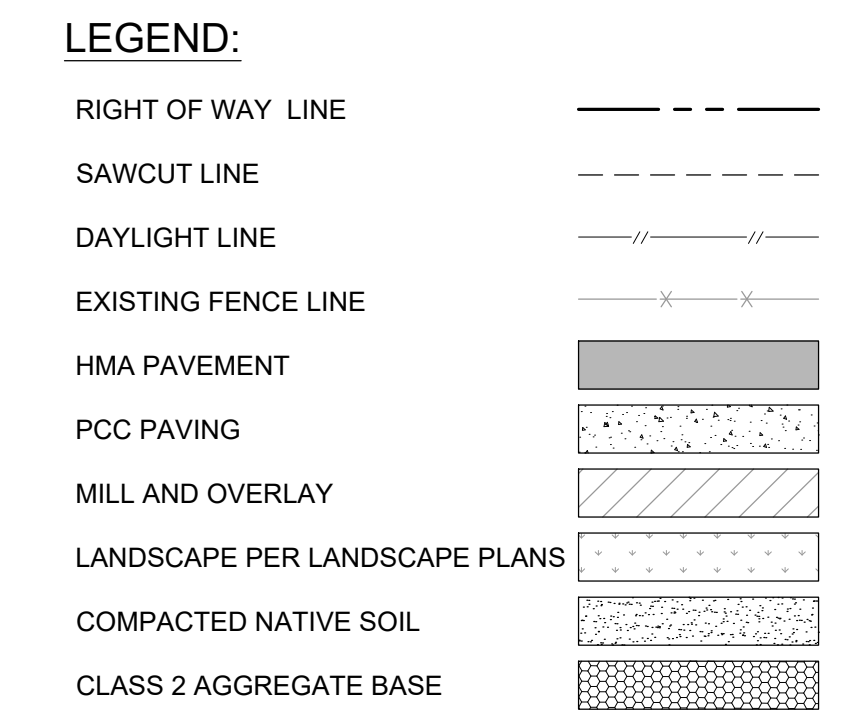
SHEET CONTENT: IMPROVEMENT PLANS  
4TH STREET

|                 |                 |
|-----------------|-----------------|
| SCALE: N/A      | SHEET           |
| DRAWN BY: BS    | 10              |
| REVIEWED BY: RD | OF 52 SHEETS    |
| JUNE 2024       | JOB NO. CIP#823 |

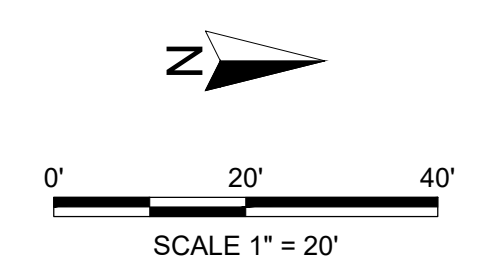
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- ### CONSTRUCTION NOTES
- 1 PROTECT IN PLACE
  - 2 SAWCUT PER DETAIL A ON SHEET 03
  - 3 CONSTRUCT PCC SIDEWALK PER CITY OF IMPERIAL STD. DET. NO. 407-A
  - 4 CONSTRUCT PCC CURB AND GUTTER PER CITY OF IMPERIAL STD. DET. NO. 400. CONSTRUCT TRANSITION TO EXISTING PCC CURB AND GUTTER PER DETAIL B, SHEET 3
  - 5 REMOVE AND DISPOSE
  - 6 CONSTRUCT PARKWAY PCC DRIVEWAY APPROACH PER CITY OF IMPERIAL STD. DET. NO. 404
  - 8 CONSTRUCT PCC FULL CORNER ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409-A
  - 9 CONSTRUCT PCC SPANDREL PER CITY OF IMPERIAL STD. DET. NO. 410
  - 12 CONSTRUCT 3" HMA OVER 14" CLASS 2 AGGREGATE BASE
  - 26 REMOVE AND REINSTALL EXISTING SIGN
  - 36 PLACE 12" COMPACTED NATIVE SOIL. COMPACTED TO 90% RELATIVE DENSITY



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  7. POWER POLE LOCATION ON PLANS ARE APPROXIMATE. CONTRACTOR TO MAINTAIN 6' BETWEEN EDGE OF SIDEWALK AND POWER POLE.



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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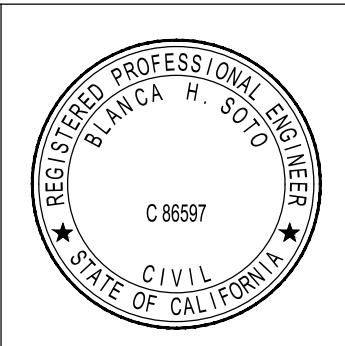
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422-4133  
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**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
Blanca Soto 86597  
BLANCA H. SOTO R.C.E. NO.  
DATE: 06/21/2024 REG. EXP. 03/31/2025

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

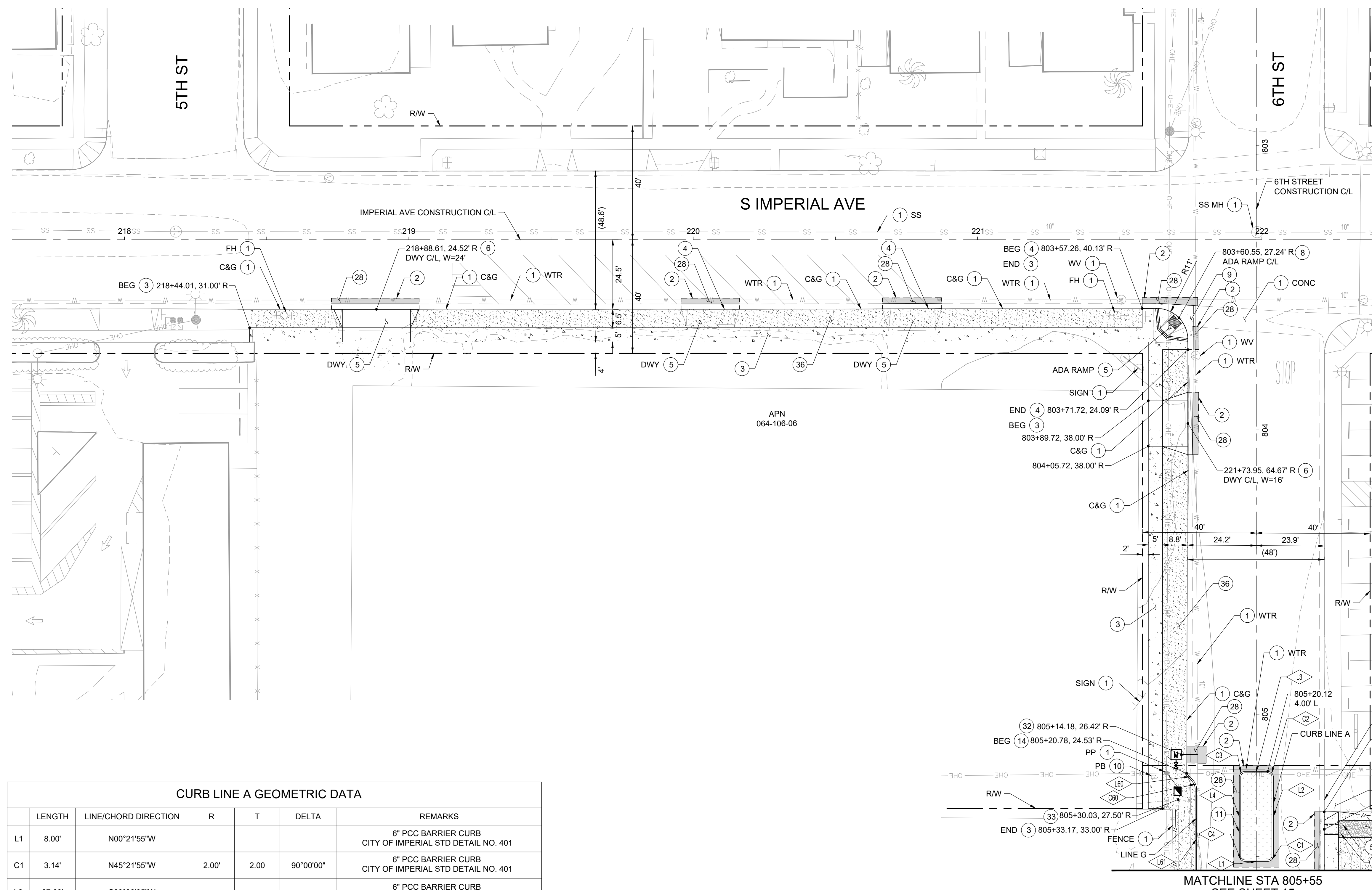
SHEET CONTENT: IMPROVEMENT PLANS  
E AND F STREET

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024

SHEET  
**11**  
OF 52 SHEETS  
JOB NO.  
CIP#823

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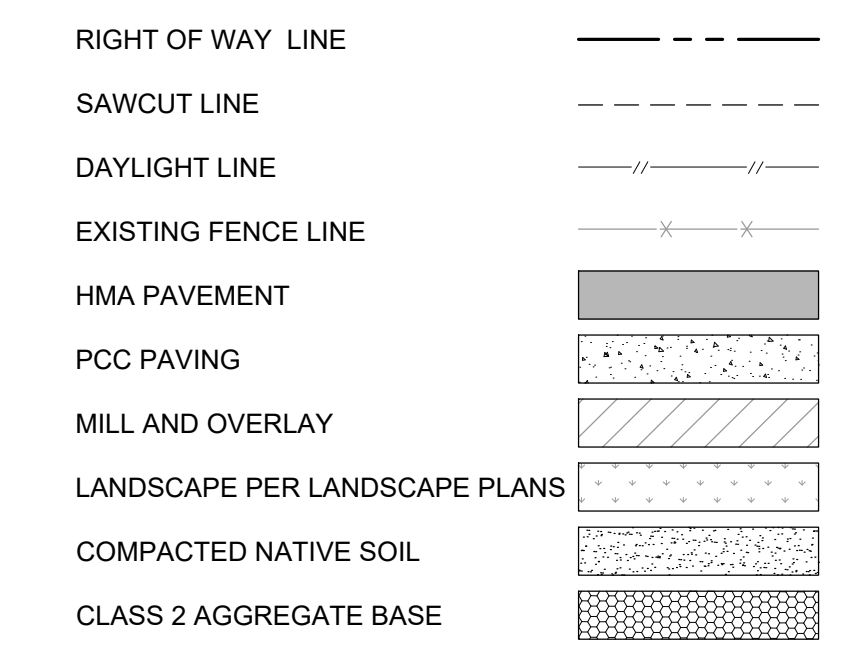
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**CONSTRUCTION NOTES**

- 1 PROTECT IN PLACE
- 2 SAWCUT PER DETAIL A ON SHEET 03
- 3 CONSTRUCT PCC SIDEWALK PER CITY OF IMPERIAL STD. DET. NO. 407-A
- 4 CONSTRUCT PCC CURB AND GUTTER PER CITY OF IMPERIAL STD. DET. NO. 400. CONSTRUCT TRANSITION TO EXISTING PCC CURB AND GUTTER PER DETAIL B, SHEET 3
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- 6 CONSTRUCT PARKWAY PCC DRIVEWAY APPROACH PER CITY OF IMPERIAL STD. DET. NO. 404
- 8 CONSTRUCT PCC FULL CORNER ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409-A
- 9 CONSTRUCT PCC SPANDREL PER CITY OF IMPERIAL STD. DET. NO. 410
- 10 ADJUST TO GRADE
- 11 CONSTRUCT PCC BARRIER CURB PER CITY OF IMPERIAL STD. DET. NO. 401
- 14 CONSTRUCT HMA DIKE TYPE A PER CALTRANS STD. PLAN A87B
- 18 CONSTRUCT SIDEWALK UNDERDRAIN PER DETAIL C, SHEET 03
- 28 CONSTRUCT 4.5" HMA OVER 26" CLASS 2 AGGREGATE BASE
- 32 CONSTRUCT IRRIGATION WATER SERVICE LATERAL. CONTRACTOR TO FURNISH AND INSTALL METER BOX AND ALL APPURTENANCES NECESSARY FOR THE SERVICE. SEE DETAILS I, J, K, AND L ON SHEET 52 FOR SERVICE INSTALLATION, WATER METER BOX LOCATION, BACKFILL AND BEDDING DETAILS. CONTRACTOR TO COORDINATE WITH CITY OF IMPERIAL WATER AND WASTEWATER DEPARTMENT AND COMMUNITY DEVELOPMENT DEPARTMENT. SEE IRRIGATION PLANS FOR BACKFLOW AND POINT OF CONNECTION DETAILS.
- 33 ELECTRICAL SERVICE CABINET. SEE TRAFFIC SIGNAL PLAN
- 36 PLACE 12" COMPACTED NATIVE SOIL. COMPACTED TO 90% RELATIVE DENSITY

**LEGEND:**

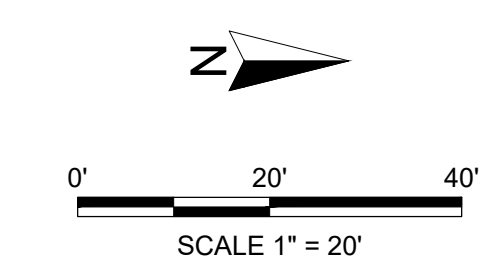


**GENERAL NOTES:**

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- 6. THE CONTRACTOR SHALL DETERMINE THE LIMITS AND LAYOUT OF WORK. PRIOR TO DEMOLITION, THE LIMITS AND LAYOUT OF THE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY EITHER SHOP DRAWING OR FIELD MARK OUTS.
- 7. TOP OF MEDIAN CURB IS INTENDED TO SMOOTHLY FOLLOW THE EXISTING GRADE OF THE ROADWAY AND PROVIDE AN EXPOSED CURB FACE HEIGHT OF 6" ABOVE THE ROADWAY SURFACE, UNLESS OTHERWISE NOTED.
- 8. POWER POLE LOCATION ON PLANS ARE APPROXIMATE, CONTRACTOR TO MAINTAIN 6" BETWEEN EDGE OF SIDEWALK AND POWER POLE.

| CURB LINE A GEOMETRIC DATA |        |                      |       |       |           |   |
|----------------------------|--------|----------------------|-------|-------|-----------|---|
|                            | LENGTH | LINE/CHORD DIRECTION | R     | T     | DELTA     | REMARKS   |
| L1                         | 8.00'  | N00°21'55"W          |       |       |           | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C1                         | 3.14'  | N45°21'55"W          | 2.00' | 2.00' | 90°00'00" | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| L2                         | 27.68' | S89°38'05"W          |       |       |           | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C2                         | 3.14'  | S44°37'51"W          | 2.00' | 2.00' | 90°00'28" | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| L3                         | 8.00'  | S00°22'23"E          |       |       |           | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C3                         | 3.14'  | S45°22'09"E          | 2.00' | 2.00' | 89°59'32" | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| L4                         | 27.67' | N89°38'05"E          |       |       |           | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C4                         | 3.14'  | N44°38'05"E          | 2.00' | 2.00' | 90°00'00" | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |

SEE SHEET 15 FOR LINE G GEOMETRIC DATA TABLE



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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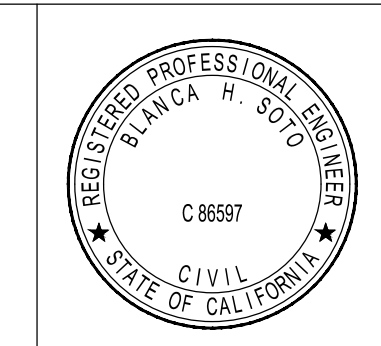
Underground Service Alert  
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TWO WORKING DAYS BEFORE YOU DIG.



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420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
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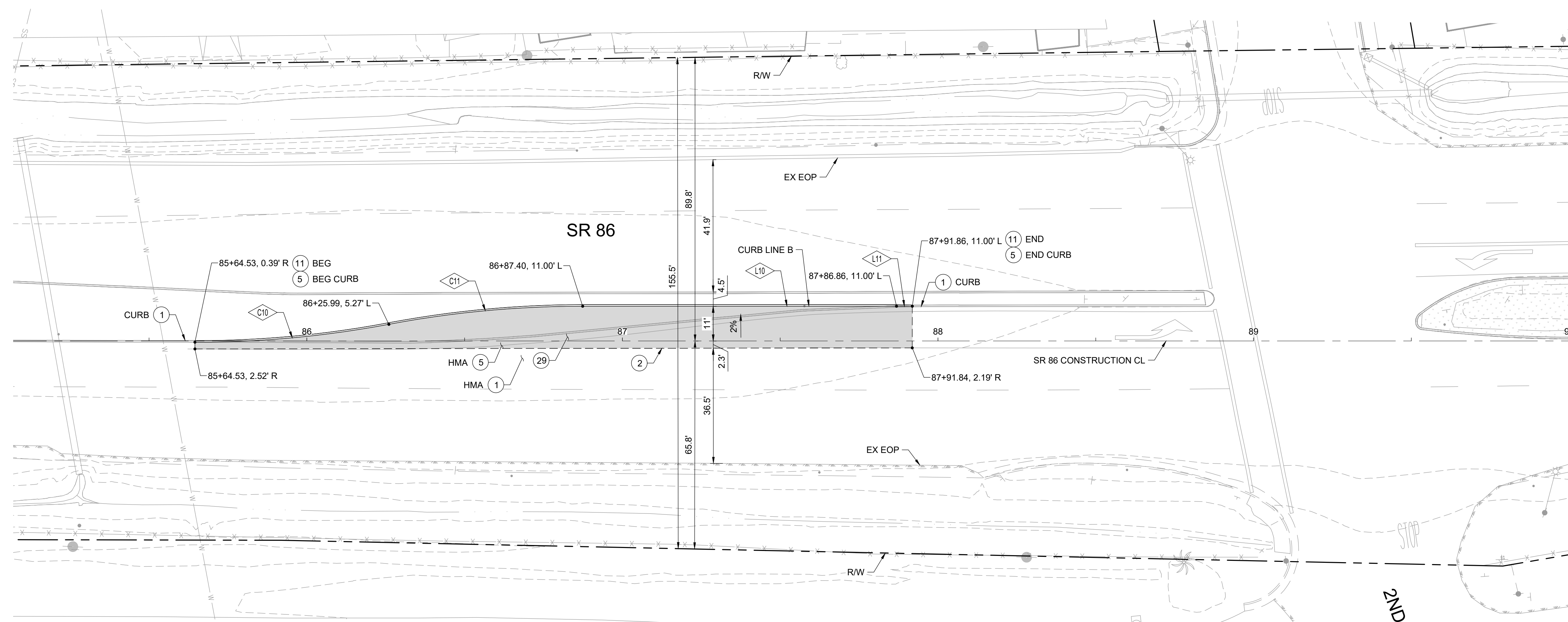
PREPARED UNDER THE DIRECT SUPERVISION OF:  
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BLANCA H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: IMPROVEMENT PLANS 6TH STREET

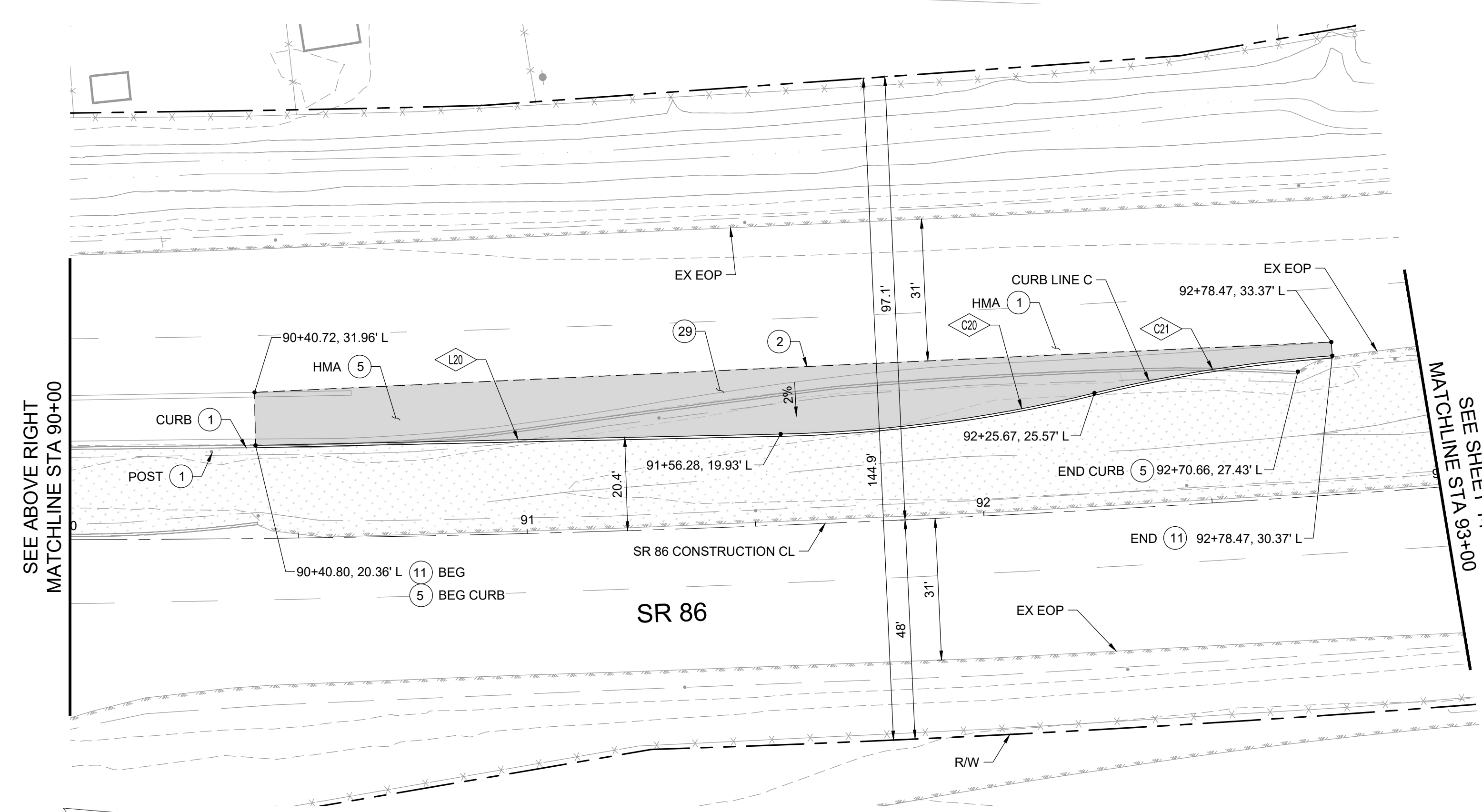
SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024  
SHEET 12 OF 52 SHEETS  
JOB NO. CIP#823

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- CONSTRUCTION NOTES**
- ① PROTECT IN PLACE
  - ② SAWCUT PER DETAIL A ON SHEET 03
  - ⑤ REMOVE AND DISPOSE
  - ⑪ CONSTRUCT PCC BARRIER CURB PER CITY OF IMPERIAL STD. DET. NO. 401
  - ⑲ CONSTRUCT 8.5" HMA OVER 34" CLASS 2 AGGREGATE BASE

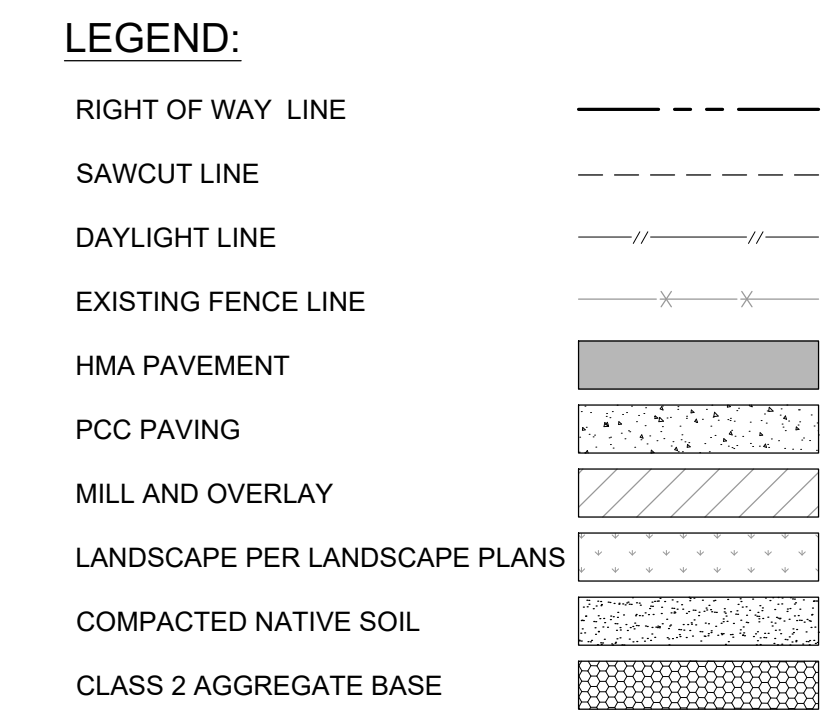


**CURB LINE B GEOMETRIC DATA**

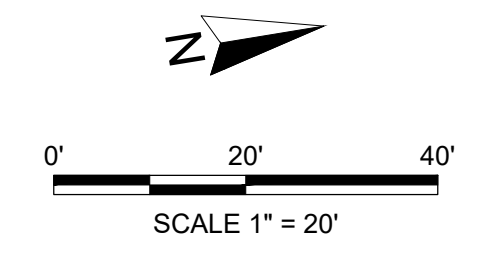
|     | LENGTH | LINE/CHORD DIRECTION | R       | T     | DELTA     | REMARKS  |
|-----|--------|----------------------|---------|-------|-----------|--|
| C10 | 61.81' | S04°04'54"W          | 328.00' | 31.00 | 10°47'50" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C11 | 61.77' | S04°00'46"W          | 332.00' | 30.97 | 10°39'34" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L10 | 99.46' | S09°20'34"W          |         |       |           | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L11 | 5.00'  | S10°56'37"W          |         |       |           | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |

**CURB LINE C GEOMETRIC DATA**

|     | LENGTH  | LINE/CHORD DIRECTION | R       | T     | DELTA     | REMARKS  |
|-----|---------|----------------------|---------|-------|-----------|--|
| L20 | 114.89' | S08°05'55"W          |         |       |           | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C20 | 69.36'  | S01°53'22"W          | 320.00' | 34.82 | 12°25'07" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C21 | 52.71'  | S00°26'38"W          | 317.00' | 26.42 | 9°31'39"  | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |



- GENERAL NOTES:**
- SEE TITLE SHEET FOR IMPROVEMENT NOTES AND DEMOLITION NOTES.
  - VERIFY THE EXISTENCE AND HORIZONTAL/VERTICAL LOCATION OF ALL UTILITIES WITHIN THE PROJECT AREA THAT MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. EXISTING UTILITIES MAY BE PRESENT EVEN IF NOT SHOWN ON PLAN.
  - TO THE EXTENT POSSIBLE, CONTRACTOR SHALL PROTECT IN PLACE ALL SURVEY MONUMENTS DURING THE COURSE OF CONSTRUCTION. CONTRACTOR'S LAND SURVEYOR SHALL INDEPENDENTLY VERIFY/DETERMINE ANY AND ALL SURVEY MONUMENTS THAT MAY OR WILL BE DISTURBED OR DESTROYED BY THE CONTRACTOR'S ACTIVITIES. CONTRACTOR'S LAND SURVEYOR SHALL FILE WITH THE OFFICE OF THE COUNTY SURVEYOR CORNER RECORDS AND/OR RECORD(S) OF SURVEY PRIOR TO SUCH DISTURBANCE AND UPON RE-ESTABLISHMENT OF THE SURVEY MONUMENT(S).
  - AREAS OF FULL DEPTH REPLACEMENT LESS THAN 2' WIDE MAY UTILIZE FULL DEPTH HMA.
  - THE REMOVAL OF HMA INCLUDES ASPHALT AND BASE SECTION.
  - THE CONTRACTOR SHALL DETERMINE THE LIMITS AND LAYOUT OF WORK. PRIOR TO DEMOLITION, THE LIMITS AND LAYOUT OF THE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY EITHER SHOP DRAWING OR FIELD MARK OUTS.



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

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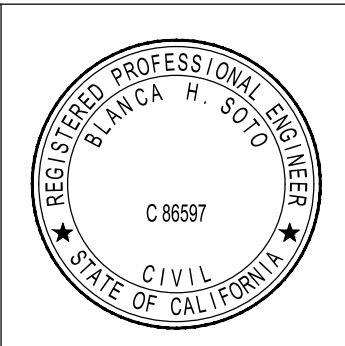
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|     |            |          |      |

**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



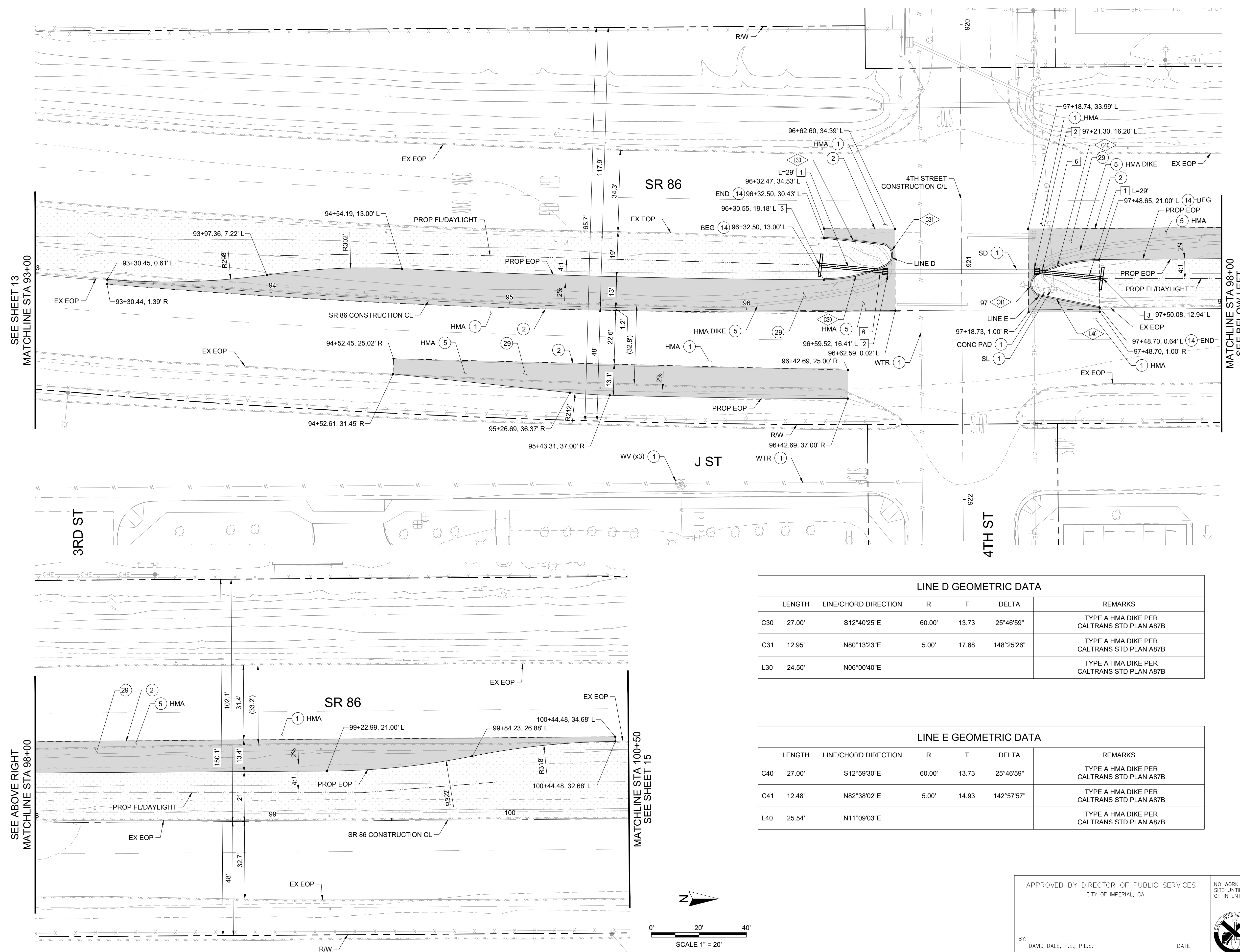
PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
Blanca H. Soto R.C.E. No. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

**PROJECT TITLE:** CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
**SHEET CONTENT:** IMPROVEMENT PLANS SR 86 AT 2ND STREET

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024  
SHEET 13 OF 52 SHEETS  
JOB NO. CIP#823

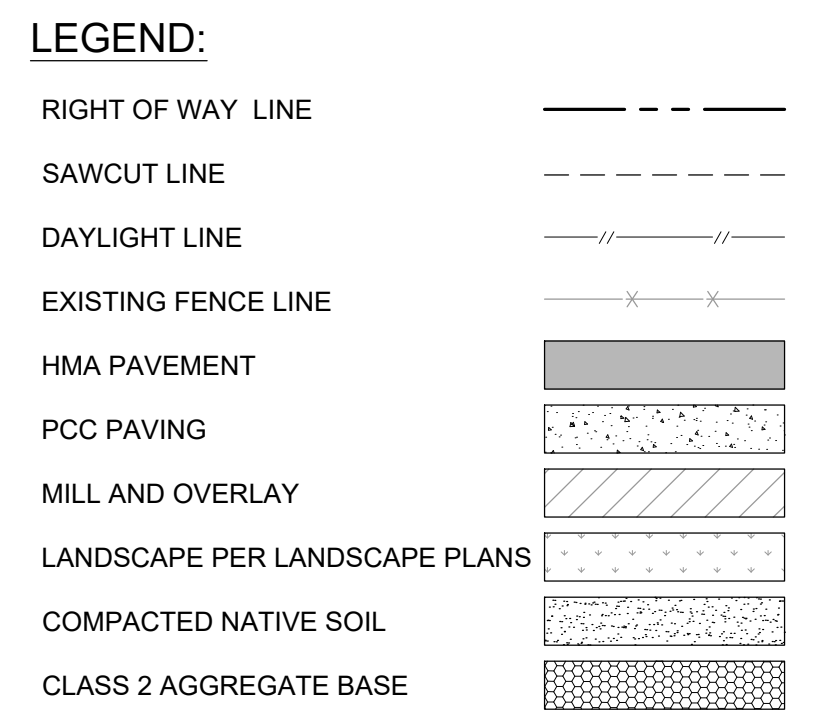
UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

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- CONSTRUCTION NOTES**
- 1 PROTECT IN PLACE
  - 2 SAWCUT PER DETAIL A ON SHEET 03
  - 5 REMOVE AND DISPOSE
  - 14 CONSTRUCT HMA DIKE TYPE A PER CALTRANS STD. PLAN A87B
  - 29 CONSTRUCT 8.5" HMA OVER 34" CLASS 2 AGGREGATE BASE

- STORM DRAIN CONSTRUCTION NOTES**
- 1 FURNISH AND INSTALL 18" RCP STORM DRAIN, 1350-D
  - 2 CONSTRUCT 18" CONCRETE PIPE COLLAR PER DETAIL G ON SHEET 3
  - 3 CONSTRUCT STRAIGHT HEADWALL PER CALTRANS STD PLAN D89B, H=3'-2"
  - 6 REMOVED DAMAGED PORTIONS OF THE EXISTING PIPE TO ENSURE PROPER CONSTRUCTION OF PIPE COLLAR. LIMITS ARE FOR REFERENCE ONLY, CONTRACTOR TO DETERMINE ACTUAL LIMITS OF REMOVAL.



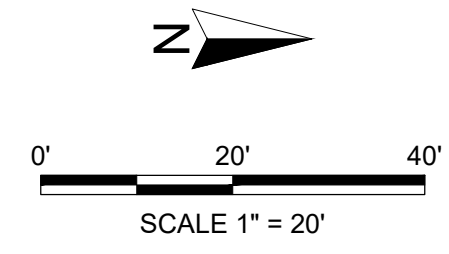
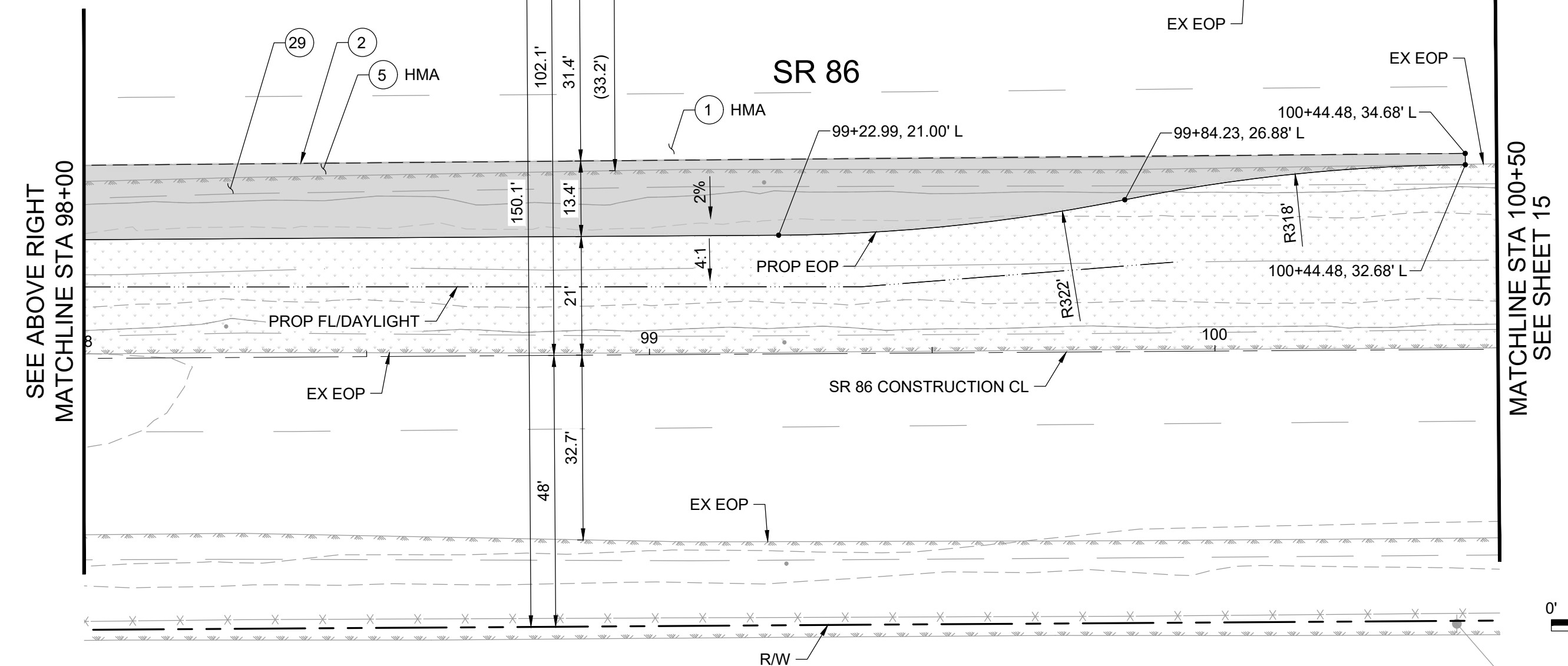
- GENERAL NOTES:**
1. SEE TITLE SHEET FOR IMPROVEMENT NOTES AND DEMOLITION NOTES.
  2. VERIFY THE EXISTENCE AND HORIZONTAL/VERTICAL LOCATION OF ALL UTILITIES WITHIN THE PROJECT AREA THAT MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. EXISTING UTILITIES MAY BE PRESENT EVEN IF NOT SHOWN ON PLAN.
  3. TO THE EXTENT POSSIBLE, CONTRACTOR SHALL PROTECT IN PLACE ALL SURVEY MONUMENTS DURING THE COURSE OF CONSTRUCTION. CONTRACTOR'S LAND SURVEYOR SHALL INDEPENDENTLY VERIFY/DETERMINE ANY AND ALL SURVEY MONUMENTS THAT MAY OR WILL BE DISTURBED OR DESTROYED BY THE CONTRACTOR'S ACTIVITIES. CONTRACTOR'S LAND SURVEYOR SHALL FILE WITH THE OFFICE OF THE COUNTY SURVEYOR CORNER RECORDS AND/OR RECORD(S) OF SURVEY PRIOR TO SUCH DISTURBANCE AND UPON RE-ESTABLISHMENT OF THE SURVEY MONUMENT(S).
  4. AREAS OF FULL DEPTH REPLACEMENT LESS THAN 2' WIDE MAY UTILIZE FULL DEPTH HMA.
  5. THE REMOVAL OF HMA INCLUDES ASPHALT AND BASE SECTION.
  6. THE CONTRACTOR SHALL DETERMINE THE LIMITS AND LAYOUT OF WORK. PRIOR TO DEMOLITION, THE LIMITS AND LAYOUT OF THE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY EITHER SHOP DRAWING OR FIELD MARK OUTS.

**LINE D GEOMETRIC DATA**

|     | LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA      | REMARKS                                    |
|-----|--------|----------------------|--------|-------|------------|--|
| C30 | 27.00' | S12°40'25"E          | 60.00' | 13.73 | 25°46'59"  | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| C31 | 12.95' | N80°13'23"E          | 5.00'  | 17.68 | 148°25'26" | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| L30 | 24.50' | N06°00'40"E          |        |       |            | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |

**LINE E GEOMETRIC DATA**

|     | LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA      | REMARKS                                    |
|-----|--------|----------------------|--------|-------|------------|--|
| C40 | 27.00' | S12°59'30"E          | 60.00' | 13.73 | 25°46'59"  | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| C41 | 12.48' | N82°38'02"E          | 5.00'  | 14.93 | 142°57'57" | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| L40 | 25.54' | N11°09'03"E          |        |       |            | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

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420 South Imperial Avenue  
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Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: IMPROVEMENT PLANS SR 86 AT 4TH STREET

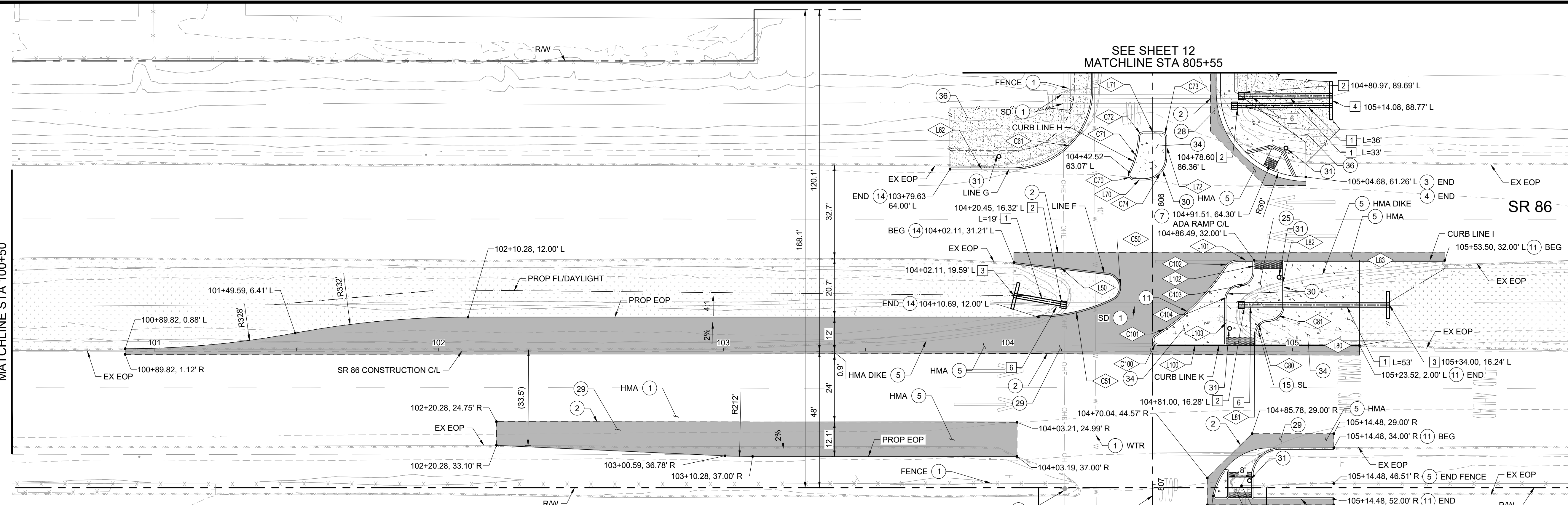
SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024  
SHEET 14 OF 52 SHEETS  
JOB NO. CLP#823

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

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SEE SHEET 14  
MATCHLINE STA 100+50

MATCHLINE STA 106+00  
SEE SHEET 16



**LINE F GEOMETRIC DATA**

| LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA      | REMARKS                                    |
|--------|----------------------|--------|-------|------------|--|
| L50    | S06°07'10"W          |        |       |            | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| C50    | S79°58'54"W          | 5.00'  | 17.28 | 147°43'27" | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| C51    | N13°15'53"W          | 60.00' | 13.73 | 25°46'59"  | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |

**LINE G GEOMETRIC DATA**

| LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA     | REMARKS                                    |
|--------|----------------------|--------|-------|-----------|--|
| L60    | S45°00'00"W          |        |       |           | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| C60    | S67°19'03"W          | 5.00'  | 2.05  | 44°38'05" | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| L61    | S89°38'05"W          |        |       |           | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| C61    | N45°22'09"W          | 28.00' | 28.00 | 89°59'32" | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| L62    | N00°22'23"W          |        |       |           | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |

**CURB LINE H GEOMETRIC DATA**

| LENGTH | LINE/CHORD DIRECTION | R      | T    | DELTA      | REMARKS                                      |
|--------|----------------------|--------|------|------------|--|
| L70    | N00°22'19"W          |        |      |            | TYPE A3-6 PIN-ON CURB CALTRANS STD PLAN A87A |
| C70    | N57°43'03"E          | 2.00'  | 3.21 | 116°10'44" | TYPE A3-6 PIN-ON CURB CALTRANS STD PLAN A87A |
| C71    | S75°35'35"E          | 32.00' | 6.45 | 22°48'00"  | TYPE A3-6 PIN-ON CURB CALTRANS STD PLAN A87A |
| C72    | S43°40'45"E          | 2.00'  | 1.89 | 86°37'40"  | TYPE A3-6 PIN-ON CURB CALTRANS STD PLAN A87A |
| L71    | S00°21'55"E          |        |      |            | TYPE A3-6 PIN-ON CURB CALTRANS STD PLAN A87A |
| C73    | S44°38'05"W          | 2.00'  | 2.00 | 90°00'00"  | TYPE A3-6 PIN-ON CURB CALTRANS STD PLAN A87A |
| L72    | S89°38'05"W          |        |      |            | TYPE A3-6 PIN-ON CURB CALTRANS STD PLAN A87A |
| C74    | N45°22'07"W          | 8.00'  | 8.00 | 89°59'36"  | TYPE A3-6 PIN-ON CURB CALTRANS STD PLAN A87A |

**CURB LINE I GEOMETRIC DATA**

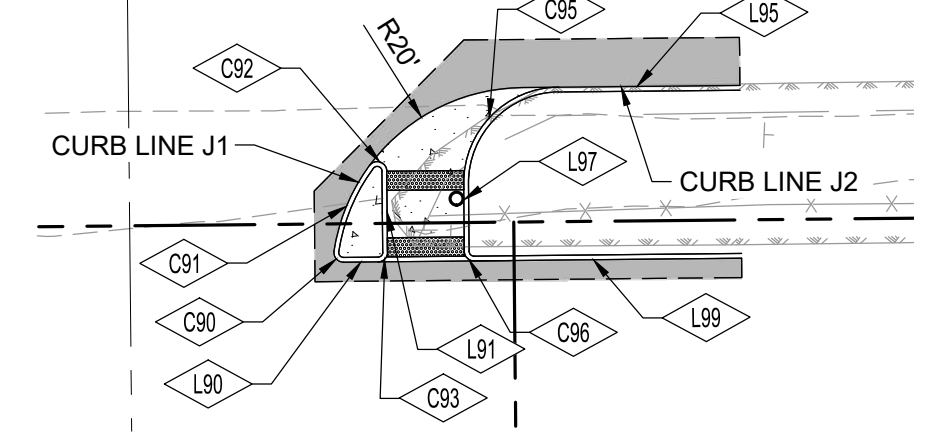
| LENGTH | LINE/CHORD DIRECTION | R     | T    | DELTA     | REMARKS   |
|--------|----------------------|-------|------|-----------|---|
| C80    | N45°40'40"W          | 5.00' | 4.95 | 89°23'27" | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| L81    | S89°37'37"W          |       |      |           | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| L80    | S00°22'23"E          |       |      |           | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C81    | N45°42'27"W          | 5.00' | 4.95 | 89°27'01" | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| L82    | S89°34'02"W          |       |      |           | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| L83    | N00°22'23"W          |       |      |           | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |

**CURB LINE J1 GEOMETRIC DATA**

| LENGTH | LINE/CHORD DIRECTION | R      | T    | DELTA      | REMARKS   |
|--------|----------------------|--------|------|------------|---|
| L90    | N00°22'23"W          |        |      |            | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C90    | N49°10'09"E          | 1.00'  | 1.17 | 99°05'05"  | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C91    | S67°20'57"E          | 20.00' | 4.96 | 27°52'43"  | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C92    | S18°06'31"W          | 1.00'  | 2.99 | 143°02'12" | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| L91    | S89°37'37"W          |        |      |            | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |
| C93    | N45°22'23"W          | 1.00'  | 1.00 | 90°00'00"  | 6" PCC BARRIER CURB CITY OF IMPERIAL STD DETAIL NO. 401 |

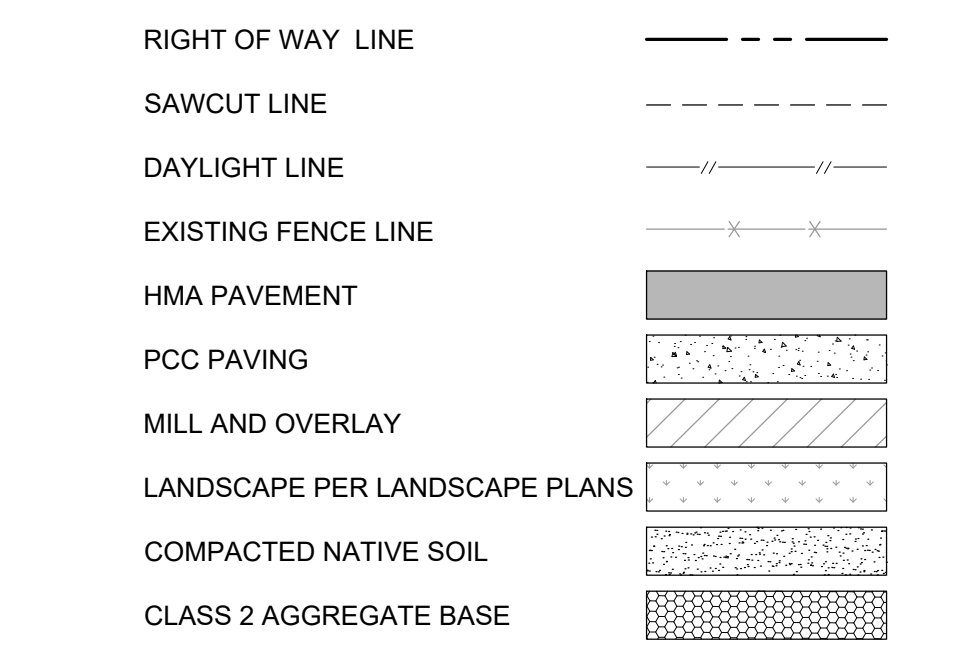
**STORM DRAIN CONSTRUCTION NOTES**

- FURNISH AND INSTALL 18" RCP STORM DRAIN, 1350-D
- CONSTRUCT 18" CONCRETE PIPE COLLAR PER DETAIL G ON SHEET 3
- CONSTRUCT STRAIGHT HEADWALL PER CALTRANS STD PLAN D89B, H=3'-2"
- CONSTRUCT DOUBLE CIRCULAR PIPE HEADWALL PER CALTRANS STD PLAN D89B, H=3'-2"
- REMOVED DAMAGED PORTIONS OF THE EXISTING PIPE TO ENSURE PROPER CONSTRUCTION OF PIPE COLLAR. LIMITS ARE FOR REFERENCE ONLY. CONTRACTOR TO DETERMINE ACTUAL LIMITS OF REMOVAL.



SEE SHEET 16 FOR CURB LINE J2 AND K GEOMETRIC DATA TABLE

- CONSTRUCTION NOTES**
- PROTECT IN PLACE
  - SAWCUT PER DETAIL A ON SHEET 03
  - CONSTRUCT PCC SIDEWALK PER CITY OF IMPERIAL STD. DET. NO. 407-A
  - CONSTRUCT PCC CURB AND GUTTER PER CITY OF IMPERIAL STD. DET. NO. 400. CONSTRUCT TRANSITION TO EXISTING PCC CURB AND GUTTER PER DETAIL B, SHEET 3
  - REMOVE AND DISPOSE
  - CONSTRUCT PCC TYPICAL CORNER ONE ADA RAMP PER CITY OF IMPERIAL STD. DET. NO. 409
  - CONSTRUCT PCC BARRIER CURB PER CITY OF IMPERIAL STD. DET. NO. 401
  - CONSTRUCT 3" HMA OVER 14" CLASS 2 AGGREGATE BASE
  - CONSTRUCT PCC MOD TYPICAL CORNER ONE ADA RAMP (WIDTH PER PLAN) PER CITY OF IMPERIAL STD. DET. NO. 409
  - CONSTRUCT HMA DIKE TYPE A PER CALTRANS STD. PLAN A87B
  - REMOVE AND SALVAGE
  - CONSTRUCT TYPE A PCC ADA PASSAGEWAY PER CALTRANS STD PLAN A88B WITH YELLOW TRUNCATED DOMES
  - CONSTRUCT TYPE B PCC ADA PASSAGEWAY PER CALTRANS STD PLAN A88B WITH YELLOW TRUNCATED DOMES
  - CONSTRUCT 4.5" HMA OVER 26" CLASS 2 AGGREGATE BASE
  - CONSTRUCT 8.5" HMA OVER 34" CLASS 2 AGGREGATE BASE
  - CONSTRUCT TYPE A3-6 PIN-ON CURB PER CALTRANS STD. PLAN A87A
  - SEE TRAFFIC SIGNAL PLANS
  - CONSTRUCT PCC MEDIAN INFILL PER DETAIL H ON SHEET 3



**GENERAL NOTES:**

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- TOP OF MEDIAN CURB IS INTENDED TO SMOOTHLY FOLLOW THE EXISTING GRADE OF THE ROADWAY AND PROVIDE AN EXPOSED CURB FACE HEIGHT OF 6" ABOVE THE ROADWAY SURFACE, UNLESS OTHERWISE NOTED.

APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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**REVISIONS:**

| NO. | REVISIONS: | APPROVED | DATE |
|-----|------------|----------|------|
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**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



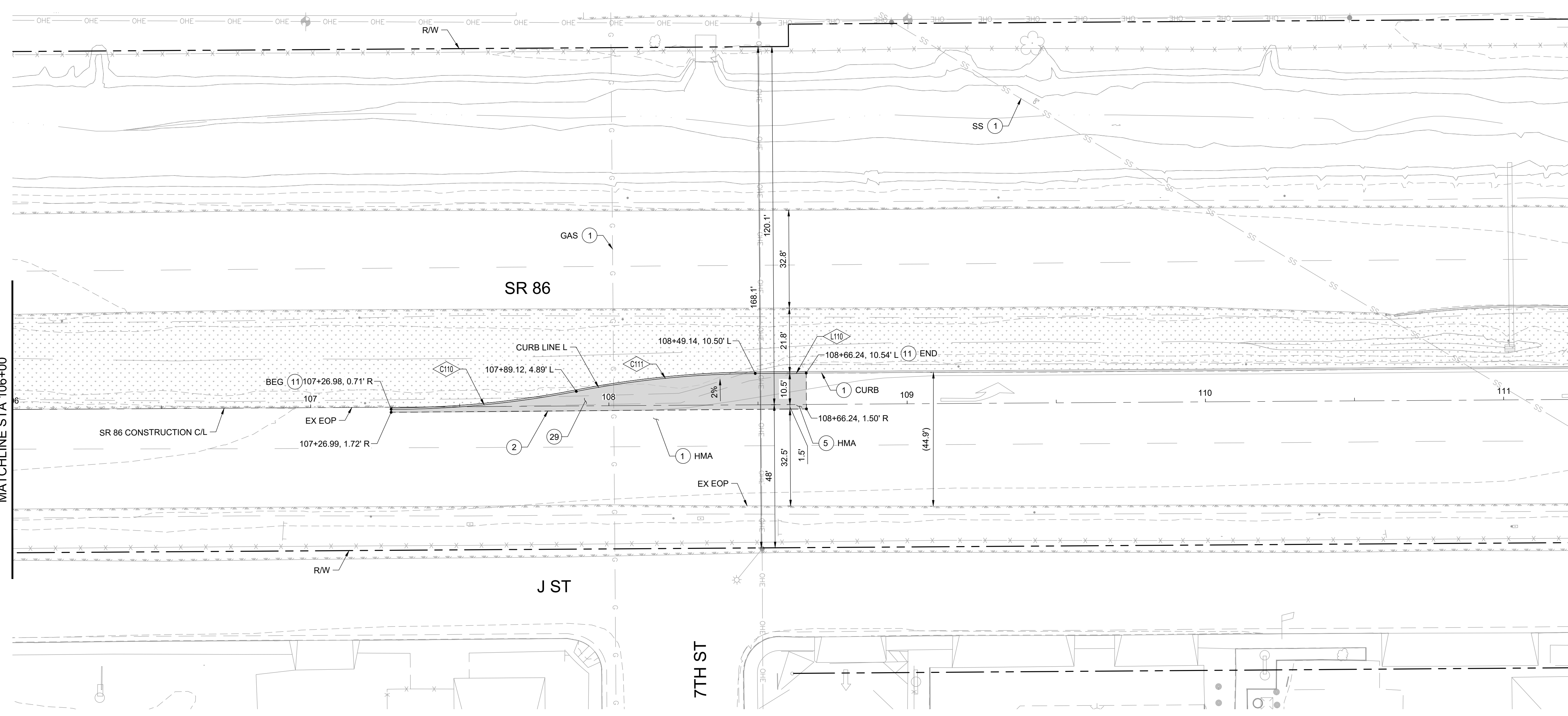
PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

**PROJECT TITLE:** CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1

**SHEET CONTENT:** IMPROVEMENT PLANS SR 86 AT 6TH STREET

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024  
SHEET 15 OF 52 SHEETS  
JOB NO. CIP#823

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- CONSTRUCTION NOTES**
- ① PROTECT IN PLACE
  - ② SAWCUT PER DETAIL A ON SHEET 03
  - ⑤ REMOVE AND DISPOSE
  - ⑪ CONSTRUCT PCC BARRIER CURB PER CITY OF IMPERIAL STD. DET. NO. 401
  - ⑲ CONSTRUCT 8.5" HMA OVER 34" CLASS 2 AGGREGATE BASE

- LEGEND:**
- RIGHT OF WAY LINE
  - SAWCUT LINE
  - DAYLIGHT LINE
  - EXISTING FENCE LINE
  - HMA PAVEMENT
  - PCC PAVING
  - MILL AND OVERLAY
  - LANDSCAPE PER LANDSCAPE PLANS
  - COMPACTED NATIVE SOIL
  - CLASS 2 AGGREGATE BASE

- GENERAL NOTES:**
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**CURB LINE K GEOMETRIC DATA**

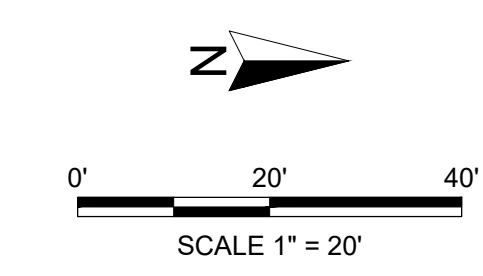
|      | LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA      | REMARKS  |
|------|--------|----------------------|--------|-------|------------|--|
| L100 | 23.78' | N00°22'23"W          |        |       |            | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C100 | 5.17'  | N73°43'58"E          | 2.00'  | 7.02  | 148°12'42" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C101 | 34.55' | S44°51'06"E          | 78.00' | 17.56 | 25°22'49"  | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C102 | 4.99'  | S28°57'27"E          | 5.00'  | 2.72  | 57°09'21"  | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L101 | 6.06'  | S00°22'23"E          |        |       |            | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L102 | 4.04'  | S89°34'02"W          |        |       |            | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C103 | 7.80'  | N45°44'36"W          | 5.00'  | 4.95  | 89°22'44"  | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C104 | 7.79'  | N45°42'49"W          | 5.00'  | 4.94  | 89°19'09"  | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L103 | 15.96' | S89°37'37"W          |        |       |            | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |

**CURB LINE J2 GEOMETRIC DATA**

|     | LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA     | REMARKS  |
|-----|--------|----------------------|--------|-------|-----------|--|
| L95 | 18.87' | N00°22'23"W          |        |       |           | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C95 | 15.71' | N45°22'23"W          | 10.00' | 10.00 | 90°00'00" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L97 | 7.00'  | S89°37'37"W          |        |       |           | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C96 | 1.57'  | S44°37'37"W          | 1.00'  | 1.00  | 90°00'00" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L99 | 27.87' | S00°22'23"E          |        |       |           | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |

**CURB LINE L GEOMETRIC DATA**

|      | LENGTH | LINE/CHORD DIRECTION | R       | T     | DELTA     | REMARKS  |
|------|--------|----------------------|---------|-------|-----------|--|
| C110 | 62.48' | N05°31'29"W          | 324.00' | 31.34 | 11°02'58" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C111 | 60.37' | N05°42'40"W          | 324.00' | 30.27 | 10°40'34" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L110 | 17.10' | N00°22'23"W          |         |       |           | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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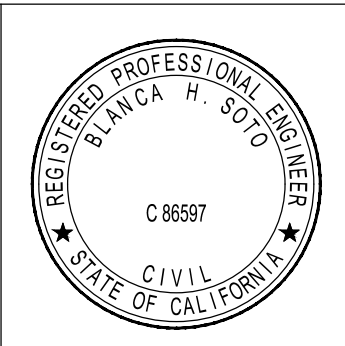
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|     |            |          |      |

**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
Blanca Soto 86597  
BLANCA H. SOTO R.C.E. NO.  
DATE: 06/21/2024 REG. EXP. 03/31/2025

**PROJECT TITLE:** CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

**SHEET CONTENT:** IMPROVEMENT PLANS  
SR 86 AT 7TH STREET

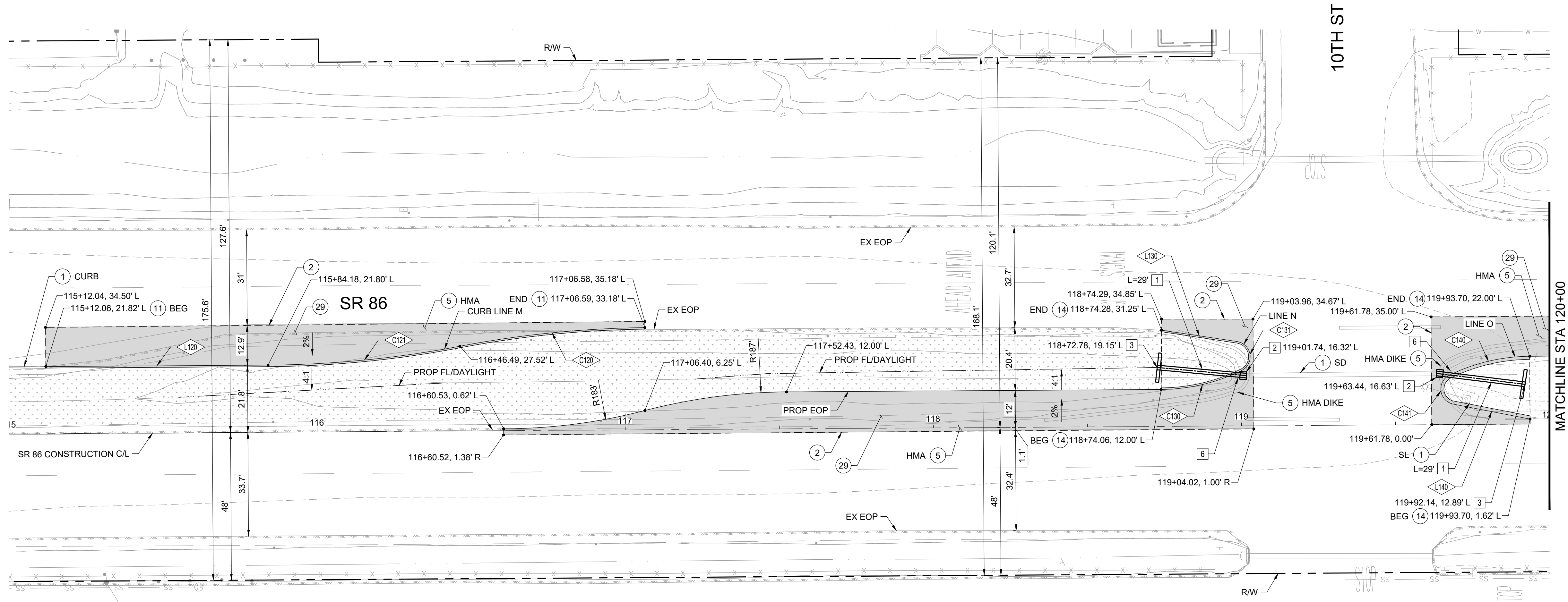
SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024

SHEET  
**16**  
OF 52 SHEETS  
JOB NO.  
CIP#823

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.



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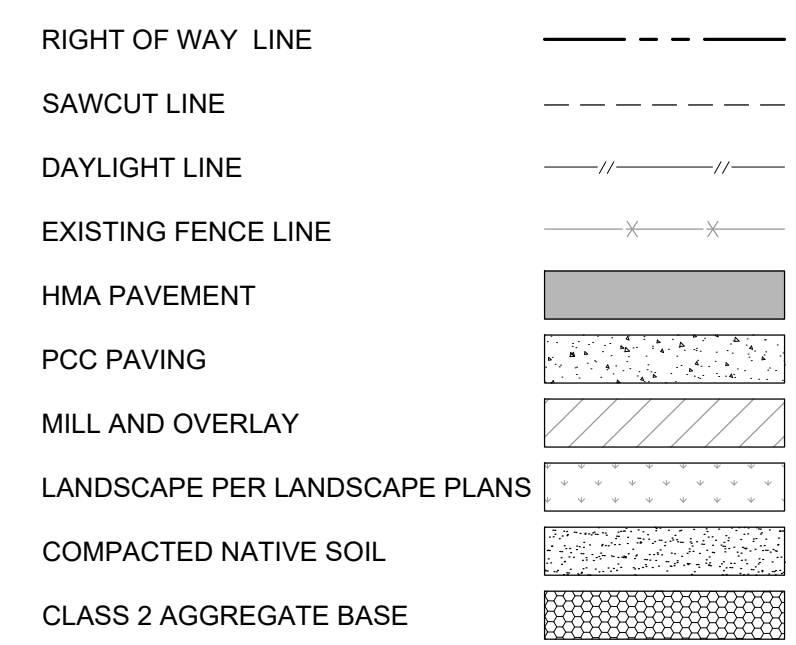
**CONSTRUCTION NOTES**

- 1 PROTECT IN PLACE
- 2 SAWCUT PER DETAIL A ON SHEET 03
- 5 REMOVE AND DISPOSE
- 11 CONSTRUCT PCC BARRIER CURB PER CITY OF IMPERIAL STD. DET. NO. 401
- 14 CONSTRUCT HMA DIKE TYPE A PER CALTRANS STD. PLAN A87B
- 29 CONSTRUCT 8.5" HMA OVER 34" CLASS 2 AGGREGATE BASE

**STORM DRAIN CONSTRUCTION NOTES**

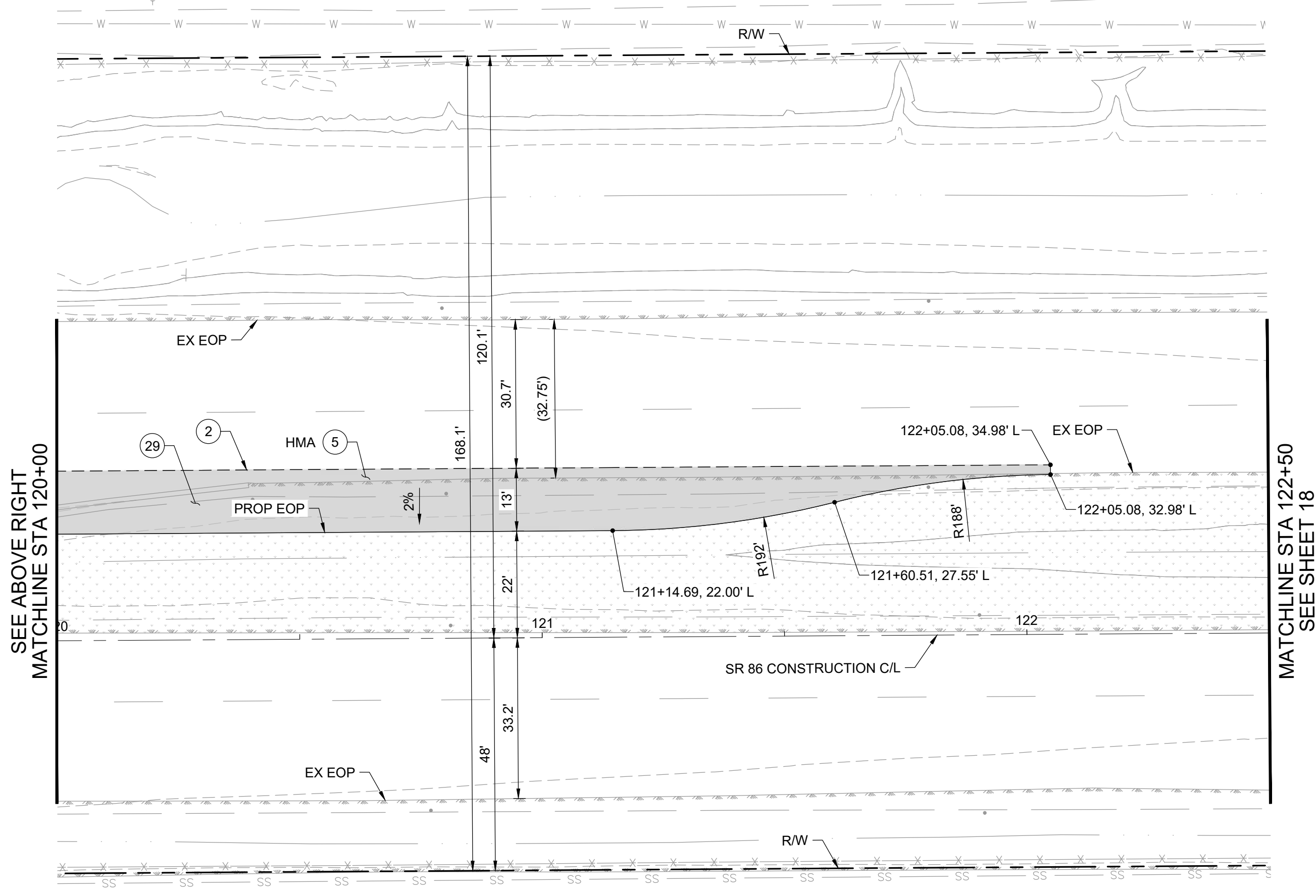
- 1 FURNISH AND INSTALL 18" RCP STORM DRAIN, 1350-D
- 2 CONSTRUCT 18" CONCRETE PIPE COLLAR PER DETAIL G ON SHEET 3
- 3 CONSTRUCT STRAIGHT HEADWALL PER CALTRANS STD PLAN D89B, H=3'-2"
- 6 REMOVED DAMAGED PORTIONS OF THE EXISTING PIPE TO ENSURE PROPER CONSTRUCTION OF PIPE COLLAR. LIMITS ARE FOR REFERENCE ONLY. CONTRACTOR TO DETERMINE ACTUAL LIMITS OF REMOVAL.

**LEGEND:**



**GENERAL NOTES:**

1. SEE TITLE SHEET FOR IMPROVEMENT NOTES AND DEMOLITION NOTES.
2. VERIFY THE EXISTENCE AND HORIZONTAL/VERTICAL LOCATION OF ALL UTILITIES WITHIN THE PROJECT AREA THAT MAY CONFLICT WITH THE PROPOSED CONSTRUCTION. EXISTING UTILITIES MAY BE PRESENT EVEN IF NOT SHOWN ON PLAN.
3. TO THE EXTENT POSSIBLE, CONTRACTOR SHALL PROTECT IN PLACE ALL SURVEY MONUMENTS DURING THE COURSE OF CONSTRUCTION. CONTRACTOR'S LAND SURVEYOR SHALL INDEPENDENTLY VERIFY/DETERMINE ANY AND ALL SURVEY MONUMENTS THAT MAY OR WILL BE DISTURBED OR DESTROYED BY THE CONTRACTOR'S ACTIVITIES. CONTRACTOR'S LAND SURVEYOR SHALL FILE WITH THE OFFICE OF THE COUNTY SURVEYOR CORNER RECORDS AND/OR RECORD(S) OF SURVEY PRIOR TO SUCH DISTURBANCE AND UPON RE-ESTABLISHMENT OF THE SURVEY MONUMENT(S).
4. AREAS OF FULL DEPTH REPLACEMENT LESS THAN 2' WIDE MAY UTILIZE FULL DEPTH HMA.
5. THE REMOVAL OF HMA INCLUDES ASPHALT AND BASE SECTION.
6. THE CONTRACTOR SHALL DETERMINE THE LIMITS AND LAYOUT OF WORK. PRIOR TO DEMOLITION, THE LIMITS AND LAYOUT OF THE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY EITHER SHOP DRAWING OR FIELD MARK OUTS.



**CURB LINE M GEOMETRIC DATA**

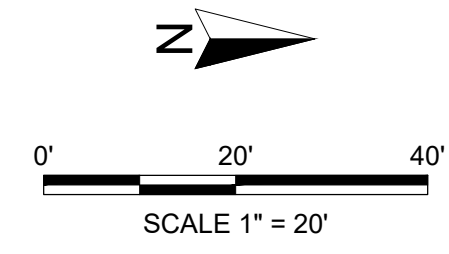
|      | LENGTH | LINE/CHORD DIRECTION | R       | T     | DELTA     | REMARKS  |
|------|--------|----------------------|---------|-------|-----------|--|
| C120 | 60.44' | S05°44'53"E          | 338.00' | 30.30 | 10°14'44" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| C121 | 62.66' | S05°37'19"E          | 342.00' | 31.42 | 10°29'52" | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |
| L120 | 72.14' | S00°22'23"E          |         |       |           | 6" PCC BARRIER CURB<br>CITY OF IMPERIAL STD DETAIL NO. 401 |

**LINE N GEOMETRIC DATA**

|      | LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA      | REMARKS                                       |
|------|--------|----------------------|--------|-------|------------|---|
| C130 | 27.00' | N13°15'53"W          | 60.00' | 13.73 | 25°46'59"  | TYPE A HMA DIKE PER<br>CALTRANS STD PLAN A87B |
| C131 | 12.68' | S81°11'01"W          | 5.00'  | 16.01 | 145°19'13" | TYPE A HMA DIKE PER<br>CALTRANS STD PLAN A87B |
| L130 | 24.77' | S08°31'24"W          |        |       |            | TYPE A HMA DIKE PER<br>CALTRANS STD PLAN A87B |

**LINE O GEOMETRIC DATA**

|      | LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA      | REMARKS                                       |
|------|--------|----------------------|--------|-------|------------|---|
| C140 | 27.00' | S13°15'53"E          | 60.00' | 13.73 | 25°46'59"  | TYPE A HMA DIKE PER<br>CALTRANS STD PLAN A87B |
| C141 | 12.47' | N82°24'49"E          | 5.00'  | 14.88 | 142°51'36" | TYPE A HMA DIKE PER<br>CALTRANS STD PLAN A87B |
| L140 | 25.41' | N10°59'01"E          |        |       |            | TYPE A HMA DIKE PER<br>CALTRANS STD PLAN A87B |



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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|     |            |          |      |

**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
Blanca Soto 86597  
BLANCA H. SOTO R.C.E. NO.  
DATE: 06/21/2024 REG. EXP. 03/31/2025

**PROJECT TITLE:** CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

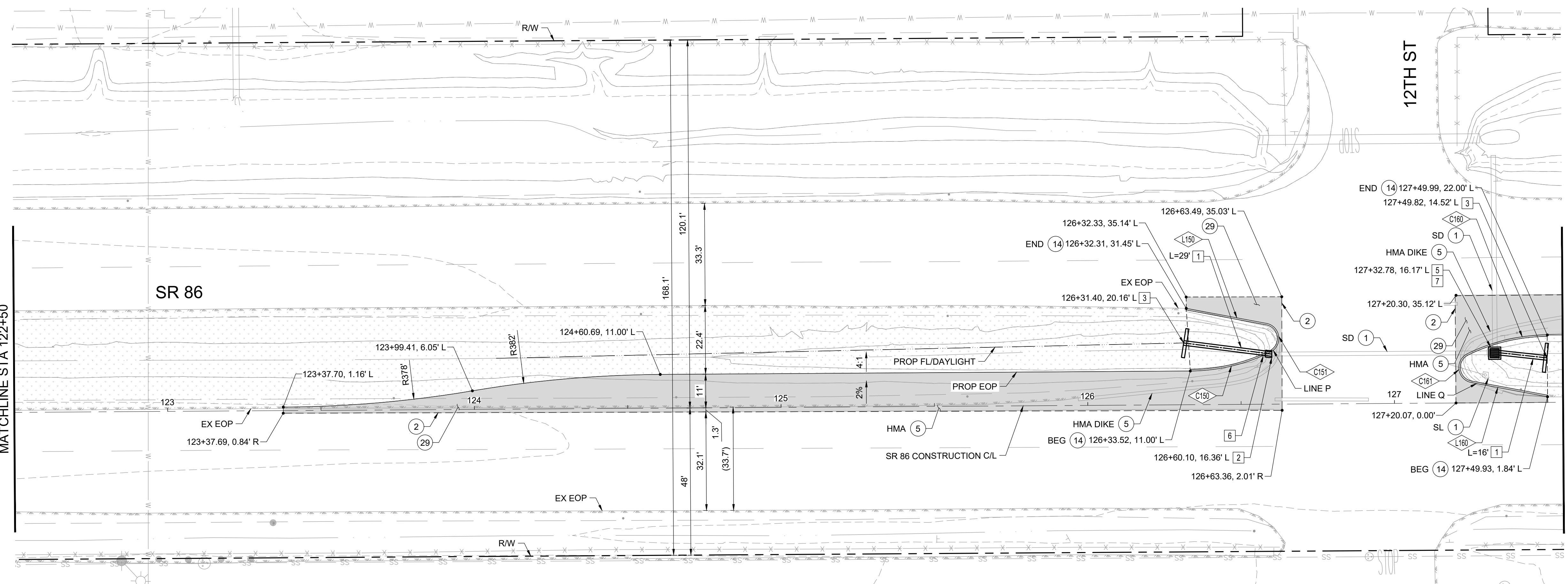
**SHEET CONTENT:** IMPROVEMENT PLANS  
SR 86 AT 10TH STREET

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024

SHEET  
**17**  
OF 52 SHEETS  
JOB NO.  
CIP#823

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

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**CONSTRUCTION NOTES**

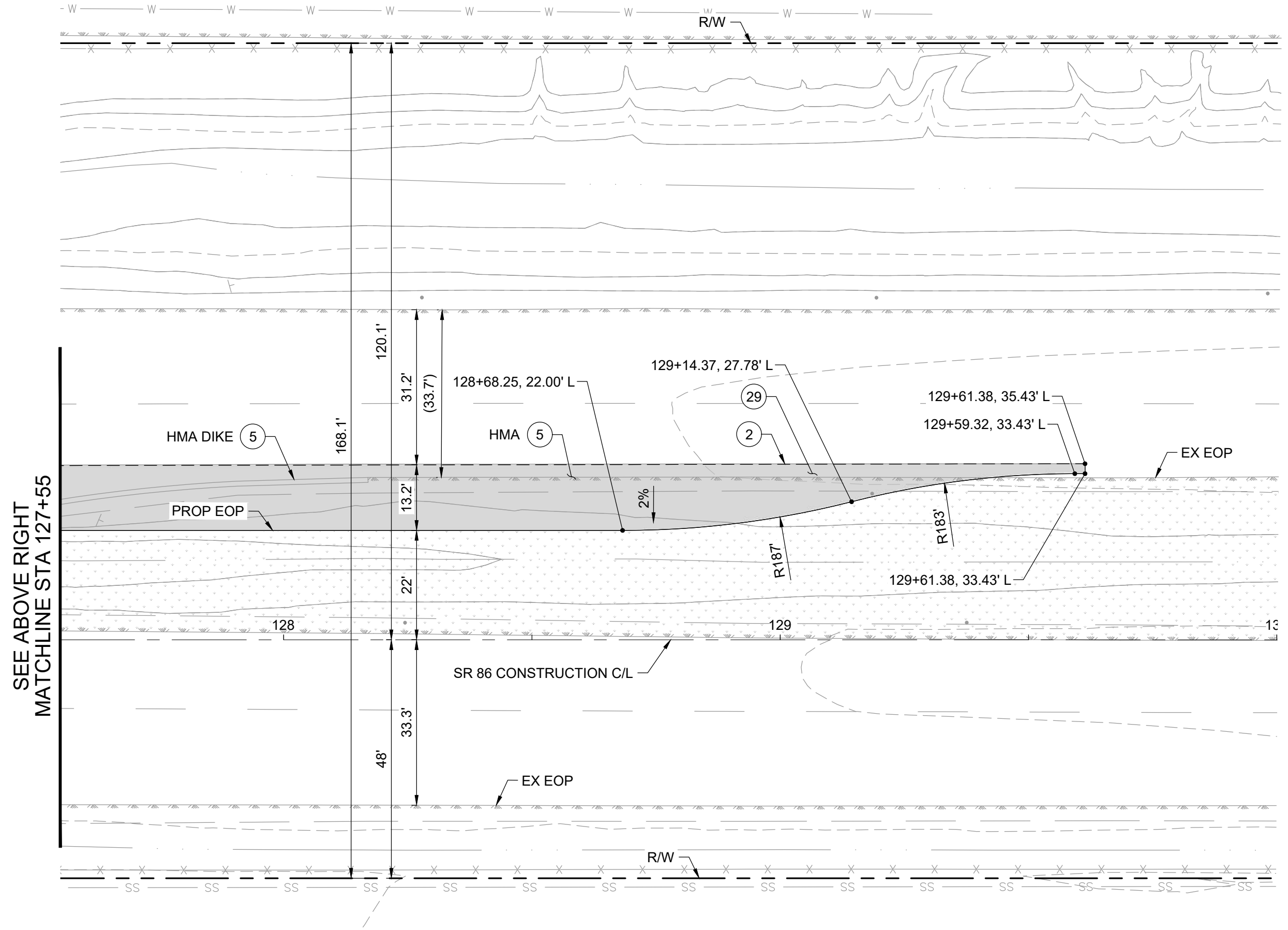
- 1 PROTECT IN PLACE
- 2 SAWCUT PER DETAIL A ON SHEET 03
- 5 REMOVE AND DISPOSE
- 14 CONSTRUCT HMA DIKE TYPE A PER CALTRANS STD. PLAN A87B
- 29 CONSTRUCT 8.5" HMA OVER 34" CLASS 2 AGGREGATE BASE

**STORM DRAIN CONSTRUCTION NOTES**

- 1 FURNISH AND INSTALL 18" RCP STORM DRAIN, 1350-D
- 2 CONSTRUCT 18" CONCRETE PIPE COLLAR PER DETAIL G ON SHEET 3
- 3 CONSTRUCT STRAIGHT HEADWALL PER CALTRANS STD PLAN D89B, H=3'-2"
- 5 CONSTRUCT TYPE G-2 INLET WITH GRATE PER CALTRANS STD PLAN D73-B AND D77-A
- 6 REMOVED DAMAGED PORTIONS OF THE EXISTING PIPE TO ENSURE PROPER CONSTRUCTION OF PIPE COLLAR. LIMITS ARE FOR REFERENCE ONLY. CONTRACTOR TO DETERMINE ACTUAL LIMITS OF REMOVAL.
- 7 CONNECT EXISTING STORM DRAIN TO PROPOSED INLET

SEE SHEET 17  
MATCHLINE STA 122+50

MATCHLINE STA 127+55  
SEE ABOVE RIGHT



SEE ABOVE RIGHT  
MATCHLINE STA 127+55

**LINE P GEOMETRIC DATA**

|      | LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA      | REMARKS                                    |
|------|--------|----------------------|--------|-------|------------|--|
| C150 | 27.00' | N13°15'53"W          | 60.00' | 13.73 | 25°46'59"  | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| C151 | 12.50' | S82°13'51"W          | 5.00'  | 15.04 | 143°13'32" | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| L150 | 26.57' | S10°37'05"W          |        |       |            | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |

**LINE Q GEOMETRIC DATA**

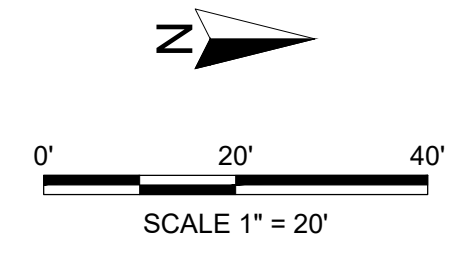
|      | LENGTH | LINE/CHORD DIRECTION | R      | T     | DELTA      | REMARKS                                    |
|------|--------|----------------------|--------|-------|------------|--|
| C160 | 27.00' | S13°12'28"E          | 60.00' | 13.73 | 25°46'59"  | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| C161 | 12.51' | N82°13'59"E          | 5.00'  | 15.09 | 143°20'06" | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |
| L160 | 25.28' | N10°33'56"E          |        |       |            | TYPE A HMA DIKE PER CALTRANS STD PLAN A87B |

**LEGEND:**

- RIGHT OF WAY LINE
- SAWCUT LINE
- DAYLIGHT LINE
- EXISTING FENCE LINE
- HMA PAVEMENT
- PCC PAVING
- MILL AND OVERLAY
- LANDSCAPE PER LANDSCAPE PLANS
- COMPACTED NATIVE SOIL
- CLASS 2 AGGREGATE BASE

**GENERAL NOTES:**

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- AREAS OF FULL DEPTH REPLACEMENT LESS THAN 2' WIDE MAY UTILIZE FULL DEPTH HMA.
- THE REMOVAL OF HMA INCLUDES ASPHALT AND BASE SECTION.
- THE CONTRACTOR SHALL DETERMINE THE LIMITS AND LAYOUT OF WORK. PRIOR TO DEMOLITION, THE LIMITS AND LAYOUT OF THE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BY EITHER SHOP DRAWING OR FIELD MARK OUTS.



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

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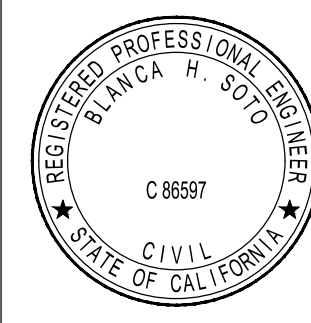
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**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

**PROJECT TITLE:** CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
**SHEET CONTENT:** IMPROVEMENT PLANS SR 86 AT 12TH STREET

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024  
SHEET 18 OF 52 SHEETS  
JOB NO. CIP#823

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

**TRAFFIC SIGNAL GENERAL NOTES:**

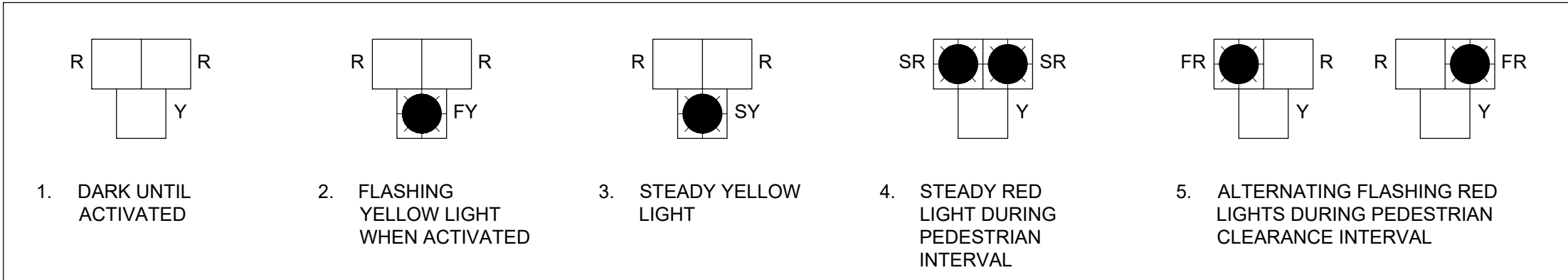
- THE PROPOSED IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THIS PLAN AND:
  - THE COUNTY OF IMPERIAL SPECIFICATIONS AND STANDARD DRAWINGS
  - CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, 2023 EDITION
  - CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS, 2023 EDITION
  - THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (REVISION 8), 2014 EDITION
  - STANDARD PLANS AND SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK), 2021 EDITION
- THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES IS APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES INCLUDING THOSE NOT SHOWN ON PLANS. VERIFICATION OF THE LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND DIGGING FOR FOUNDATIONS SHALL BE DONE BY HAND EXCAVATION METHODS UNTIL CLEAR OF ALL UNDERGROUND FACILITIES. ALL UNDERGROUND UTILITIES SHALL BE PROTECTED DURING CONSTRUCTION AND EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE BORNE BY CONTRACTOR.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND NOTIFY ALL UTILITIES, AGENCIES, THE CITY OF IMPERIAL (760) 355-1152, AND IID ENERGY DEPARTMENT (760) 482-3426 AT LEAST TWO WORKING DAYS IN ADVANCE OF CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY LOCATIONS OF UNDERGROUND FACILITIES BY CONTACTING UTILITY REPRESENTATIVES AND BY CONTACTING THE UNDERGROUND SERVICE ALERT AT (800) 422-4133, AT LEAST TWO WORKING DAYS BEFORE EXCAVATION.
- UTILITY MARK-OUTS SHALL BE CONDUCTED USING A TEMPORARY PAINT THAT CAN BE REMOVED BY POWER WASH, IF NECESSARY.
- ROUTING AND LOCATIONS OF UNDERGROUND ELECTRICAL SYSTEMS IS DIAGRAMMATIC AND SUBJECT TO APPROVAL OF THE ENGINEER. UNDERGROUND ELECTRICAL LINES AND SUBSURFACE STRUCTURES MAY BE RELOCATED IF NECESSARY TO CLEAR OTHER EXISTING UNDERGROUND FACILITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONUMENT AND/OR BENCHMARKS WHICH WILL BE DISTURBED OR DESTROYED BY CONSTRUCTION. SUCH POINTS SHALL BE REFERENCED AND REPLACED WITH APPROPRIATE MONUMENTATION BY A LICENSED LAND SURVEYOR OR A REGISTERED CIVIL ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED BY THE LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AS REQUIRED BY THE LAND SURVEYOR'S ACT.
- NEW POLE AND EQUIPMENT LOCATIONS ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR LAYOUT OF POLES, CABINETS, PULL BOXES, AND RELATED EQUIPMENT. THE CITY OF IMPERIAL ENGINEERING DEPARTMENT INSPECTORS SHALL FIELD VERIFY AND APPROVE THE EXACT EQUIPMENT LOCATIONS PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES DURING TRAFFIC SIGNAL INSTALLATION. A TRAFFIC CONTROL PLAN, INCLUDING THE LAYOUT OF CONSTRUCTION WARNING AND DETOUR SIGNS, WORKING HOURS, AND CONSTRUCTION SCHEDULE SHALL BE SUBMITTED AND APPROVED TO THE ENGINEERING DIVISION DEPARTMENT AS PART OF THE CITY'S CONSTRUCTION ENCROACHMENT PERMIT PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. TWO WORKING DAY ADVANCE NOTIFICATION IS REQUIRED TO SCHEDULE A PRE-CONSTRUCTION MEETING AT THE JOB SITE PRIOR TO COMMENCEMENT OF WORK.
- ALL NEW TRAFFIC SIGNAL CONDUIT AND FITTINGS SHALL BE MINIMUM THREE INCH (3") SCHEDULE 80 PVC UNLESS OTHERWISE SHOWN ON THE PLANS. ALL NEW CONDUITS SHALL BE BURIED WITH A MINIMUM OF THIRTY INCHES (30") OF TOTAL COVER FROM THE TOP OF PIPE TO FINISHED GRADE. ALL NEW CONDUITS SHALL BE SEALED UPON COMPLETION. STREET CROSSINGS BY BORE METHOD SHALL BE APPROVED BY THE CITY ENGINEER. ALL DIRECTIONAL BORED RACEWAYS SHALL BE HOPE TYPICAL.
- THE CITY OF IMPERIAL WILL APPLY FOR NEW OR MODIFIED SERVICE WITH IID ENERGY DEPARTMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING SERVICE COORDINATION WITH IID ENERGY DEPARTMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, RELOCATION, OR REPLACEMENT OF ALL NEW TRAFFIC SIGNAL SIGNING AS REQUIRED BY THE COMMUNITY DEVELOPMENT DIRECTOR. ALL NEW SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (CA-MUTCD).
- AN "AS-BUILT" PLAN SET DRAWING SHALL BE SUBMITTED FOR ALL PUBLIC IMPROVEMENTS PRIOR TO THE ACCEPTANCE OF SAID IMPROVEMENTS.
- TRAFFIC SIGNAL CONSTRUCTION SHALL NOT COMMENCE UNTIL ALL MATERIALS, INCLUDING POLES, MAST ARMS, AND CONTROLLER ARE ON-HAND UNLESS APPROVED BY THE PROJECT INSPECTOR. THE CONTRACTOR SHALL NOT ERRECT ANY SIGNAL STANDARDS MORE THAN THREE WEEKS PRIOR TO SCHEDULED TRAFFIC SIGNAL TURN-ON.
- ALL NEW EQUIPMENT PER THESE PLANS AND SPECIFICATIONS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- ALL NEW SIGNAL HEADS SHALL BE TWELVE-INCH (12") IN DIAMETER L.E.D. WITH INCANDESCENT LOOK AND RETROREFLECTIVE BACKPLATES. ANCHOR BOLT NUT COVERS SHALL BE PROVIDED.
- NEW PEDESTRIAN SIGNALS SHALL BE COUNTDOWN LED TYPE. NEW PUSH BUTTONS SHALL BE 2 INCHES (2") WITH A MAXIMUM FORCE OF 5 FOOT-POUNDS OF PRESSURE AND A MAXIMUM HEIGHT OF 42 INCHES PER ADA REQUIREMENTS AND MEET ADA REQUIREMENTS WITH INTERNATIONAL SYMBOLS/SIGN. FASTENERS FOR PPB SIGN PLATE SHALL BE INSTALLED WITH ANTI-SEIZE COMPOUND.
- CONTRACTOR SHALL MAINTAIN A CLEAR FOUR FOOT PATH OF TRAVEL ON SIDEWALK FROM ALL APPROACHES WITHIN IMPROVEMENT LIMITS.
- NEW PULL BOXES SHALL BE MINIMUM SIZE #6 UNLESS OTHERWISE NOTED. HOME RUN PULL BOX SHALL BE SIZE #6E.

**TRAFFIC SIGNAL CONSTRUCTION NOTES:**

- PP** PROTECT IN PLACE PER PLAN.
- 1** FURNISH AND INSTALL NEW SIGN ON POLE PER PLAN.
- 2** FURNISH AND INSTALL NEW SIGN ON MAST ARM PER CALTRANS STANDARD PLAN ES-7P.
- 3** FURNISH AND INSTALL NEW OPTICOM 722 EMERGENCY VEHICLE PREEMPTION (EVP) DETECTOR ON SIGNAL MAST ARM PER DETAIL A. CONTRACTOR TO INSTALL OPTICOM 764 MULTIMODE EVP CARD IN CONTROLLER CABINET.
- 4** FURNISH AND INSTALL MODEL 332L ALUMINUM CABINET, BATTERY BACKUP SYSTEM, AND FOUNDATION. BATTERY BACKUP SYSTEM SHALL BE SIDE MOUNTED TO THE CABINET. FURNISH AND INSTALL TYPE 2070LX CONTROLLER WITH OMNI SOFTWARE, 2010 ECLIP CONFLICT MONITOR, AND OUTDOOR RATED GIGABIT ETHERNET SWITCH. CABINET SHALL INCLUDE ALL ACCESSORIES NECESSARY TO PROVIDE THE PHASING AND PERFORM ALL FUNCTIONS INDICATED ON THE PLAN.
- 5** FURNISH AND INSTALL DUAL SERVICE, TYPE III-CF SERVICE EQUIPMENT ENCLOSURE PER CALTRANS STANDARD PLAN ES-2F AND IID REQUIREMENTS. INCLUDE PLUG-IN TYPE BREAKER. PROVIDE 100A-2P CB (MAIN), 50A-1P CB (SIGNAL-METERED), 30A-2P CB (LIGHTING-UNMETERED), AND 20A-2P CB (IRRIGATION). CONFIRM SUPPLY VOLTAGE WITH IID PRIOR TO ORDERING SERVICE PEDESTAL.
- 6** FURNISH AND INSTALL 3" C WITH PULL ROPE FROM SERVICE METER TO 7.5' WITHIN SERVICE POINT. COORDINATE WITH IID PRIOR TO INSTALLATION. IID TO PROVIDE FINAL CONNECTION.
- 7** ADVANCE WARNING SIGN WITH FLASHING BEACON. SEE DETAIL C.
- 8** FURNISH AND INSTALL INTUICOM OR APPROVED EQUAL POINT TO MULTI-POINT WIRELESS RADIO SYSTEM, MOUNTING HARDWARE, POE INJECTOR AND AUXILIARY EQUIPMENT. CONTRACTOR SHALL HAVE A MANUFACTURER REPRESENTATIVE ON-SITE FOR THE INSTALLATION AND SYSTEM CONFIGURATION OF THE WIRELESS RADIO SYSTEM. WIRELESS INTERCONNECT SHALL BE BETWEEN IMPERIAL AVE/6TH ST TO IMPERIAL AVE/E. BARIONI BLVD TRAFFIC SIGNAL.

**LEGEND:**

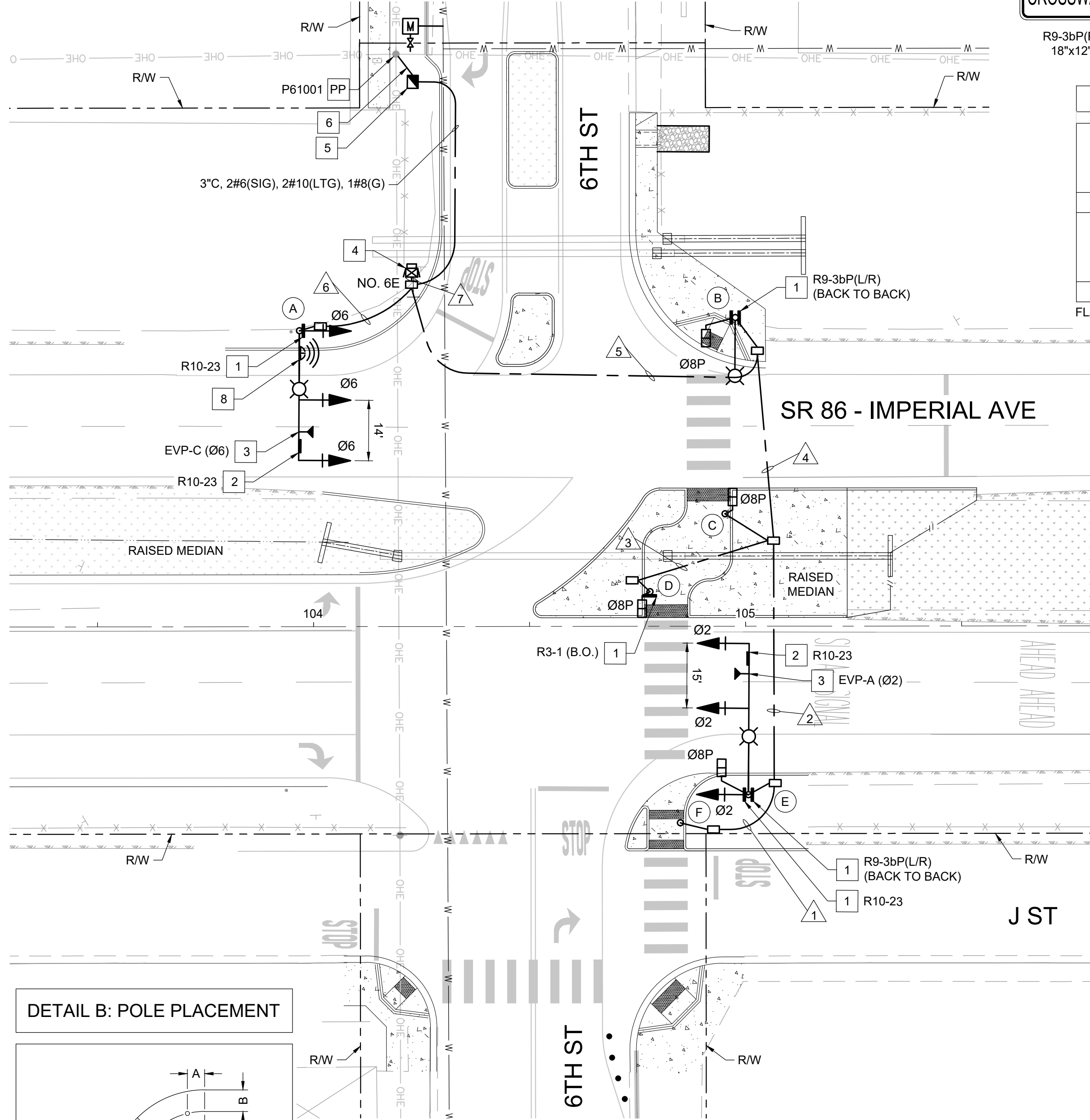
FY = FLASHING YELLOW SY = STEADY YELLOW SR = STEADY RED FR = FLASHING RED



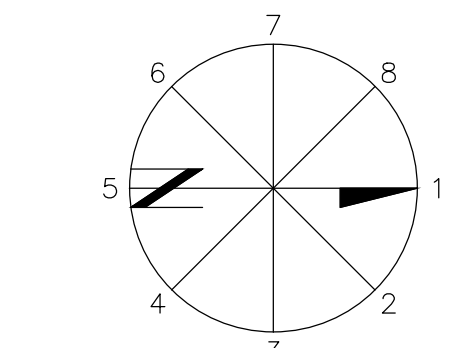
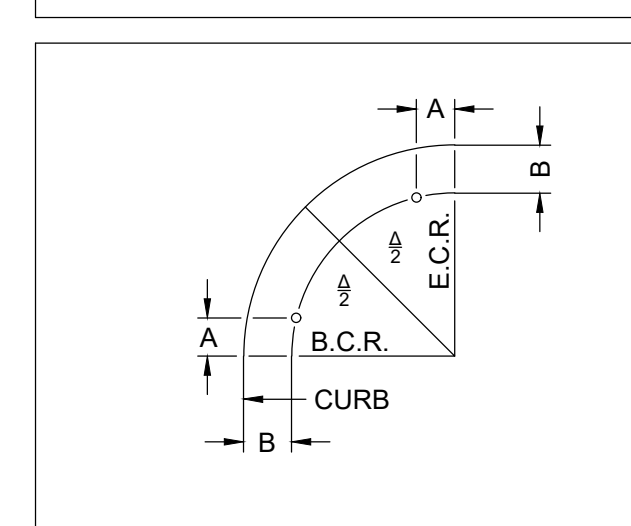
**OPERATION SEQUENCE FOR PEDESTRIAN HYBRID BEACON (PHB)**

| POLE & EQUIPMENT SCHEDULE |          |        |           |           |      |           |                        |                |  |            |        |             |       |     |
|---------------------------|----------|--------|-----------|-----------|------|-----------|------------------------|----------------|--|------------|--------|-------------|-------|-----|
| NO.                       | STANDARD |        |           |           | LUM. | PLACEMENT | MOUNTING AND PLACEMENT |                |  |            |        |             |       |     |
|                           | TYPE     | HEIGHT | SIG. M.A. | LUM. M.A. |      |           | VEHICLE SIGNAL         |                |  | PED SIGNAL |        | PUSH BUTTON |       |     |
|                           |          |        |           |           |      |           | MOUNTING               | INDICATION     | PHASE  | MOUNTING   | PHASE  | LOCATION    | PHASE |     |
| A                         | 19-4-100 | 30'    | 30'       | 12'       | 139W | 5'        | 4.5'                   | MAS MAS SV-1-T | FY, SY, SR, FR FY, SY, SR, FR FY, SY, SR, FR | Ø6 Ø6 Ø6   | -      | -           | -     | -   |
| B                         | 15TS     | 30'    | -         | 12'       | 139W | 7'        | 9'                     | -              | -  | -          | SP-1-T | Ø8P         | 5     | Ø8P |
| C                         | 1-A      | 10'    | -         | -         | -    | -         | 6'                     | -              | -  | -          | SP-1-T | Ø8P         | 5     | Ø8P |
| D                         | 1-A      | 10'    | -         | -         | -    | -         | 6'                     | TV-1-T         | B.O.   | Ø8P        | SP-1-T | Ø8P         | 1     | Ø8P |
| E                         | 24-4-100 | 30'    | 35'       | 12'       | 139W | 5'        | 5'                     | MAS MAS SV-1-T | FY, SY, SR, FR FY, SY, SR, FR FY, SY, SR, FR | Ø2 Ø2 Ø2   | SP-1-T | Ø8P         | -     | -   |
| F                         | 2        | 5'     | -         | -         | -    | -         | 6.5'                   | -              | -  | -          | -      | -           | 5     | Ø8P |

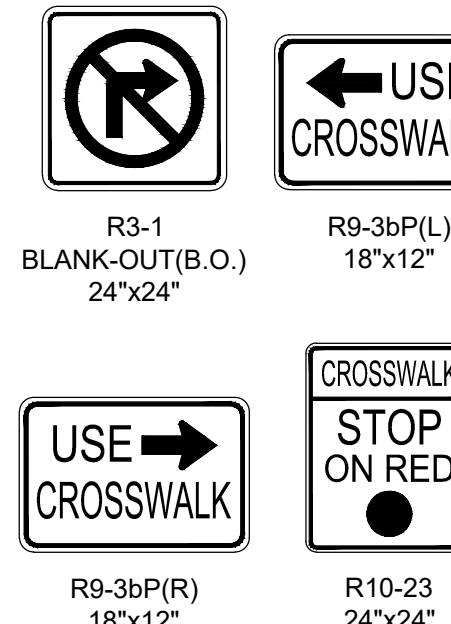
ALL LUMINAIRES SHALL BE BXSP-C-HT-3ME-F-40K-UL-SV-N-Q9 OR APPROVED EQUAL.



**DETAIL B: POLE PLACEMENT**



**SIGN LEGEND:**



**CONDUIT & CONDUCTOR TABLE**

| AWG SIZE OR CABLE TYPE | POLE OR CIRCUIT | CONDUIT SIZE AND RUN |      |      |      |      |      |      |   |   |   |   |
|------------------------|-----------------|----------------------|------|------|------|------|------|------|---|---|---|---|
|                        |                 | 1-3"                 | 2-3" | 1-3" | 2-3" | 2-3" | 1-3" | 2-3" |   |   |   |   |
| 3 COND                 | POLE (A)        |                      |      |      |      |      |      |      |   |   |   |   |
|                        | POLE (B)        |                      |      |      |      |      |      |      |   |   |   |   |
|                        | POLE (C)        |                      |      | 1    | 1    | 1    | 1    | 1    |   |   |   |   |
|                        | POLE (D)        |                      |      | 1    | 1    | 1    | 1    | 1    |   |   |   |   |
|                        | POLE (E)        |                      |      | 1    | 1    | 1    | 1    | 1    |   |   |   |   |
|                        | POLE (F)        |                      |      | 1    | 1    | 1    | 1    | 1    |   |   |   |   |
| 12 COND                |                 |                      |      |      |      |      |      |      |   |   |   |   |
| 3 & 12 COND TOTALS     |                 | 1                    | 1    | 1    | 1    | 3    | 3    | 4    | 4 | 1 | 4 | 5 |

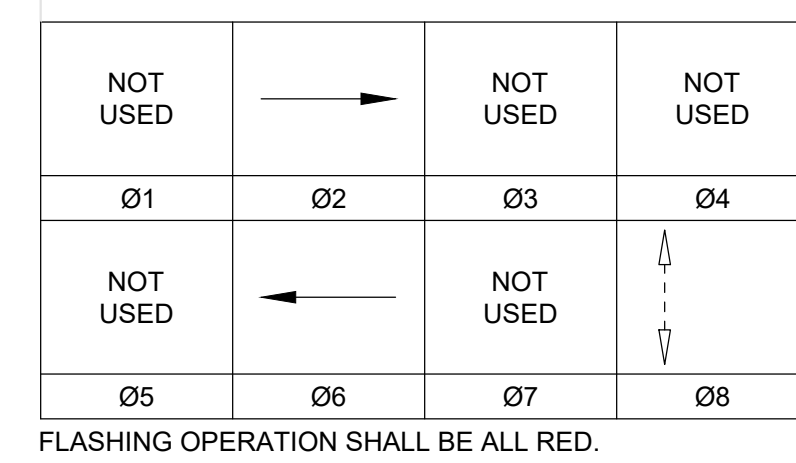
| #6 SIGNAL SERVICE   | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
|---------------------|---|---|---|---|---|---|---|
| #8 COMMON GROUND    |   |   |   |   |   |   |   |
| #10 SAFETY LIGHTING |   | 2 |   |   | 2 | 2 | 1 |
| CATSE INTERCONNECT  |   |   |   |   |   |   | 1 |

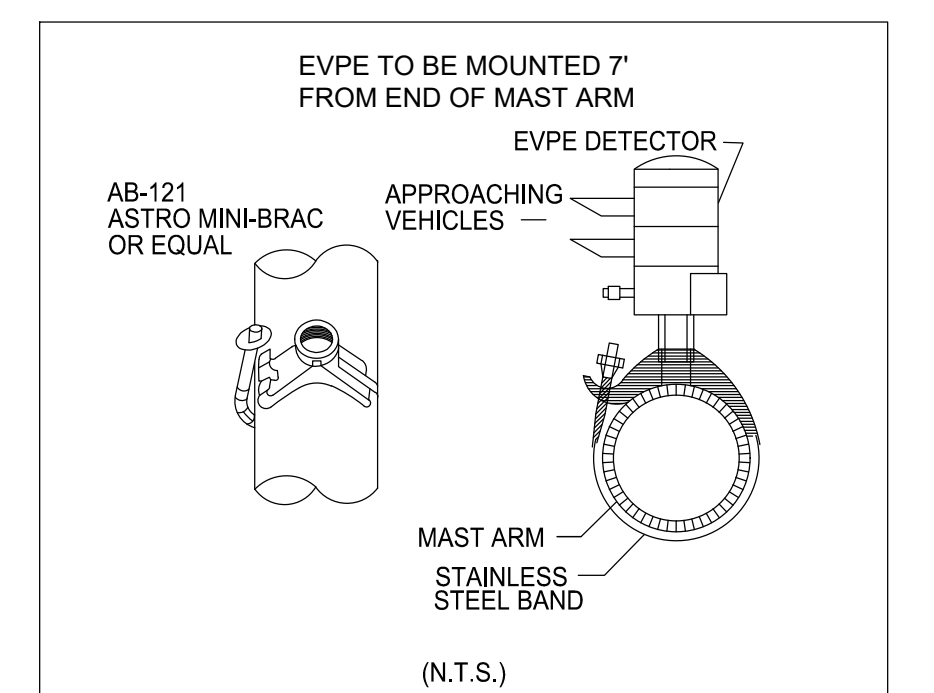
| EVPE                      | EV DETECTION | 1 | 1 | 1  | 1  | 2  |    |
|---------------------------|--------------|---|---|----|----|----|----|
| TOTAL CONDUCTORS / CABLES |              | 2 | 6 | 3  | 10 | 12 | 6  |
| % CONDUIT FILL            |              | 3 | 6 | 10 | 15 | 19 | 11 |

NOTE: ALL NEW WIRING AND CONDUIT. PROVIDE ADDITIONAL SPARE 3" FOR FUTURE USE.

**PHASE DIAGRAM**



**DETAIL A: OPTICAL DETECTOR ASSEMBLY**

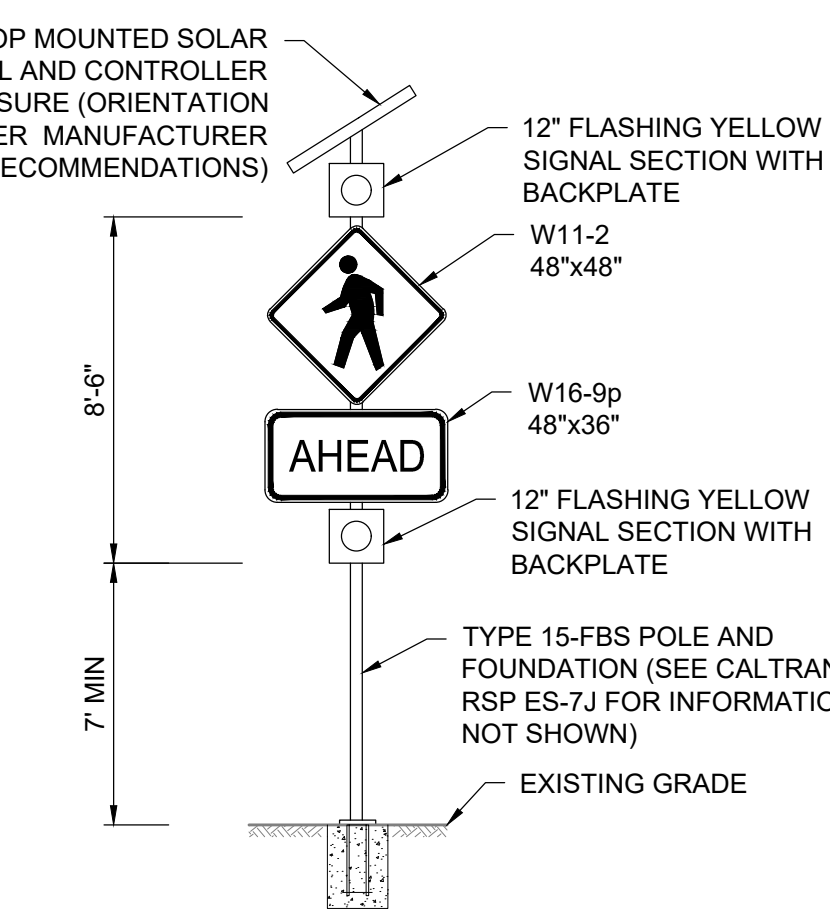


**DETECTOR SCHEDULE**

| DETECTOR | PHASE | SLOT | TERMINAL    |
|----------|-------|------|-------------|
| PPB      | Ø8P   | I13L | T8-88COM9   |
| EVA      | Ø2    | J12U | T9-4&COM6   |
| EVC      | Ø6    | J12L | T9-5&COM6   |
| FLASH    | FLASH | I14U | T8-10&COM12 |

**EQUIPMENT LEGEND:**

- CONDUIT
- CONTROLLER CABINET WITH BATTERY BACK UP SYSTEM
- EVP DETECTION
- LUMINAIRE
- EX. LUMINAIRE
- PEDESTRIAN SIGNAL HEAD
- PULL BOX (PER PLAN)
- SERVICE METER
- SIGN ON POLE OR MAST ARM
- TRAFFIC SIGNAL POLE
- VEHICULAR INDICATION (PER PLAN)
- FLASHING BEACON
- WIRELESS RADIO



**ADVANCED SOLAR-POWERED FLASHING BEACON ASSEMBLY**

APPROVED BY DIRECTOR OF PUBLIC SERVICES CITY OF IMPERIAL, CA

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TWO WORKING DAYS BEFORE YOU DIG.

CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1

SCALE: N/A

SHEET 19 OF 52 SHEETS

DATE: 06/21/2024

| NO. | REVISIONS: | APPROVED: | DATE: |
|-----|------------|-----------|-------|
|     |            |           |       |
|     |            |           |       |

**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION

REGISTERED PROFESSIONAL ENGINEER  
TOMO TAKAHASHI  
C81522  
CIVIL  
STATE OF CALIFORNIA

PREPARED UNDER THE DIRECT SUPERVISION OF:  
TOMO TAKAHASHI  
81522 R.C.E. NO.  
DATE: 06/21/2024 REG. EXP. 09/30/2025

**SHEET CONTENT:**  
SR86 - IMPERIAL AVE & 6TH ST TRAFFIC SIGNAL PLAN

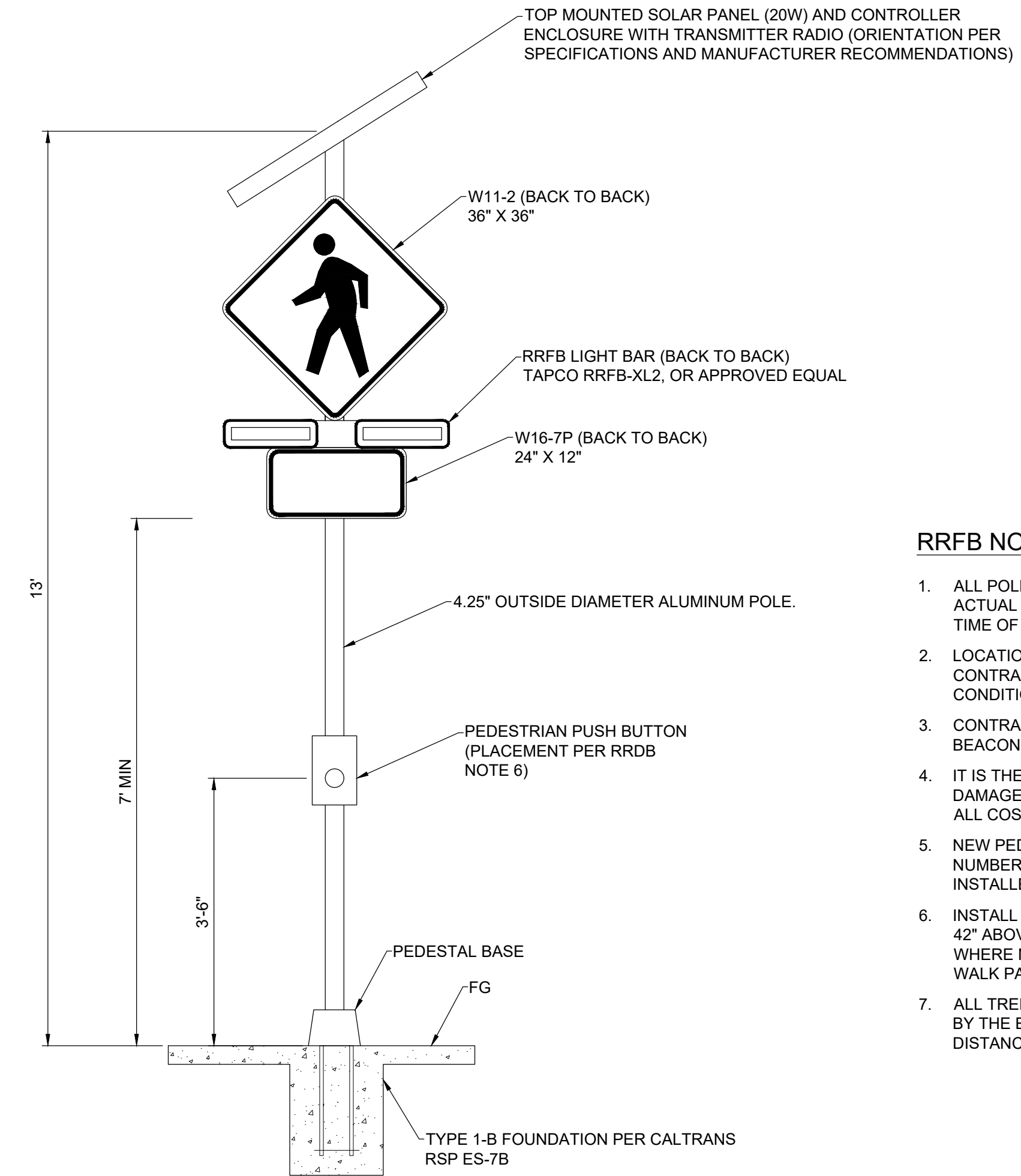
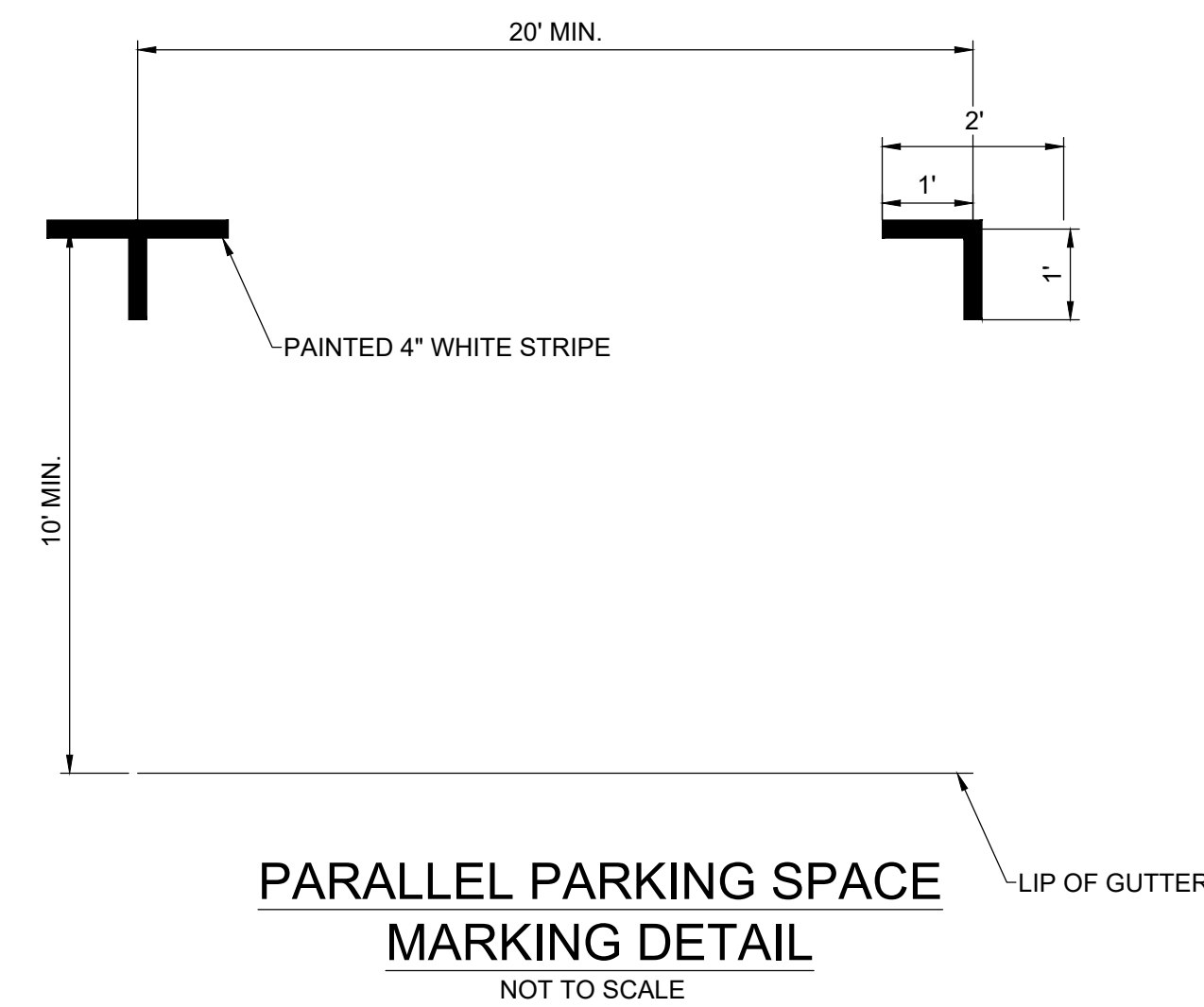
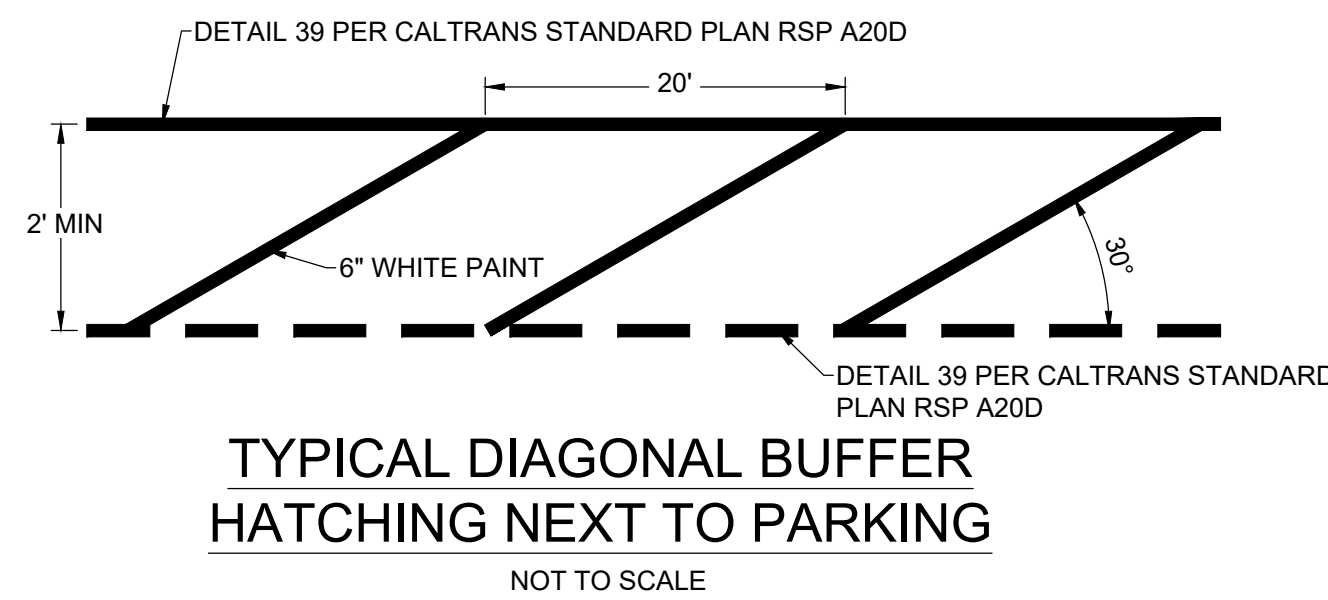
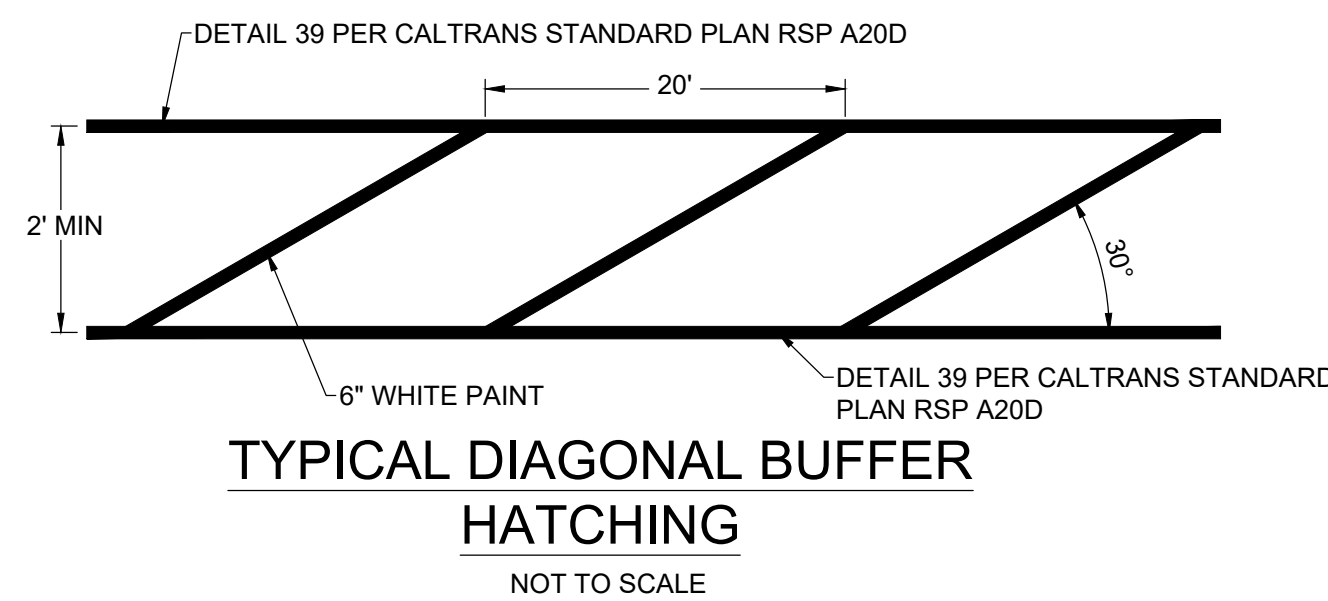
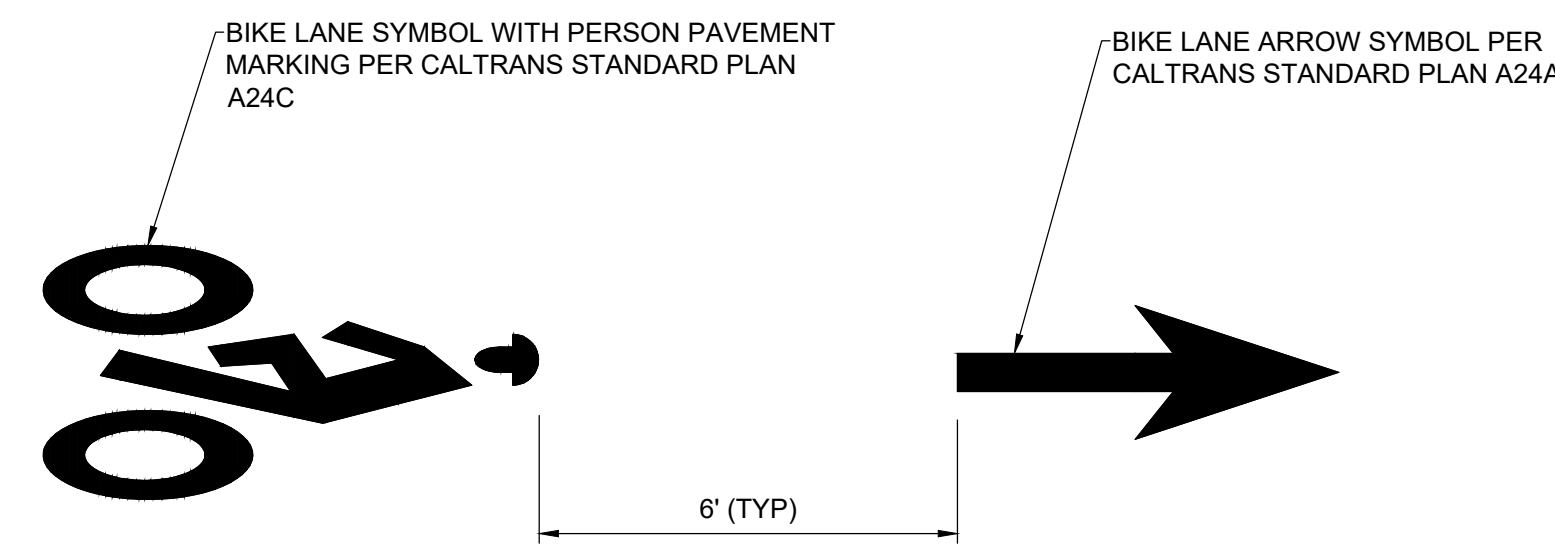
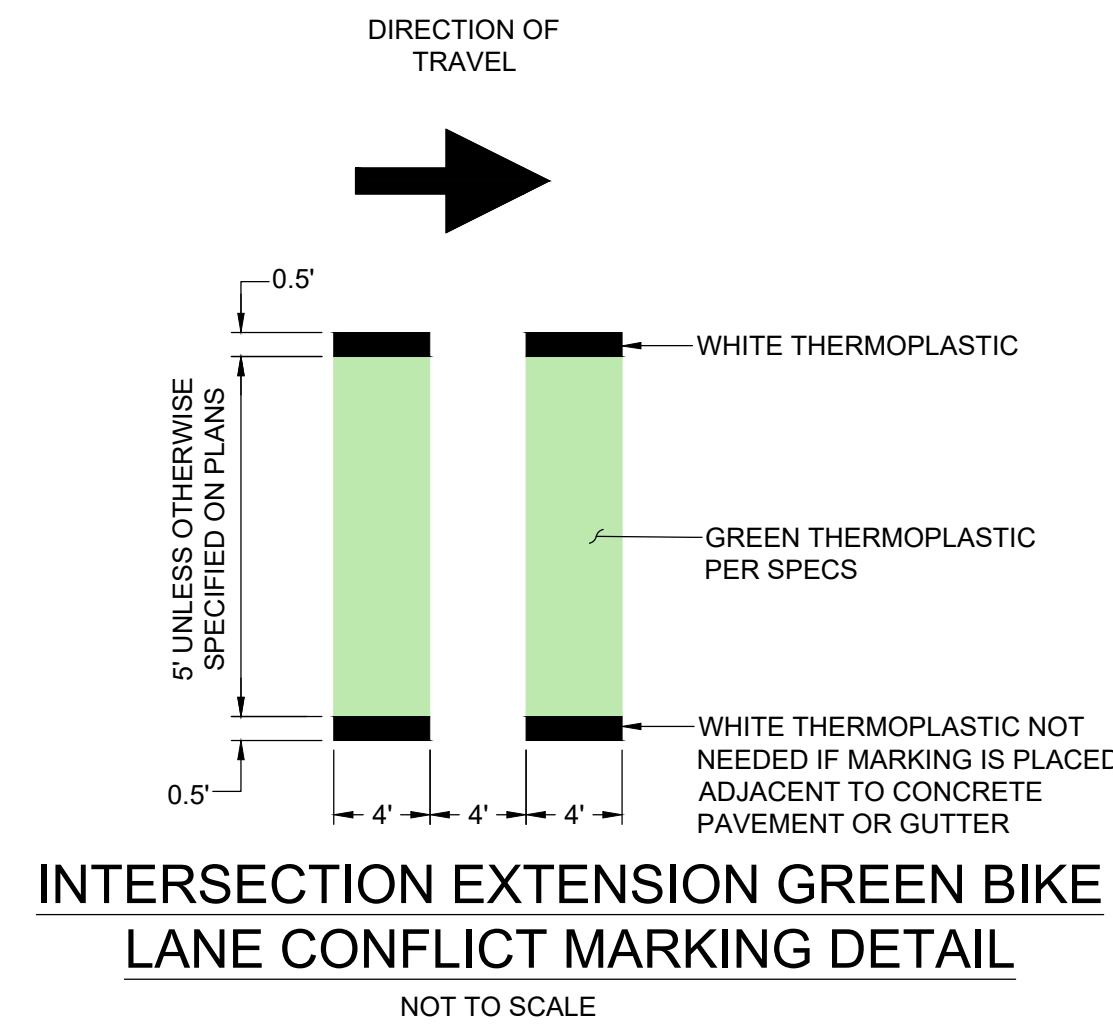
JUNE 2024

JOB NO. CIP#823

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

**SIGNING AND MARKING GENERAL NOTES:**

1. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL SIGNAGE AND STRIPING.
2. SIGNAGE, STRIPING AND PAVEMENT MARKINGS SHALL CONFORM TO THESE PLANS AND THE MOST RECENTLY ADOPTED EDITIONS OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS AND SPECIFICATIONS, THE CALIFORNIA DEPARTMENT OF TRANSPORTATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (CA MUTCD).
3. ALL SIGNAGE AND STRIPING IS SUBJECT TO THE APPROVAL OF THE ENGINEER OR HIS/HER REPRESENTATIVE, PRIOR TO INSTALLATION.
4. ANY DEVIATION FROM THESE SIGNAGE AND STRIPING PLANS SHALL BE APPROVED BY THE ENGINEER PRIOR TO ANY CHANGE IN THE FIELD.
5. ALL SIGNAGE AND STRIPING SHALL BE REFLECTIVE PER CALTRANS SPECIFICATIONS.
6. CONTRACTOR SHALL REMOVE ALL CONFLICTING PAINTED LINES, MARKINGS AND PAVEMENT LEGENDS (INCLUDING WATERBORNE BASED PAINT) WITHIN THE PROPOSED IMPROVEMENT AREA WET SANDBLASTING UNLESS OTHERWISE APPROVED BY THE ENGINEER. DEBRIS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
7. LIMIT LINES AND CROSSWALKS SHALL BE FIELD LOCATED. CROSSWALKS SHALL HAVE 10' INSIDE DIMENSION UNLESS OTHERWISE SPECIFIED. LIMIT LINES SHALL BE PLACED A MINIMUM OF 4' FROM THE CROSSWALK.
8. STRIPING SHALL BE THERMOPLASTIC AND SHALL BE INSTALLED WITHIN 14 DAYS OF SLURRY SEAL/FINAL HMA SURFACE COURSE PLACEMENT OR PER MANUFACTURERS RECOMMENDATIONS.
9. ALL CROSSWALKS, LIMIT LINES, PAVEMENT ARROWS AND PAVEMENT LEGENDS SHALL BE THERMOPLASTIC UNLESS OTHERWISE SPECIFIED. ALL CROSSWALKS, LIMIT LINES, PAVEMENT ARROWS AND PAVEMENT LEGENDS INSTALLED FULLY OR PARTIALLY ON CONCRETE SHALL BE PREFORMED.
10. CONTRACTOR SHALL REMOVE ALL CONFLICTING SIGN POLES AND FOUNDATIONS UNLESS OTHERWISE APPROVED BY THE ENGINEER. DEBRIS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
11. ALL SIGNS SHALL BE STANDARD SIZE.
12. SIGN POSTS SHALL BE SQUARE PERFORATED STEEL TUBING WITH BREAKAWAY BASE PER CITY OF IMPERIAL STANDARD DETAIL NO. 516.
13. WHEN A SIGN IS ATTACHED TO A POLE, IT SHALL BE MOUNTED IN ACCORDANCE WITH CALTRANS STANDARD PLAN RS4.
14. EXISTING SIGNS REMOVED BY THE CONTRACTOR SHALL BE DELIVERED TO THE CITY OF IMPERIAL PUBLIC WORKS YARD.
15. ALL SIGNS SHOWN ON THESE PLANS SHALL BE NEW SIGNS PROVIDED AND INSTALLED BY THE CONTRACTOR EXCEPT THOSE SIGNS SPECIFICALLY SHOWN AS EXISTING TO BE RELOCATED OR REMAIN.
16. THE BOTTOM OF TRAFFIC SIGNS SHALL BE A MINIMUM OF 7 FEET ABOVE THE FINISHED SURFACE. R4-7 AND OBJECT MARKER SIGNS SHALL BE A MINIMUM OF 2 FEET ABOVE THE FINISHED GRADE AS DIRECTED BY THE ENGINEER.
17. ALL NEW SIGNS SHALL BE CLEARLY VISIBLE AND NOT BLOCKED BY ANY OBSTRUCTIONS. THE CONTRACTOR IS RESPONSIBLE TO TRIM OR REMOVE ANY VEGETATION BLOCKING NEW SIGNS.
18. ALL NEW SIGNS SHALL MAINTAIN A MINIMUM 42" WALK PATH.
19. MAINTAIN A MINIMUM OF 12" CLEARANCE BETWEEN NEW SIGN POSTS AND FOUNDATIONS TO EXISTING UTILITIES.



**RRFB NOTES:**

1. ALL POLES, CONDUIT, AND PULL BOX LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE DETERMINED BY FIELD CONDITIONS AT THE TIME OF CONSTRUCTION AND AS DIRECTED BY THE ENGINEER.
2. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND VERIFY ALL CONDITIONS ON THE JOB SITE PRIOR TO INSTALLING EQUIPMENT.
3. CONTRACTOR SHALL POT-HOLE EACH RECTANGULAR RAPID FLASHING BEACON (RRFB) POLE LOCATION PRIOR TO INSTALLATION.
4. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR ANY DAMAGES THAT OCCUR DURING INSTALLATION OF ELECTRICAL EQUIPMENT. ALL COSTS FOR ANY REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE.
5. NEW PEDESTRIAN PUSH BUTTON HOUSING COLOR SHALL MATCH COLOR NUMBER 33538 OF FED-STD-595 WHERE PEDESTRIAN PUSH BUTTONS ARE INSTALLED.
6. INSTALL PEDESTRIAN PUSH BUTTON SUCH THAT CENTER OF PUSH BUTTON IS 42" ABOVE WALK PATH. INSTALL PUSH BUTTON ON EXTENSION BRACKETS WHERE NEEDED SUCH THAT PUSH BUTTON IS WITHIN A 10" REACH FROM WALK PATH.
7. ALL TREES AND SHRUBS SHALL BE TRIMMED OR REMOVED AS DETERMINED BY THE ENGINEER AS REQUIRED TO MAINTAIN VISIBILITY AND SIGHT DISTANCE.

APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.

Underground Service Alert  
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422-4133  
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**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO  
06/21/2024  
DATE

86597  
R.C.E. NO.  
03/31/2025  
REG. EXP.

**PROJECT TITLE:** CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1

**SHEET CONTENT:** SIGNAGE AND STRIPING NOTES AND DETAILS

SCALE: N/A

DRAWN BY: BS

REVIEWED BY: RD

JUNE 2024

SHEET **20** OF 52 SHEETS

JOB NO. CIP#823

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

**SIGNING AND STRIPING NOTES**

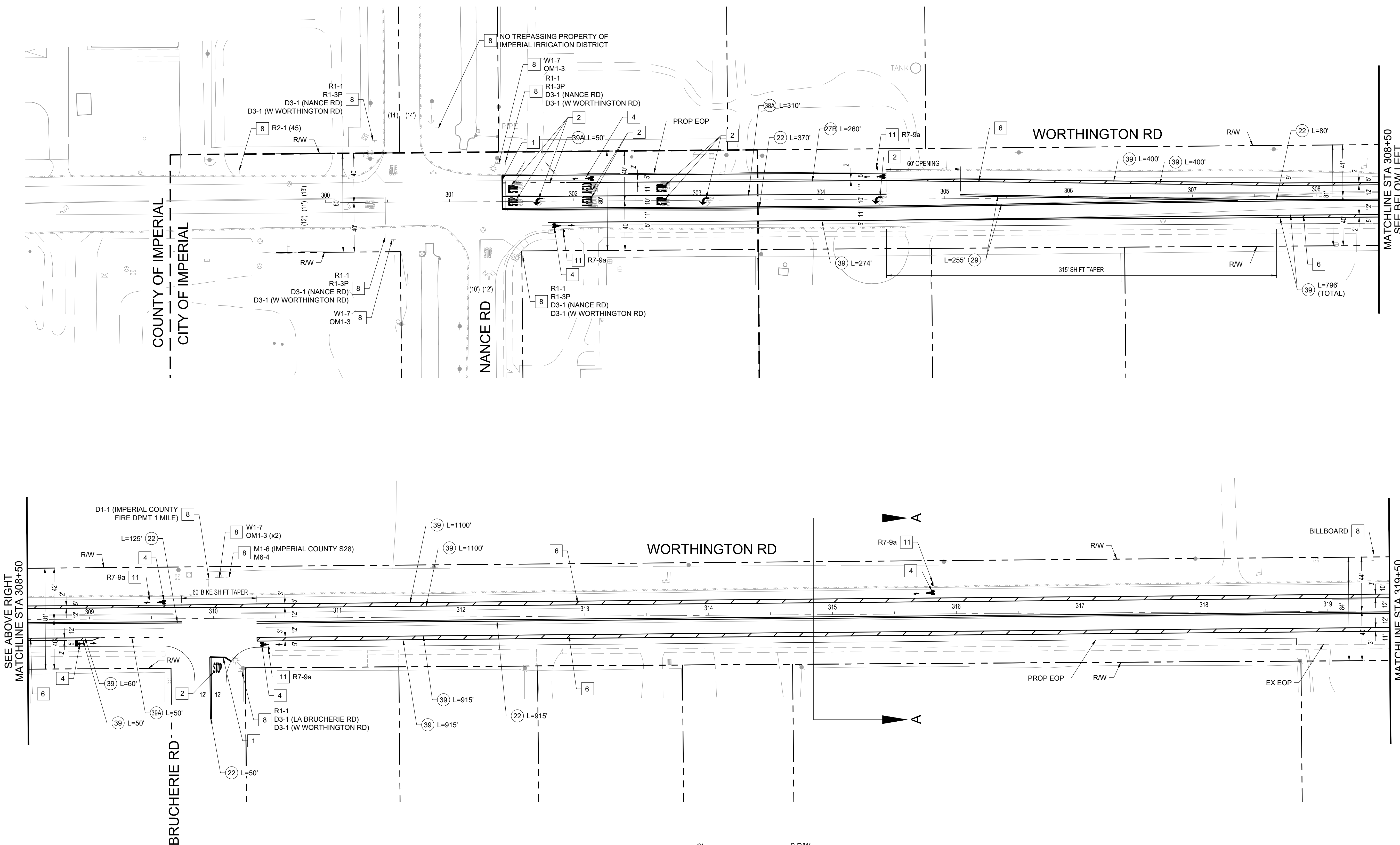
- 1 INSTALL 12" WHITE THERMOPLASTIC LIMIT LINE.
- 2 INSTALL THERMOPLASTIC PAVEMENT MARKING PER CALTRANS STD. PLAN. SEE LEGEND.
- 4 INSTALL THERMOPLASTIC BIKE LANE WITH ARROW PAVEMENT MARKING PER DETAIL ON SHEET 20.
- 6 INSTALL BICYCLE LANE BUFFER STRIPING PER DETAIL ON SHEET 20.
- 8 EXISTING SIGN TO REMAIN.
- 11 FURNISH AND INSTALL NEW SIGN AND BREAK AWAY POST.

**STRIPING DETAILS**

- 22 INSTALL DOUBLE YELLOW CENTERLINE (DETAIL 22) PER CALTRANS STD. PLAN A20A.
- 29 INSTALL DOUBLE LEFT EDGE LINE (DETAIL 29) PER CALTRANS STANDARD PLAN A20B.
- 38A INSTALL 8" WHITE CHANNELIZING LINE (DETAIL 38A) PER CALTRANS STD. PLAN A20D.
- 39 INSTALL WHITE BIKE LANE LINE (DETAIL 39) PER CALTRANS STD. PLAN RSP A20D.
- 39A INSTALL WHITE INTERSECTION BIKE LANE LINE (DETAIL 39A) PER CALTRANS STD. PLAN RSP A20D.

**LEGEND**

- EXISTING SIGNS
- 4 PROPOSED SIGN
- (XX) EXISTING LANE WIDTH
- XX' NEW LANE WIDTH
- (XX) STRIPING DETAIL PER LATEST CALTRANS STANDARD PLANS
- (TS) TRAFFIC SIGNAL
- ↑ TYPE IV ARROW PER CALTRANS STANDARD PLAN A24A
- STOP STOP PER CALTRANS STANDARD PLAN A24D
- XING XING PER CALTRANS STANDARD PLAN A24D
- PED PER CALTRANS STANDARD PLAN A24D
- AHEAD PER CALTRANS STANDARD PLAN A24D



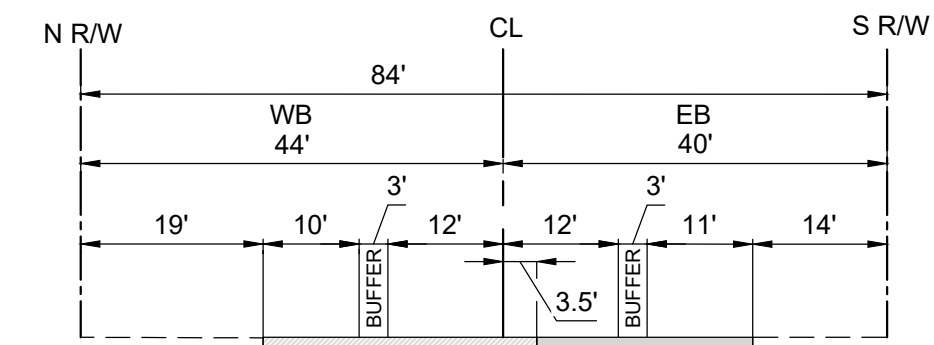
MATCHLINE STA 308+50  
SEE BELOW LEFT

MATCHLINE STA 319+50  
SEE SHEET 22

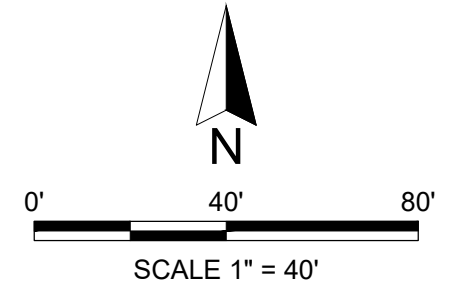
COUNTY OF IMPERIAL  
CITY OF IMPERIAL

NANCE RD

LA BRUCHERIE RD



**PROPOSED SIGN LEGEND**



|   |   |
|---|---|
| APPROVED BY DIRECTOR OF PUBLIC SERVICES<br>CITY OF IMPERIAL, CA<br><br>BY: DAVID DALE, P.E., P.L.S. _____ DATE: _____ | NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.<br>Underground Service Alert<br>Call: TOLL FREE 1-800-422-4133<br>TWO WORKING DAYS BEFORE YOU DIG. |
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**CITY OF IMPERIAL**  
 420 South Imperial Avenue  
 Imperial, CA 92251  
 Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
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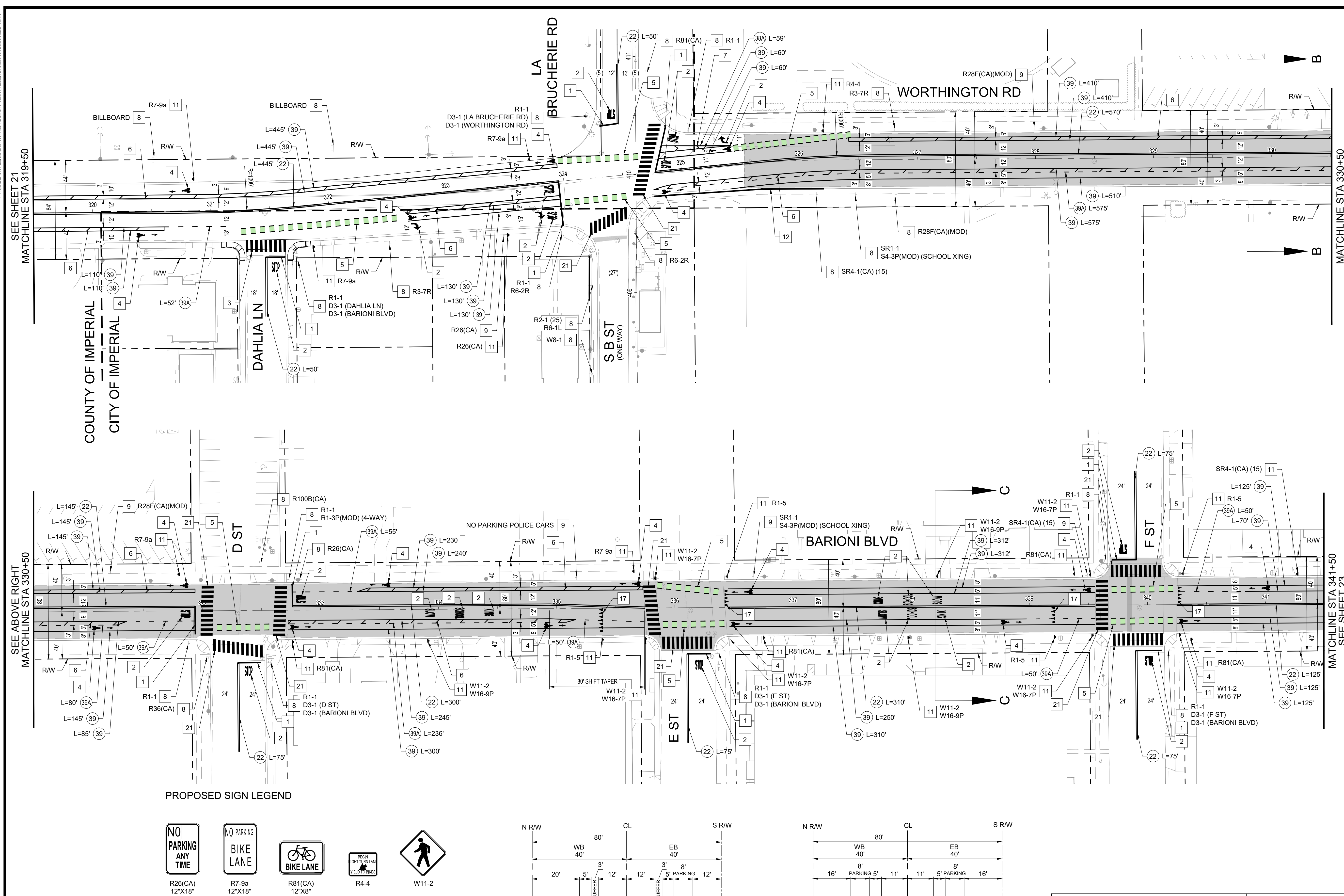


PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto* 86597  
 BLANCA H. SOTO R.C.E. NO.  
 06/21/2024 03/31/2025  
 DATE REG. EXP.

**PROJECT TITLE:** CITY OF IMPERIAL  
 AHSC-ARPA/HWY 86 BEAUTIFICATION  
 PHASE 1  
  
**SHEET CONTENT:** SIGNAGE AND STRIPING PLANS

|                 |                 |
|-----------------|-----------------|
| SCALE: N/A      | SHEET           |
| DRAWN BY: BS    | <b>21</b>       |
| REVIEWED BY: RD | OF 52 SHEETS    |
| JUNE 2024       | JOB NO. CIP#823 |

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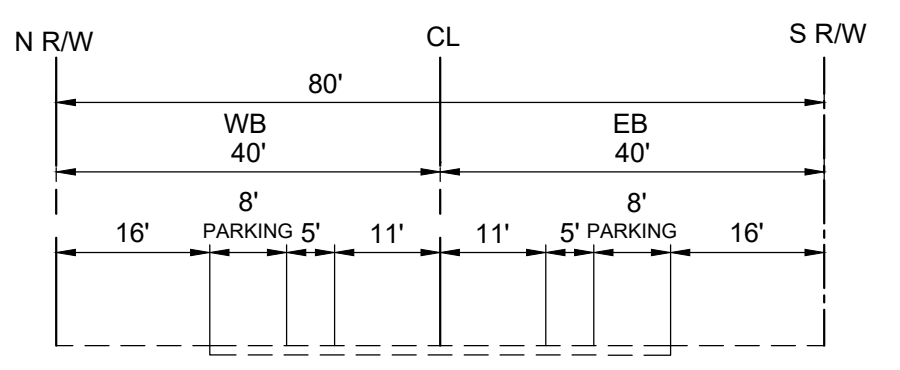
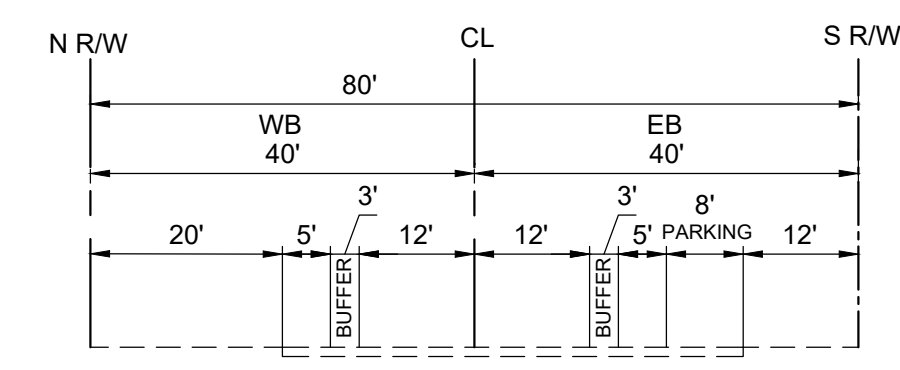
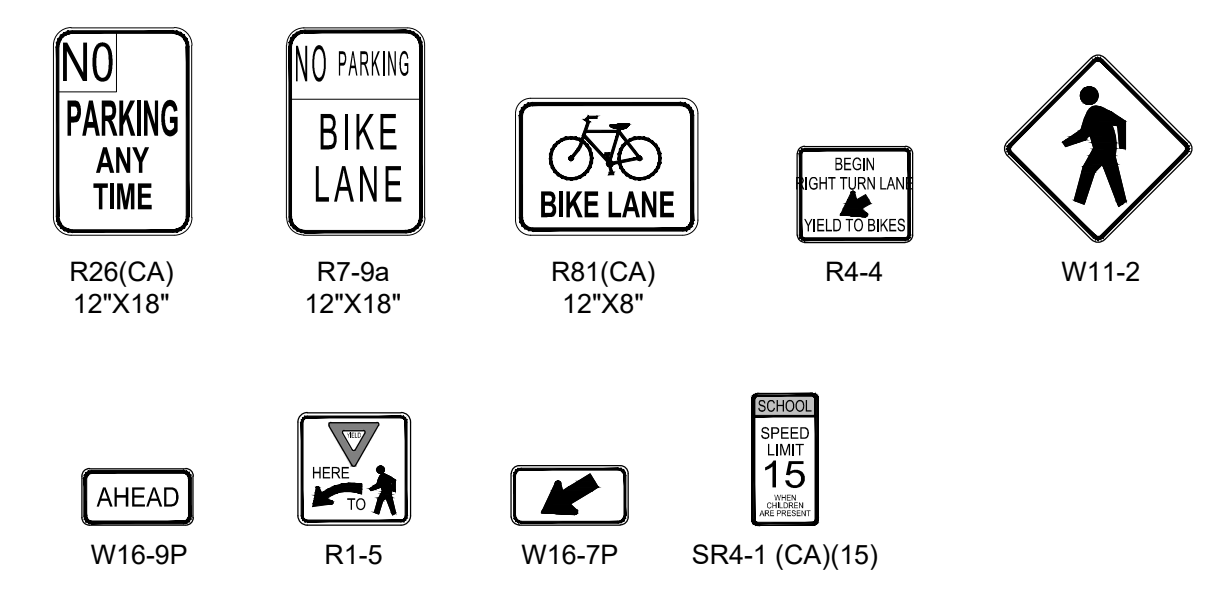


- ### SIGNING AND STRIPING NOTES
- 1 INSTALL 12" WHITE THERMOPLASTIC LIMIT LINE.
  - 2 INSTALL THERMOPLASTIC PAVEMENT MARKING PER CALTRANS STD. PLAN. SEE LEGEND.
  - 4 INSTALL THERMOPLASTIC BIKE LANE WITH ARROW PAVEMENT MARKING PER DETAIL ON SHEET 20.
  - 5 INSTALL CONFLICT MARKING PER DETAIL ON SHEET 20.
  - 6 INSTALL BICYCLE LANE BUFFER STRIPING PER DETAIL ON SHEET 20.
  - 7 INSTALL 6" CHEVRON MARKINGS AT 45° AND 10 FEET CENTER TO CENTER.
  - 8 EXISTING SIGN TO REMAIN.
  - 9 EXISTING SIGN TO BE REMOVED.
  - 11 FURNISH AND INSTALL NEW SIGN AND BREAK AWAY POST.
  - 12 PAINT CURB RED.
  - 21 INSTALL 2'X10' YELLOW THERMOPLASTIC CONTINENTAL CROSSWALK AT 5' INTERVALS CENTER TO CENTER PER CALTRANS STANDARD PLAN A24F

- ### STRIPING DETAILS
- 22 INSTALL DOUBLE YELLOW CENTERLINE (DETAIL 22) PER CALTRANS STD. PLAN A20A.
  - 38A INSTALL 8" WHITE CHANNELIZING LINE (DETAIL 38A) PER CALTRANS STD. PLAN A20D.
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- ### LEGEND
- EXISTING SIGNS
  - PROPOSED SIGN
  - EXISTING LANE WIDTH
  - NEW LANE WIDTH
  - STRIPING DETAIL PER LATEST CALTRANS STANDARD PLANS
  - TRAFFIC SIGNAL
  - TYPE IV ARROW PER CALTRANS STANDARD PLAN A24A
  - STOP PER CALTRANS STANDARD PLAN A24D
  - XING PER CALTRANS STANDARD PLAN A24D
  - PED PER CALTRANS STANDARD PLAN A24D
  - AHEAD PER CALTRANS STANDARD PLAN A24D
  - SLURRY SEAL

#### PROPOSED SIGN LEGEND



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

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**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION

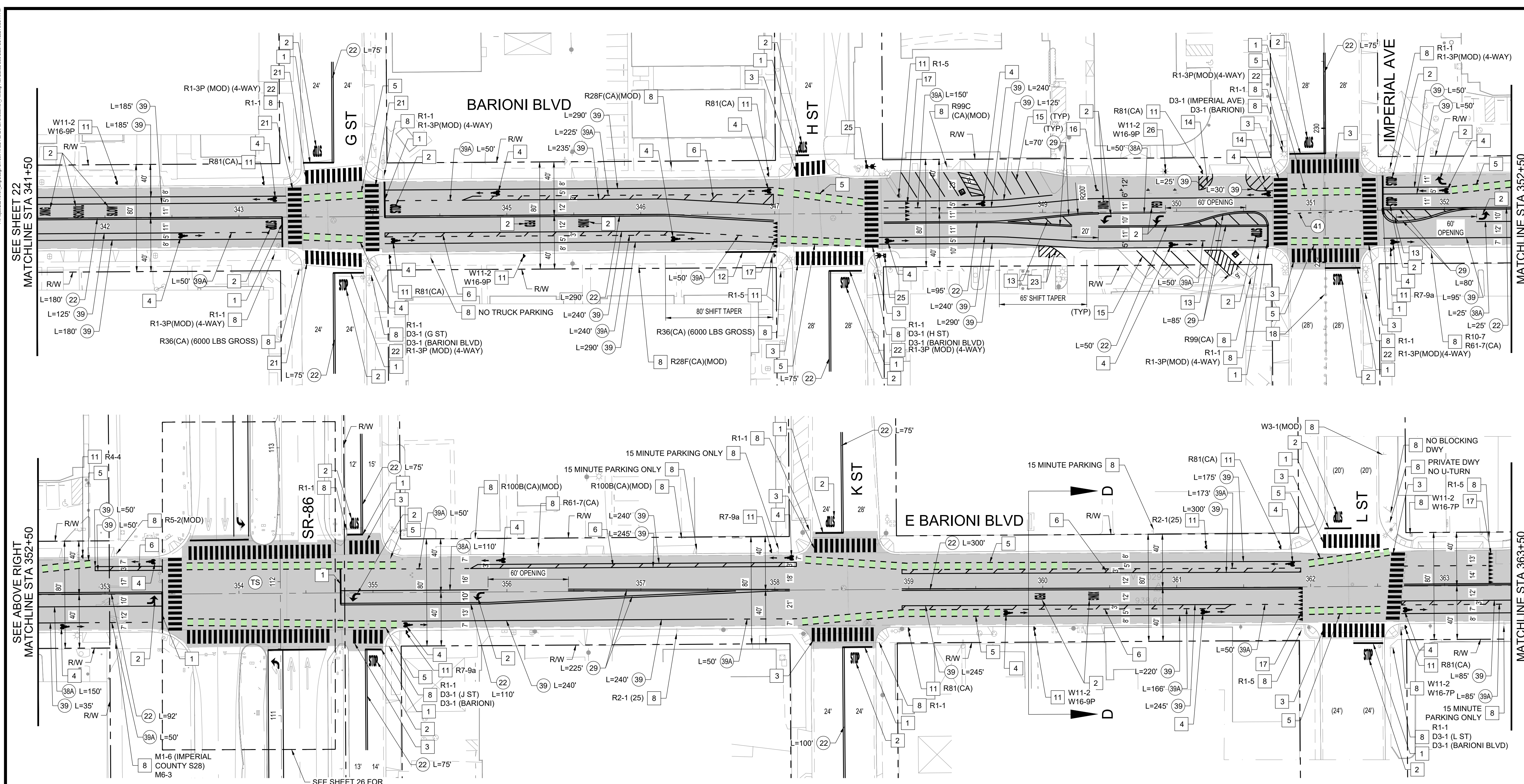


PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO  
06/21/2024  
DATE

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: SIGNAGE AND STRIPING PLANS

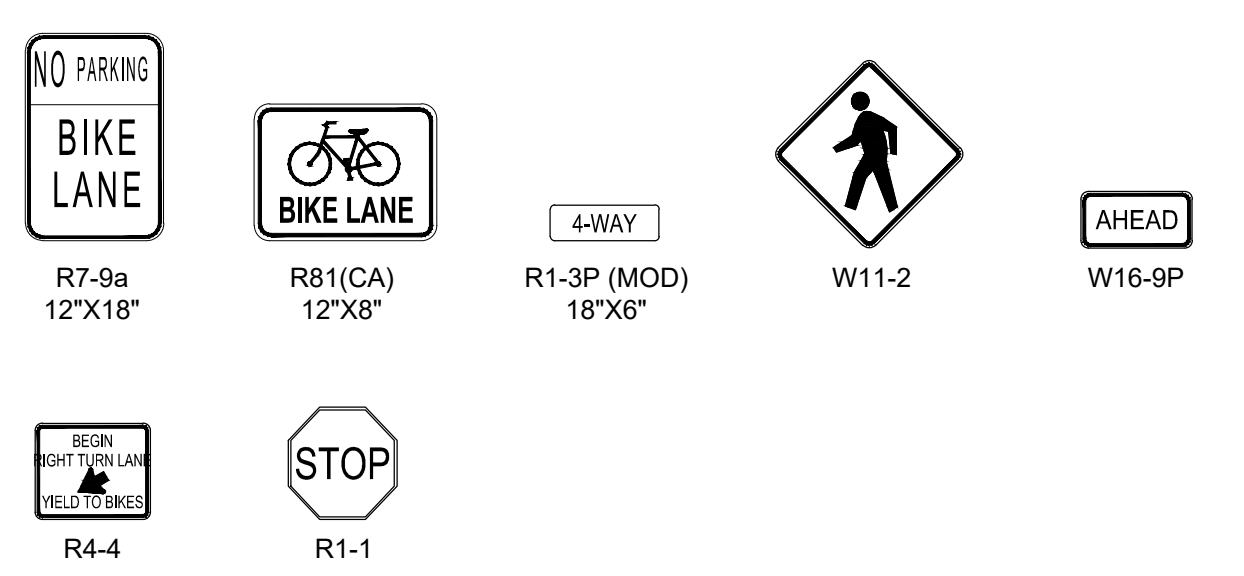
|                 |                 |
|-----------------|-----------------|
| SCALE: N/A      | SHEET 22        |
| DRAWN BY: BS    | OF 52 SHEETS    |
| REVIEWED BY: RD | JOB NO. CIP#823 |
| JUNE 2024       |                 |

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.



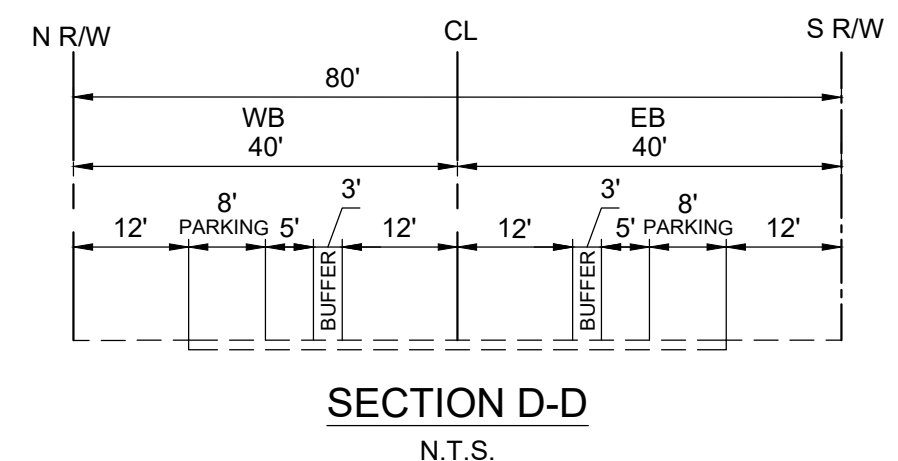
- ### SIGNING AND STRIPING NOTES
- 1 INSTALL 12" WHITE THERMOPLASTIC LIMIT LINE.
  - 2 INSTALL THERMOPLASTIC PAVEMENT MARKING PER CALTRANS STD. PLAN. SEE LEGEND.
  - 3 INSTALL 2'X10' WHITE THERMOPLASTIC CONTINENTAL CROSSWALK AT 5' INTERVALS CENTER TO CENTER PER CALTRANS STANDARD PLAN A24F.
  - 4 INSTALL THERMOPLASTIC BIKE LANE WITH ARROW PAVEMENT MARKING PER DETAIL ON SHEET 20.
  - 5 INSTALL CONFLICT MARKING PER DETAIL ON SHEET 20.
  - 6 INSTALL BICYCLE LANE BUFFER STRIPING PER DETAIL ON SHEET 20.
  - 8 EXISTING SIGN TO REMAIN.
  - 11 FURNISH AND INSTALL NEW SIGN AND BREAK AWAY POST.
  - 12 PAINT CURB RED.
  - 13 FURNISH AND INSTALL WHITE 12" DIAGONAL MARKINGS AT 45° AND 14 FEET CENTER TO CENTER.
  - 14 FURNISH AND INSTALL WHITE 12" DIAGONAL MARKINGS AT 45° AND 7 FEET CENTER TO CENTER.
  - 15 REPAINT ANGLED PARKING STALLS CONTRACTOR TO MATCH EXISTING
  - 16 INSTALL PARALLEL PARKING SPACES PER DETAIL ON SHEET 20.
  - 17 INSTALL YIELD LINE PER CALTRANS REVISED STANDARD PLAN RSP A24G.
  - 18 PROTECT EXISTING BOLLARDS IN PLACE.
  - 21 INSTALL 2'X10' YELLOW THERMOPLASTIC CONTINENTAL CROSSWALK AT 5' INTERVALS CENTER TO CENTER PER CALTRANS STANDARD PLAN A24F
  - 22 FURNISH AND INSTALL NEW SIGN ON EXISTING POST
  - 23 FURNISH AND INSTALL STRIPING, CONTRACTOR TO MATCH EXISTING
  - 25 FURNISH AND INSTALL TAPCO DOUBLE-SIDED SOLAR-POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB) SYSTEM (OR APPROVED EQUAL) ON POLE. SEE DETAIL ON SHEET 20
  - 26 INSTALL NEW SIGN ON EXISTING STREET LIGHT POLE

### PROPOSED SIGN LEGEND

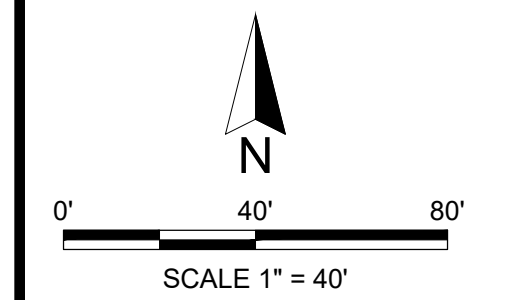


### STRIPING DETAILS

- 22 INSTALL DOUBLE YELLOW CENTERLINE (DETAIL 22) PER CALTRANS STD. PLAN A20A.
- 29 INSTALL DOUBLE LEFT EDGE LINE (DETAIL 29) PER CALTRANS STANDARD PLAN A20B.
- 38A INSTALL 8" WHITE CHANNELIZING LINE (DETAIL 38A) PER CALTRANS STD. PLAN A20D.
- 39 INSTALL WHITE BIKE LANE LINE (DETAIL 39) PER CALTRANS STD. PLAN RSP A20D.
- 39A INSTALL WHITE INTERSECTION BIKE LANE LINE (DETAIL 39A) PER CALTRANS STD. PLAN RSP A20D.
- 41 INSTALL CENTER LINE EXTENSION THROUGH INTERSECTION (DETAIL 41) PER CALTRANS STANDARD PLAN A20D.



- ### LEGEND
- EXISTING SIGNS
  - PROPOSED SIGN
  - EXISTING LANE WIDTH
  - NEW LANE WIDTH
  - STRIPING DETAIL PER LATEST CALTRANS STANDARD PLANS
  - TRAFFIC SIGNAL
  - TYPE IV ARROW PER CALTRANS STANDARD PLAN A24A
  - STOP PER CALTRANS STANDARD PLAN A24D
  - XING PER CALTRANS STANDARD PLAN A24D
  - PED PER CALTRANS STANDARD PLAN A24D
  - AHEAD PER CALTRANS STANDARD PLAN A24D
  - SLURRY SEAL



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CITY OF IMPERIAL, CA

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BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

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**BENCHMARK:**  
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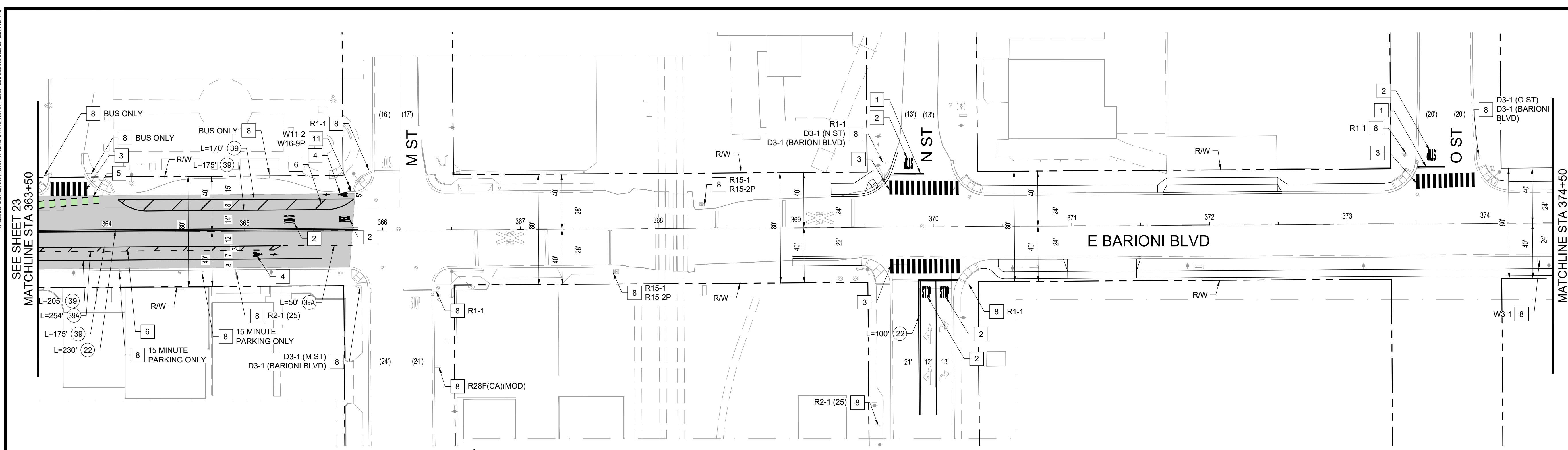
PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO  
06/21/2024  
DATE

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1

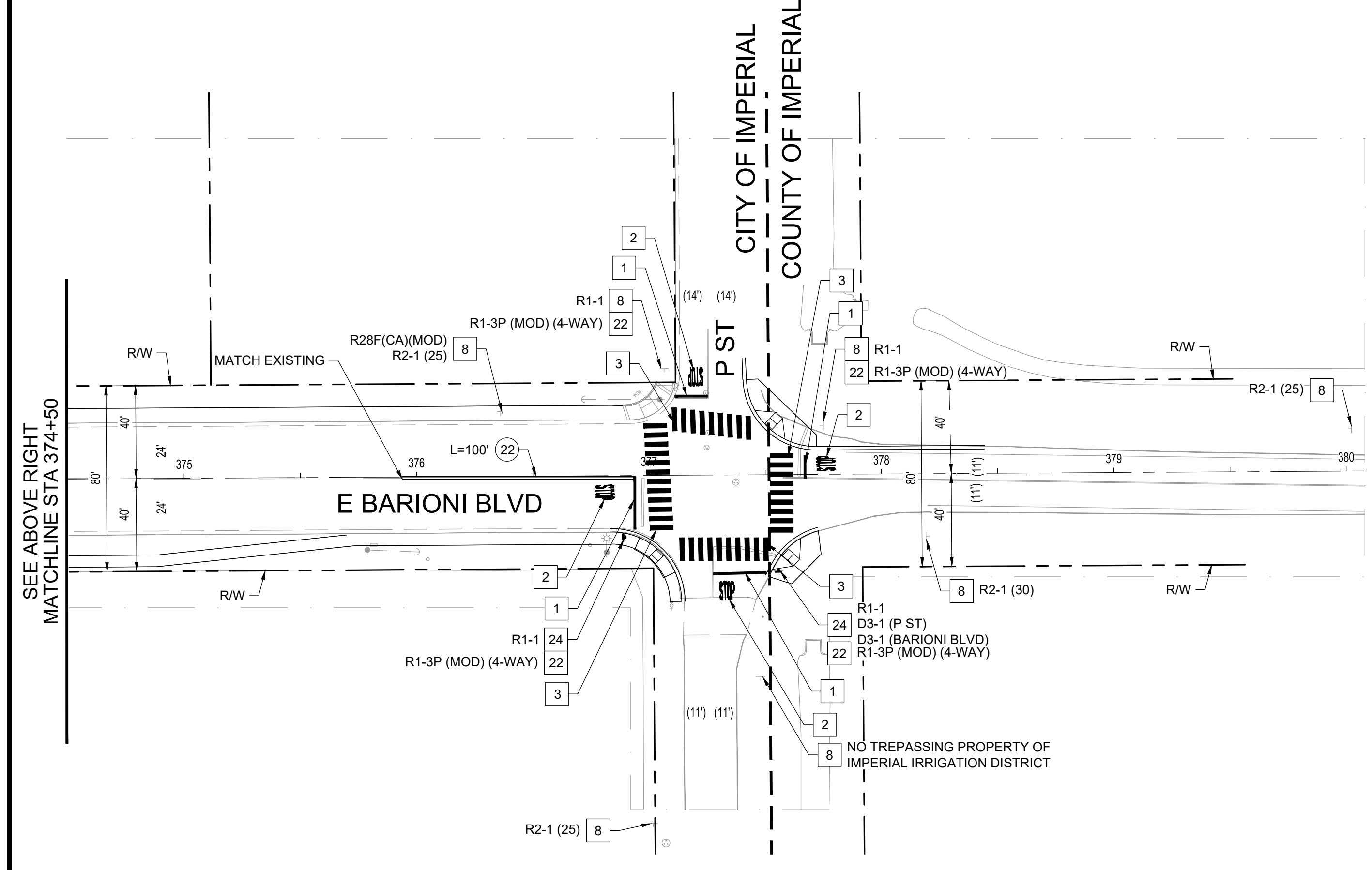
SHEET CONTENT: SIGNAGE AND STRIPING PLANS

|                 |                       |
|-----------------|-----------------------|
| SCALE: N/A      | SHEET 23 OF 52 SHEETS |
| DRAWN BY: BS    | JOB NO. CIP#823       |
| REVIEWED BY: RD |                       |
| JUNE 2024       |                       |

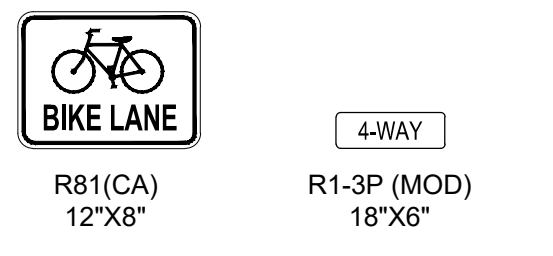
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  - 5 INSTALL CONFLICT MARKING PER DETAIL ON SHEET 20.
  - 6 INSTALL BICYCLE LANE BUFFER STRIPING PER DETAIL ON SHEET 20.
  - 8 EXISTING SIGN TO REMAIN.
  - 11 FURNISH AND INSTALL NEW SIGN AND BREAK AWAY POST.
  - 22 FURNISH AND INSTALL NEW SIGN ON EXISTING POST
  - 24 REMOVE AND REINSTALL EXISTING POST AND SIGN(S).



**PROPOSED SIGN LEGEND**

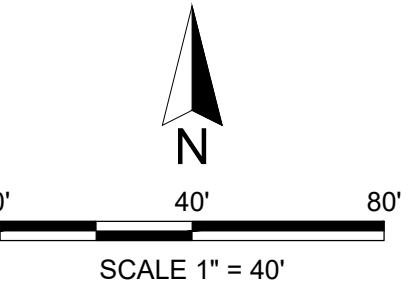


**STRIPING DETAILS**

- 22 INSTALL DOUBLE YELLOW CENTERLINE (DETAIL 22) PER CALTRANS STD. PLAN A20A.
- 39 INSTALL WHITE BIKE LANE LINE (DETAIL 39) PER CALTRANS STD. PLAN RSP A20D.
- 39A INSTALL WHITE INTERSECTION BIKE LANE LINE (DETAIL 39A) PER CALTRANS STD. PLAN RSP A20D.

**LEGEND**

- EXISTING SIGNS
- PROPOSED SIGN
- (XX') EXISTING LANE WIDTH
- XX' NEW LANE WIDTH
- (XX) STRIPING DETAIL PER LATEST CALTRANS STANDARD PLANS
- (TS) TRAFFIC SIGNAL
- ↑ TYPE IV ARROW PER CALTRANS STANDARD PLAN A24A
- STOP PER CALTRANS STANDARD PLAN A24D
- XING PER CALTRANS STANDARD PLAN A24D
- PED PER CALTRANS STANDARD PLAN A24D
- AHEAD PER CALTRANS STANDARD PLAN A24D
- SLURRY SEAL



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CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. \_\_\_\_\_ DATE \_\_\_\_\_

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**CITY OF IMPERIAL**  
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Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
BLANCA H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

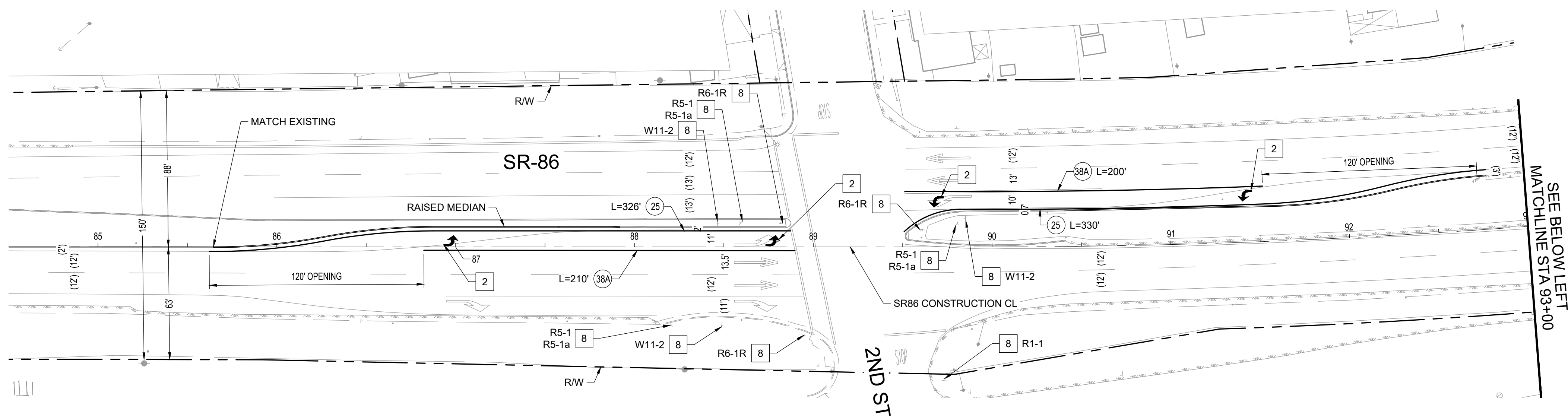
**PROJECT TITLE:** CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
**SHEET CONTENT:** SIGNAGE AND STRIPING PLANS

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024  
SHEET **24** OF 52 SHEETS  
JOB NO. CIP#823

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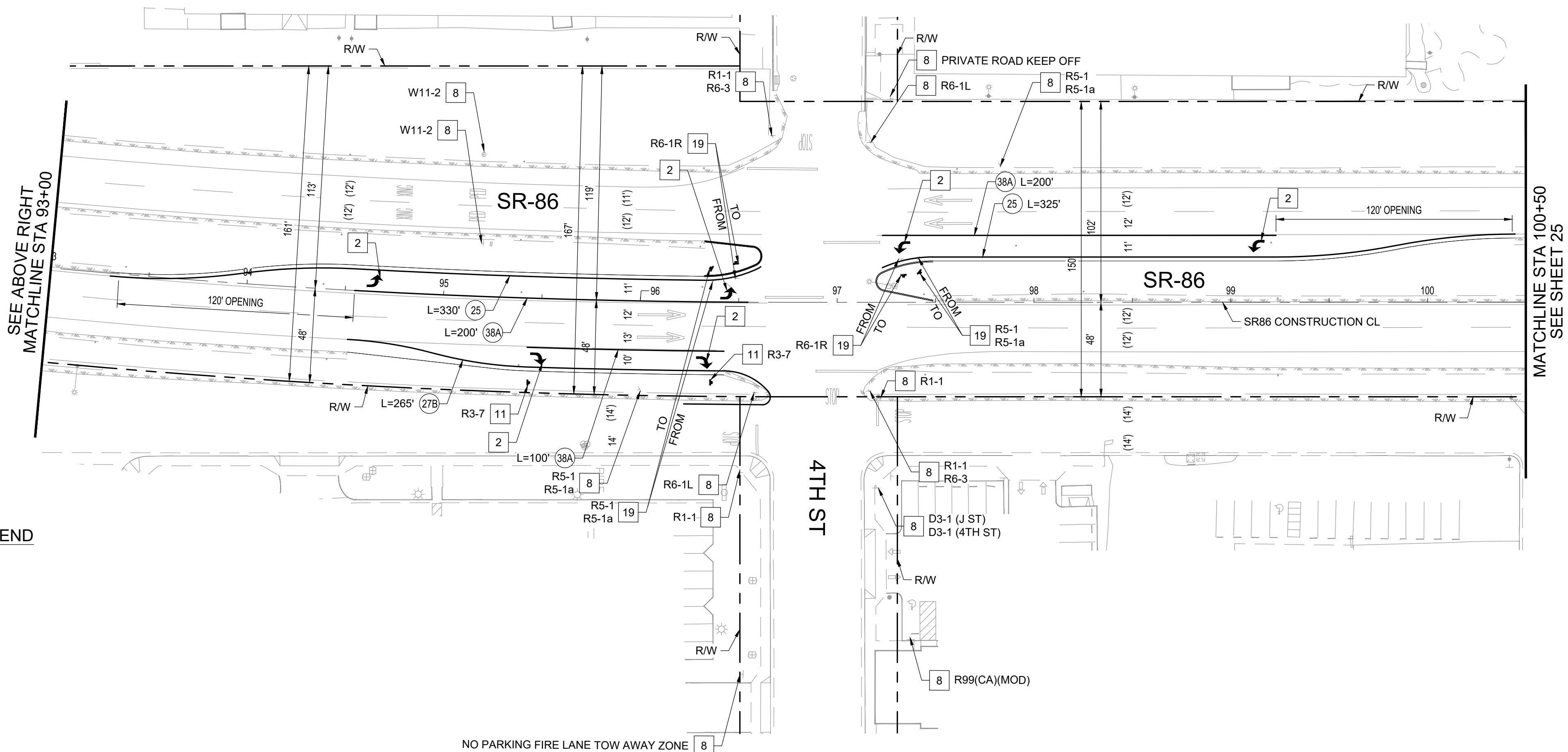


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**SIGNING AND STRIPING NOTES**

- 2 INSTALL THERMOPLASTIC PAVEMENT MARKING PER CALTRANS STD. PLAN. SEE LEGEND.
- 8 EXISTING SIGN TO REMAIN.
- 11 FURNISH AND INSTALL NEW SIGN AND BREAK AWAY POST.
- 19 EXISTING SIGN TO BE RELOCATED



**STRIPING DETAILS**

- (25) INSTALL LEFT EDGE LINE (DETAIL 25) PER CALTRANS STANDARD PLAN A20B.
- (27B) INSTALL RIGHT EDGE LINE (DETAIL 27B) PER CALTRANS STANDARD PLAN A20B.
- (38A) INSTALL 8" WHITE CHANNELIZING LINE (DETAIL 38A) PER CALTRANS STD. PLAN A20D.

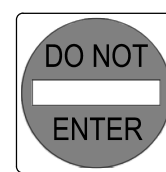
**PROPOSED SIGN LEGEND**



R3-7  
30"X30"

**RELOCATED SIGN LEGEND**

R6-1R



R5-1  
36"X36"



R5-1a  
42"X30"

**LEGEND**

- EXISTING SIGNS
- ⊥ PROPOSED SIGN
- (XX') EXISTING LANE WIDTH
- xx' NEW LANE WIDTH
- (XX) STRIPING DETAIL PER LATEST CALTRANS STANDARD PLANS
- (TS) TRAFFIC SIGNAL
- ↑ TYPE IV ARROW PER CALTRANS STANDARD PLAN A24A
- STOP STOP PER CALTRANS STANDARD PLAN A24D
- XING XING PER CALTRANS STANDARD PLAN A24D
- PED PER CALTRANS STANDARD PLAN A24D
- AHEAD PER CALTRANS STANDARD PLAN A24D

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CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S.

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**CITY OF IMPERIAL**

420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

⊕ BENCHMARK:

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PREPARED UNDER THE DIRECT SUPERVISION OF:

Blanca Soto  
BLANCA H. SOTO

06/21/2024  
DATE

86597  
R.C.E. NO.

03/31/2025  
REG. EXP.

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

SHEET CONTENT:  
SIGNAGE AND STRIPING PLANS

SCALE: N/A

DRAWN BY: BS

REVIEWED BY: RD

JUNE 2024

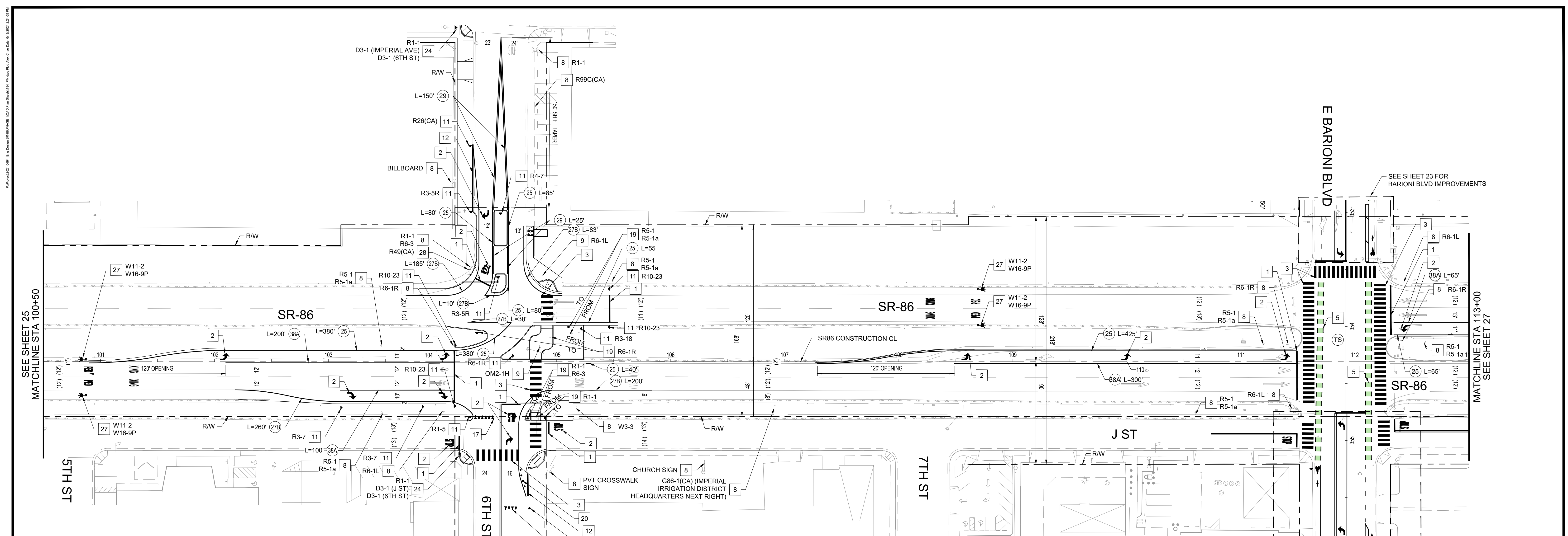
SHEET

25

OF 52 SHEETS

JOB NO.  
CIP#823

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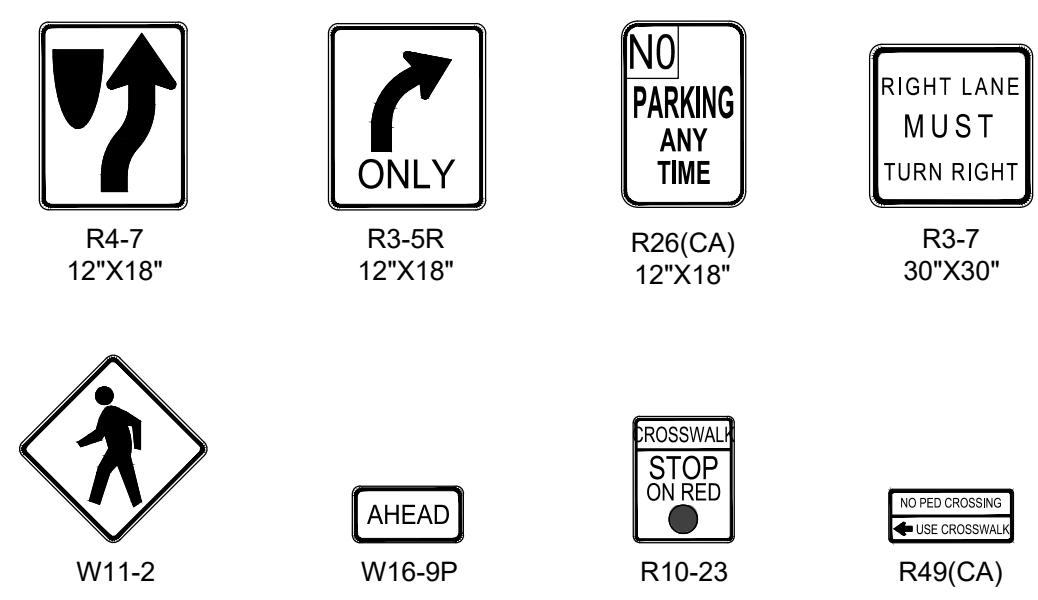
SEE SHEET 25  
MATCHLINE STA 100+50

SEE SHEET 27  
MATCHLINE STA 113+00

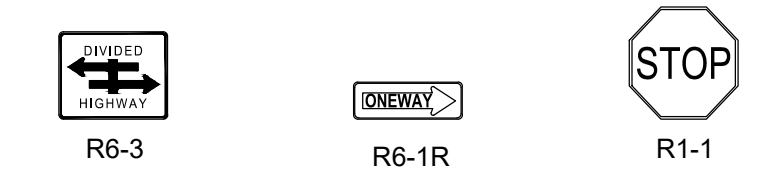
SEE SHEET 23 FOR  
BARONI BLVD IMPROVEMENTS

SEE SHEET 23 FOR  
BARONI BLVD IMPROVEMENTS

**PROPOSED SIGN LEGEND**



**RELOCATED SIGN LEGEND**



**SIGNING AND STRIPING NOTES**

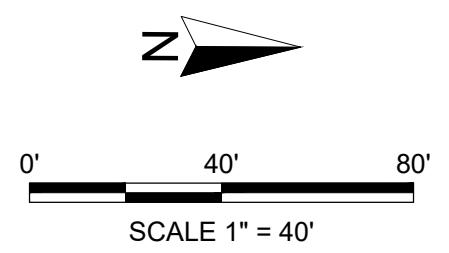
- 1 INSTALL 12" WHITE THERMOPLASTIC LIMIT LINE.
- 2 INSTALL THERMOPLASTIC PAVEMENT MARKING PER CALTRANS STD. PLAN. SEE LEGEND.
- 3 INSTALL 2'X10' WHITE THERMOPLASTIC CONTINENTAL CROSSWALK AT 5' INTERVALS CENTER TO CENTER PER CALTRANS STANDARD PLAN A24F.
- 8 EXISTING SIGN TO REMAIN.
- 9 EXISTING SIGN TO BE REMOVED.
- 11 FURNISH AND INSTALL NEW SIGN AND BREAK AWAY POST.
- 12 PAINT CURB RED.
- 17 INSTALL YIELD LINE PER CALTRANS REVISED STANDARD PLAN RSP A24G.
- 19 EXISTING SIGN TO BE RELOCATED
- 20 FURNISH AND INSTALL CLASS 1 FLEXIBLE POST DELINEATOR PER CALTRANS STANDARD PLAN A73C
- 24 REMOVE AND REINSTALL EXISTING POST AND SIGN(S).
- 27 INSTALL SIGNS ON PROPOSED POLE PER SIGNAL PLAN
- 28 FURNISH AND INSTALL NEW SIGN AND TYPE II PEDESTRIAN BARRICADE PER CALTRANS STD. PLAN ES-7Q

**STRIPING DETAILS**

- 22 INSTALL DOUBLE YELLOW CENTERLINE (DETAIL 22) PER CALTRANS STD. PLAN A20A
- 25 INSTALL LEFT EDGE LINE (DETAIL 25) PER CALTRANS STANDARD PLAN A20B.
- 27B INSTALL RIGHT EDGE LINE (DETAIL 27B) PER CALTRANS STANDARD PLAN A20B.
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**LEGEND**

- EXISTING SIGNS
- PROPOSED SIGN
- (XX) EXISTING LANE WIDTH
- XX' NEW LANE WIDTH
- (XX) STRIPING DETAIL PER LATEST CALTRANS STANDARD PLANS
- (TS) TRAFFIC SIGNAL
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- STOP PER CALTRANS STANDARD PLAN A24D
- XING PER CALTRANS STANDARD PLAN A24D
- PED PER CALTRANS STANDARD PLAN A24D
- AHEAD PER CALTRANS STANDARD PLAN A24D



| NO. | REVISIONS: | APPROVED | DATE |
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**CITY OF IMPERIAL**  
 420 South Imperial Avenue  
 Imperial, CA 92251  
 Ph: (760) 355-4371 Fax: (760) 355-4718

 **BENCHMARK:**  
 SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto*  
 BLANCA H. SOTO  
 06/21/2024  
 DATE

**PROJECT TITLE:** CITY OF IMPERIAL  
 AHSC-ARPA/HWY 86 BEAUTIFICATION  
 PHASE 1  
**SHEET CONTENT:** SIGNAGE AND STRIPING PLANS

SCALE: N/A  
 DRAWN BY: BS  
 REVIEWED BY: RD  
 JUNE 2024  
 SHEET **26**  
 OF 52 SHEETS  
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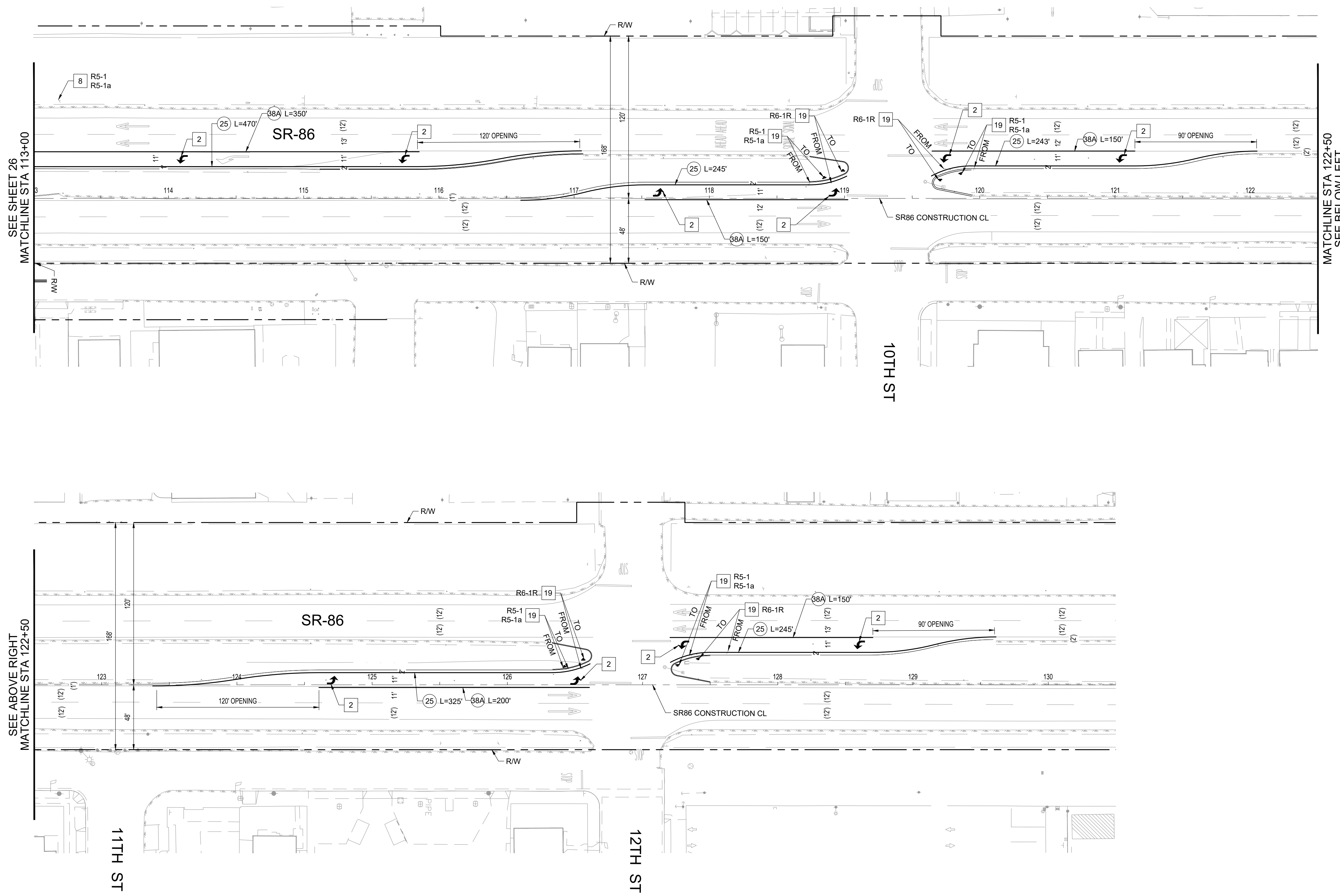
APPROVED BY DIRECTOR OF PUBLIC SERVICES  
 CITY OF IMPERIAL, CA  
 BY: DAVID DALE, P.E., P.L.S. DATE:

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P:\Projects\2024\11th St Design\11th St Design.dwg, 11/15/2024, 11:24:31 AM



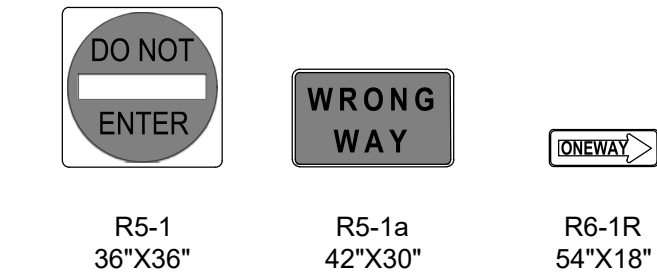
**SIGNING AND STRIPING NOTES**

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- 8 EXISTING SIGN TO REMAIN.
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**STRIPING DETAILS**

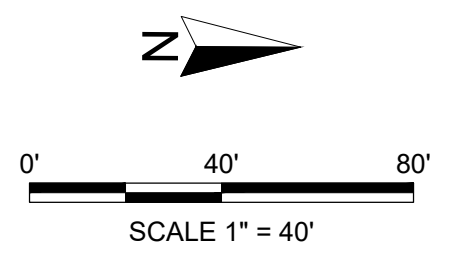
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**RELOCATED SIGN LEGEND**



**LEGEND**

- EXISTING SIGNS
- ⊕ PROPOSED SIGN
- (XX) EXISTING LANE WIDTH
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- XING XING PER CALTRANS STANDARD PLAN A24D
- PED PED PER CALTRANS STANDARD PLAN A24D
- AHEAD AHEAD PER CALTRANS STANDARD PLAN A24D



APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S. DATE:

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BLANCA H. SOTO R.C.E. NO. 86597  
DATE: 06/21/2024 REG. EXP. 03/31/2025

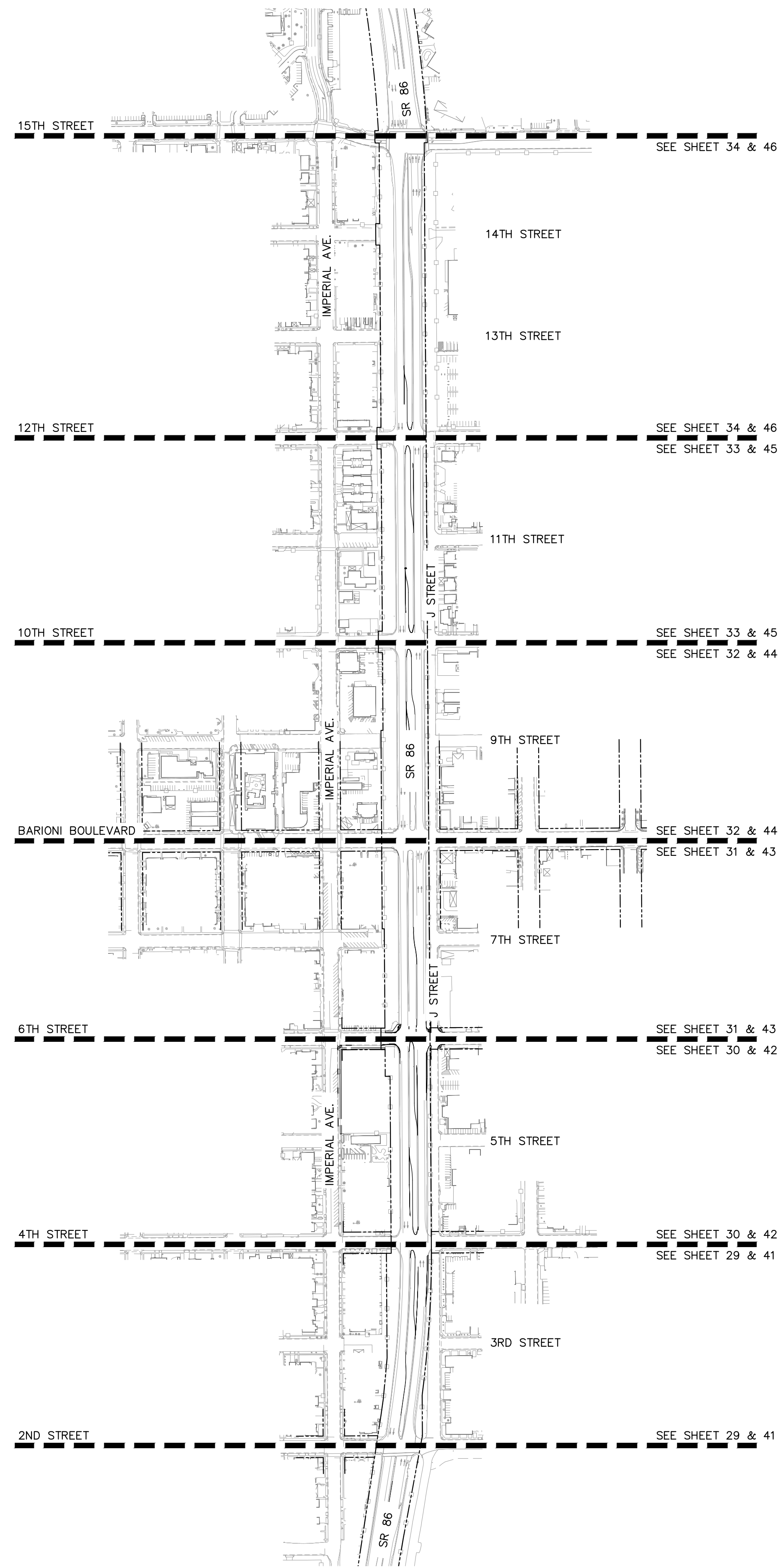
**PROJECT TITLE:** CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
**SHEET CONTENT:** SIGNAGE AND STRIPING PLANS

SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024

SHEET **27** OF 52 SHEETS  
JOB NO. CIP#823

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Project: City of Imperial AHSC-ARPA/Hwy 86 Beautification - Landscape Cover Sheet  
 Date: 05/28/2024 12:26:03 PM

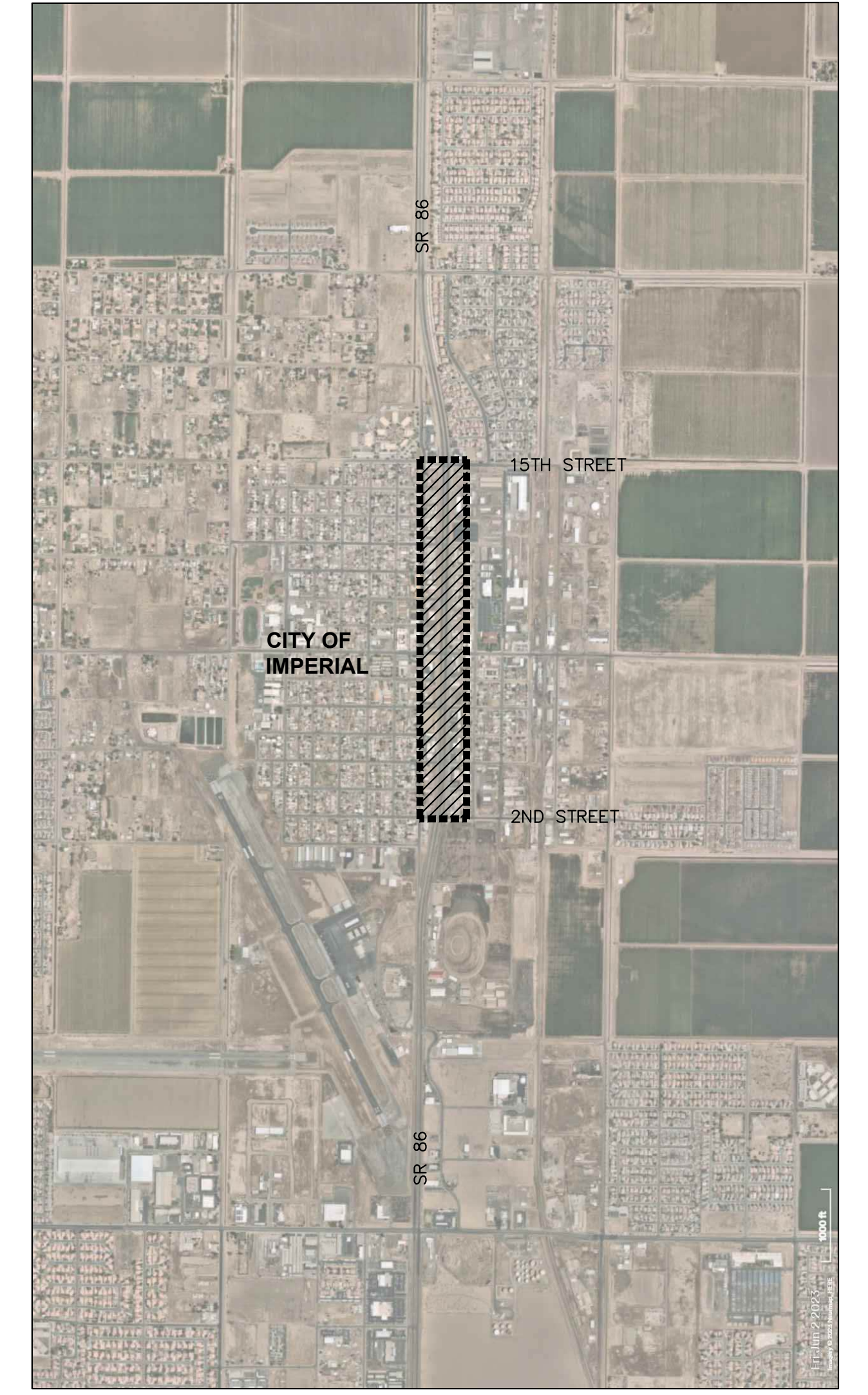


**2ND TO 15TH - OVERALL SITE PLAN**



**INDEX**

| SHEET NO. | TITLE                                       |
|-----------|---|
| 28        | LANDSCAPE COVER SHEET                       |
| 29        | IRRIGATION PLAN                             |
| 30        | IRRIGATION PLAN                             |
| 31        | IRRIGATION PLAN                             |
| 32        | IRRIGATION PLAN                             |
| 33        | IRRIGATION PLAN                             |
| 34        | IRRIGATION PLAN                             |
| 35        | IRRIGATION LEGEND                           |
| 36        | IRRIGATION NOTES, SCHEDULE AND CALCULATIONS |
| 37        | IRRIGATION DETAILS                          |
| 38        | IRRIGATION DETAILS                          |
| 39        | IRRIGATION DETAILS                          |
| 40        | IRRIGATION DETAILS                          |
| 41        | PLANTING PLAN                               |
| 42        | PLANTING PLAN                               |
| 43        | PLANTING PLAN                               |
| 44        | PLANTING PLAN                               |
| 45        | PLANTING PLAN                               |
| 46        | PLANTING PLAN                               |
| 47        | LANDSCAPE LEGENDS & NOTES                   |
| 48        | PLANTING DETAILS                            |
| 49        | PLANTING DETAILS                            |



**VICINITY MAP**

N.T.S

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619.681.0090  
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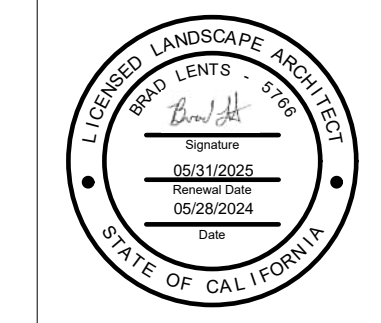
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BENCHMARK:  
BENCHMARK ELEVATION =  
BENCHMARK DESCRIPTION:



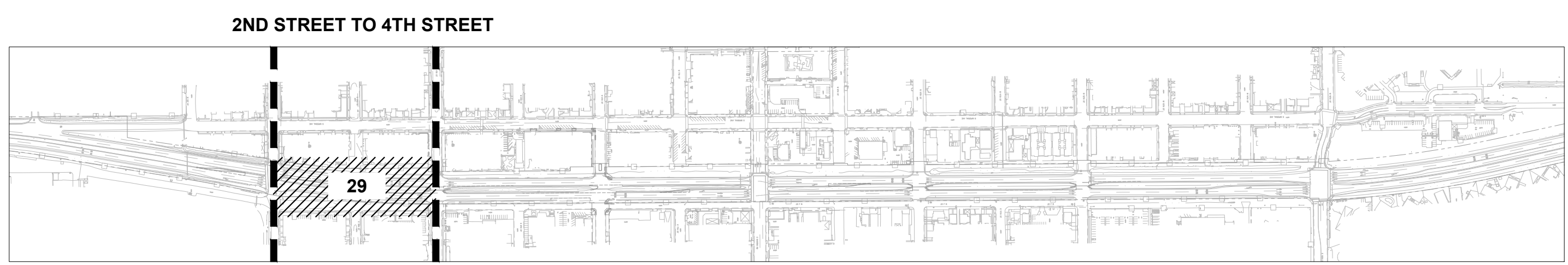
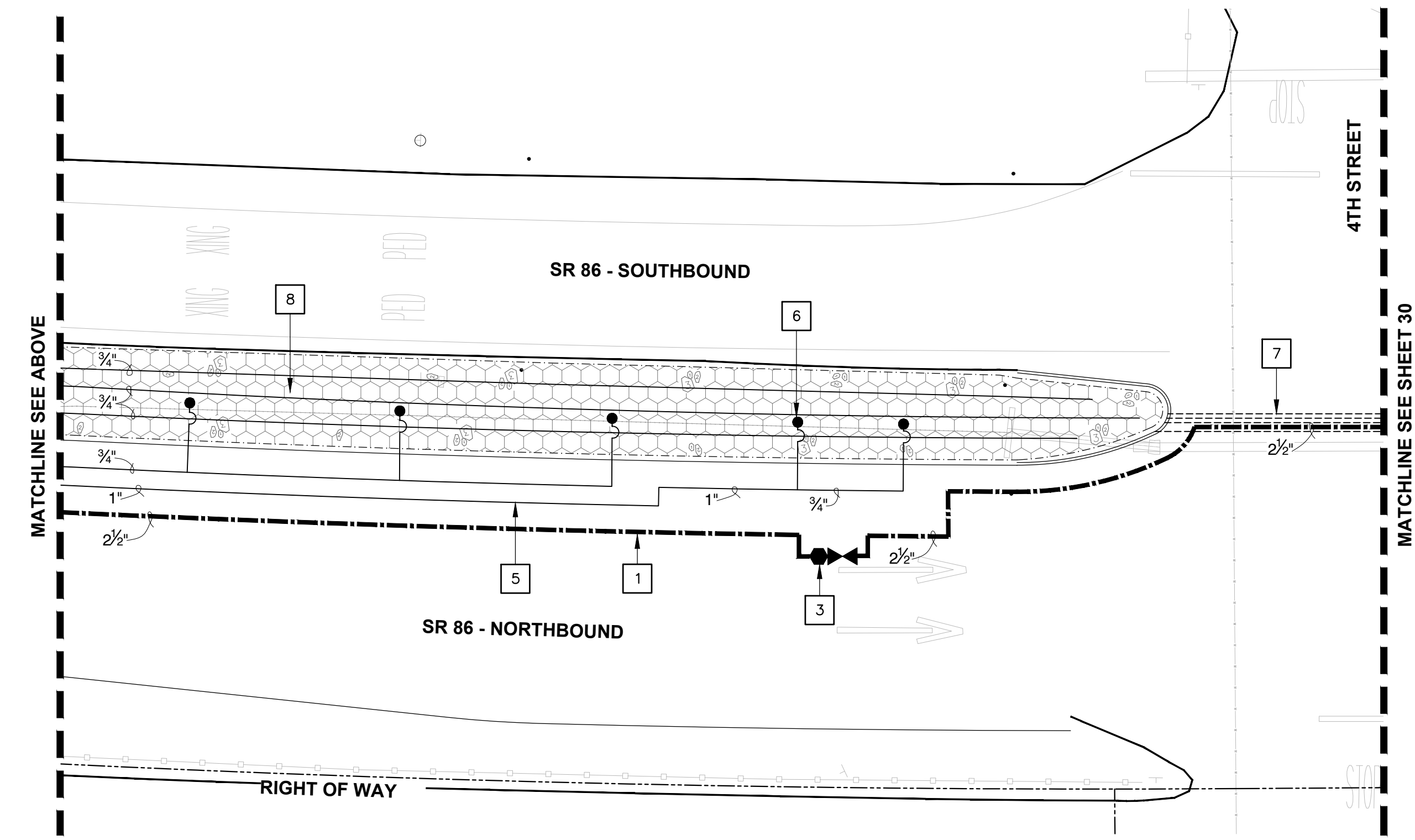
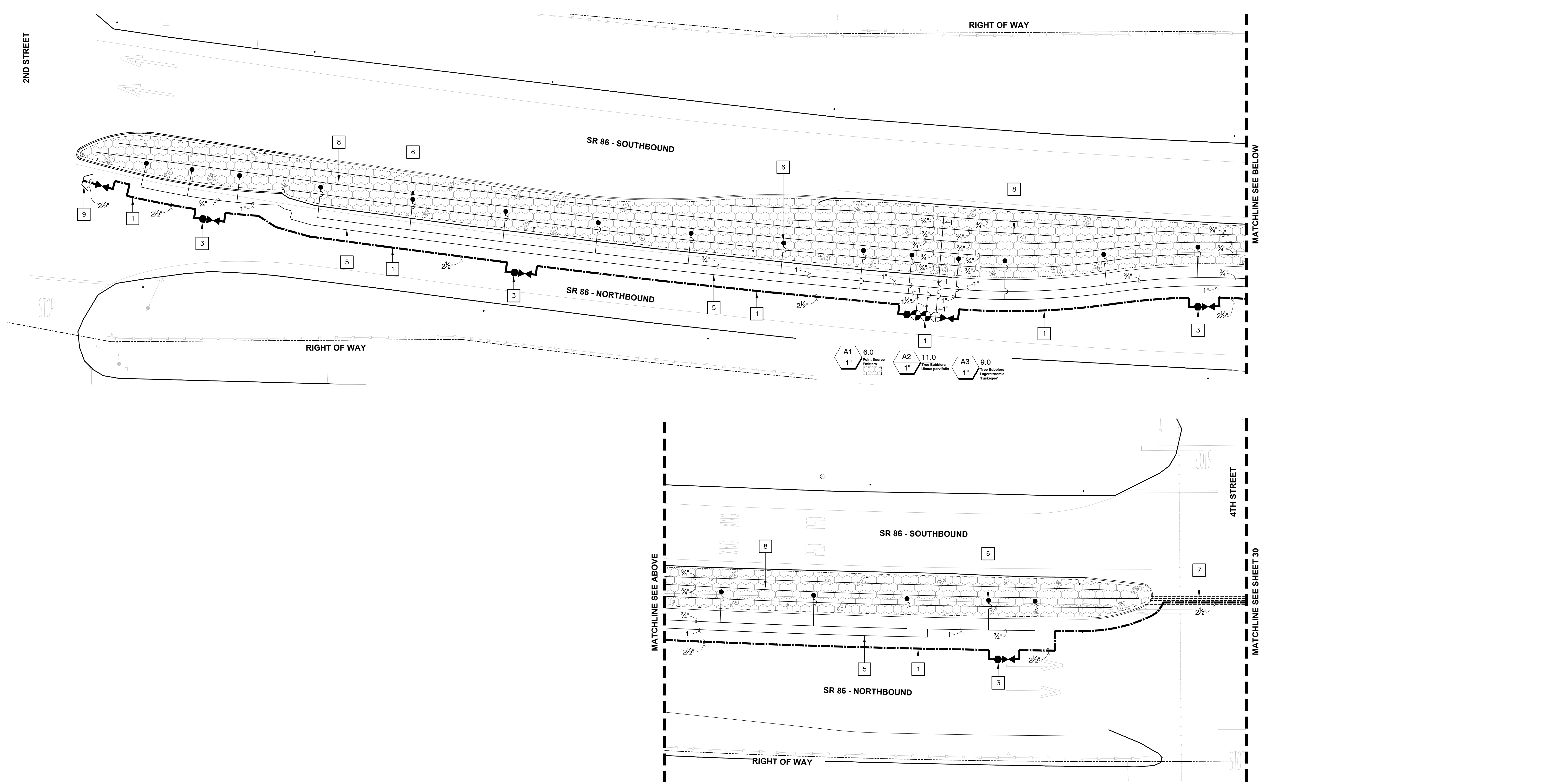
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BRAD LENTS  
DATE: 05/28/2024

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: LANDSCAPE COVER SHEET

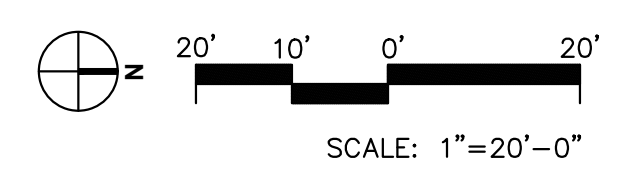
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REVISED BY: YZ  
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SHEET  
**28**  
OF 52 SHEETS  
JOB NO.  
XXXXXXXXX

Imperial City of Imperial 48810 05/28/2024 11:14 AM  
 Imperial City of Imperial 48810 05/28/2024 11:14 AM  
 Imperial City of Imperial 48810 05/28/2024 11:14 AM  
 Imperial City of Imperial 48810 05/28/2024 11:14 AM



**SEE SHEET 35 FOR IRRIGATION LEGEND**  
**SEE SHEET 36 FOR IRRIGATION SCHEDULE**



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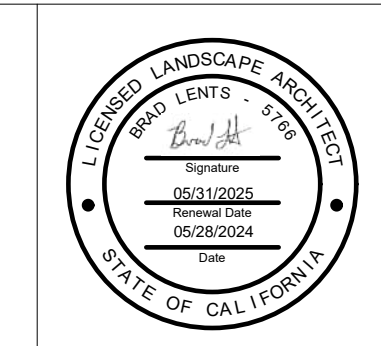


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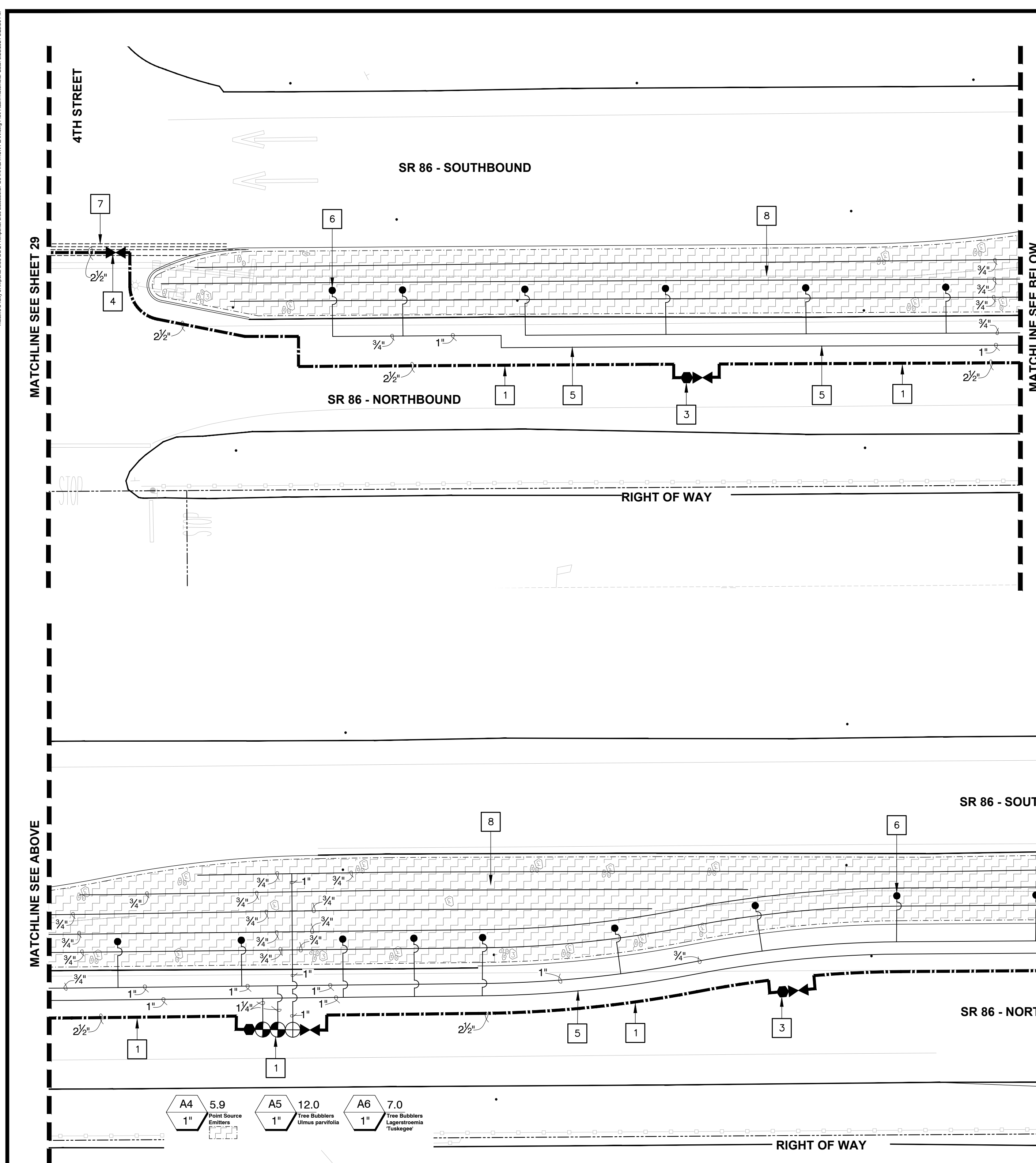


PREPARED UNDER THE DIRECT SUPERVISION OF:  
 BRAD LENTS  
 05/28/2024  
 DATE

PROJECT TITLE: CITY OF IMPERIAL  
 AHSC-ARPA/HWY 86 BEAUTIFICATION  
 PHASE 1  
 SHEET CONTENT: IRRIGATION PLAN

SCALE:  
 DRAWN BY: AK & MS  
 REVISED BY: YZ  
 SHEET 29 OF 52 SHEETS  
 JOB NO. XXXXXXXX  
 JUNE 2024

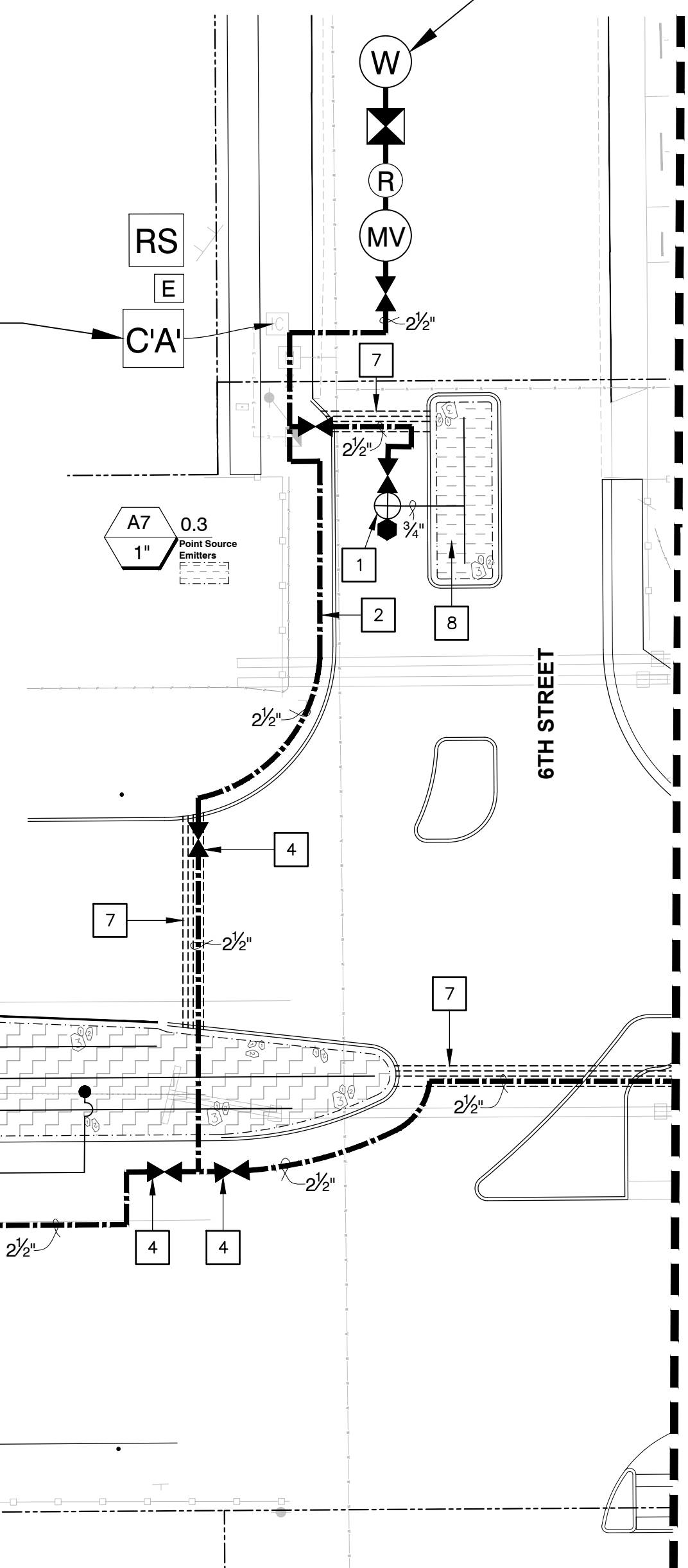
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**IRRIGATION CONTROLLER 'A'**  
 CONTRACTOR SHALL INSTALL (1) 75-STATION HUNTER ACC2 DECODER CONTROLLER MODEL: A2C-75D-SS/PED-SS/SOLARSYNC-SEN/ICD-HP/ROAMXL-KIT (2-WIRE CONTROLLER DECODER SYSTEM) IN A STAINLESS STEEL PEDESTAL ENCLOSURE. INSTALL WITH HUNTER SOLAR SYNC. INSTALL CONTROLLER WITHIN THE CITY RIGHT-OF-WAY. FINAL LOCATION OF CONTROLLER AND SOLAR SYNC SHALL BE APPROVED BY AUTHORIZED CITY OF IMPERIAL REPRESENTATIVE PRIOR TO INSTALLATION. INSTALL PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR TO PROVIDE ELECTRICAL CONNECTION FOR THE CONTROLLER

| POINT OF CONNECTION INFORMATION 'A'        |  |
|--|--|
| STREET STATION: E 6TH STREET STA 805+14.18 |  |
| POINT OF CONNECTION                        | 1-1/2" POTABLE WATER IRRIGATION METER  |
| METER ELEVATION                            | 939  |
| STATIC PRESSURE                            | 72 psi   |
| PEAK FLOW                                  | 16 gpm   |
| CONTROLLER TYPE                            | CONTROLLER 'A' - ACC2 HUNTER DECODER CONTROLLER MODEL: A2C-75D-SS/PED-SS/SOLARSYNC-SEN/ICD-HP/ROAMXL-KIT (2-WIRE CONTROLLER DECODER SYSTEM) IN STAINLESS STEEL PEDESTAL ENCLOSURE. |
| STATIONS AVAILABLE                         | 75 STATIONS  |
| STATIONS USED                              | 22 STATIONS  |
| BACKFLOW DEVICE                            | 1-1/2" FBECO B25Y INSTALLED 80 MESH Y-STRAINER   |

**BOOSTER PUMP NOTE:**  
 CONTRACTOR SHALL PROVIDE A BID ALTERNATE FOR BOOSTER PUMP ASSEMBLY IF THE AVAILABLE PRESSURE IS INADEQUATE TO SUPPORT THE DESIGNED HYDRAULIC CRITERIA AT THE TIME OF CONSTRUCTION. DUE TO FLUCTUATING PRESSURE A BOOSTER PUMP MIGHT BE NEEDED. PROVIDE BOOSTER PUMP SUFFICIENT ENOUGH TO INSURE THAT THE IRRIGATION SYSTEM SHALL WORK PROPERLY. SHOULD PRESSURE BE DIFFERENT THEN SHOWN ON THE PLAN CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR INSTRUCTIONS PRIOR TO PROCEEDING WITH INSTALLATION. SEE LEGEND ON SHEET 35 FOR BOOSTER PUMP INFORMATION.

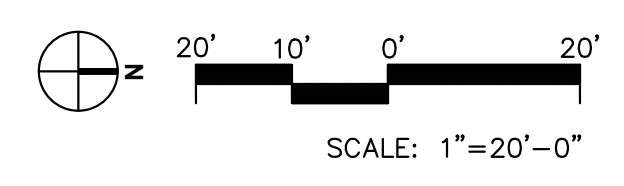
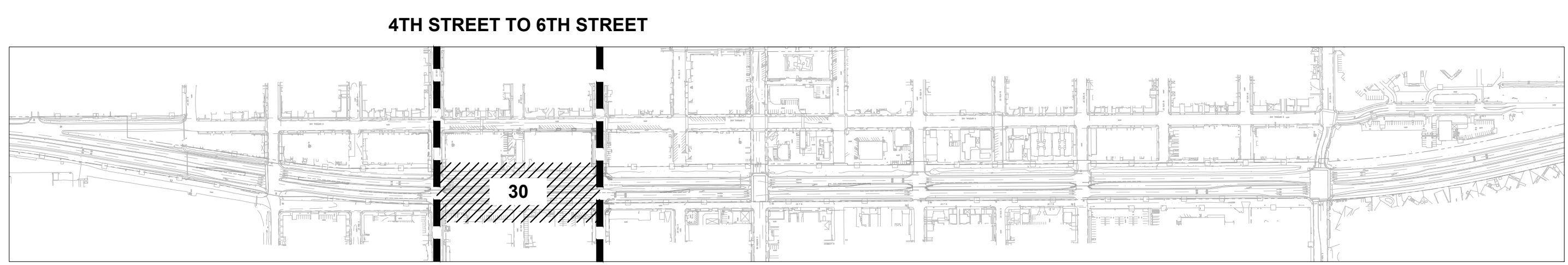


MATCHLINE SEE ABOVE

MATCHLINE SEE BELOW

MATCHLINE SEE SHEET 31

SEE SHEET 35 FOR IRRIGATION LEGEND  
 SEE SHEET 36 FOR IRRIGATION SCHEDULE



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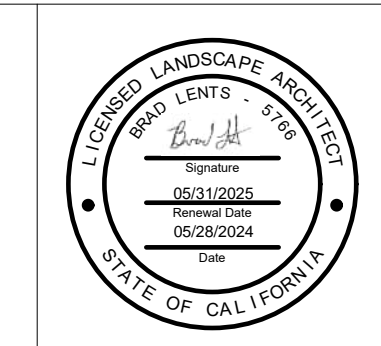


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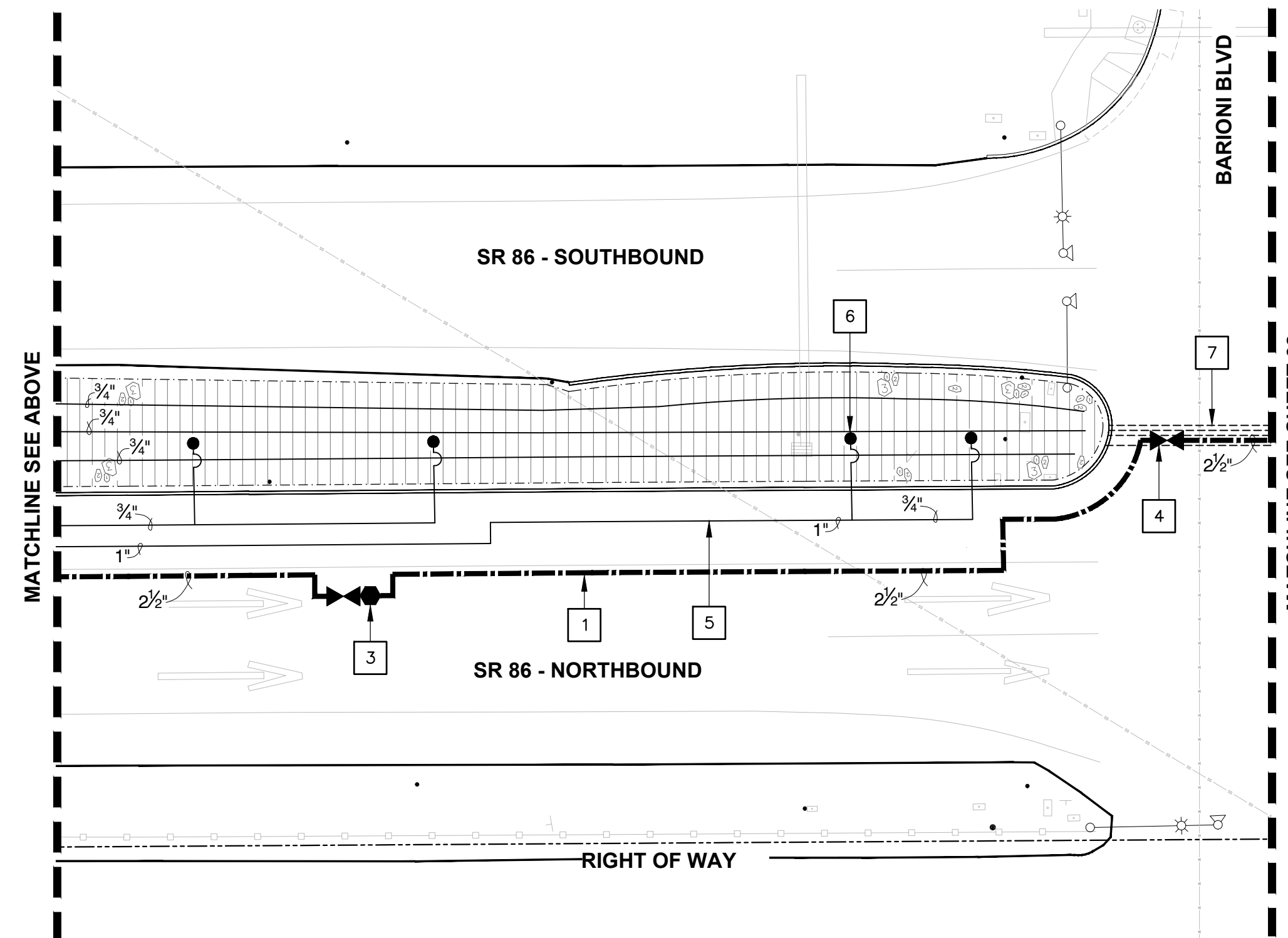
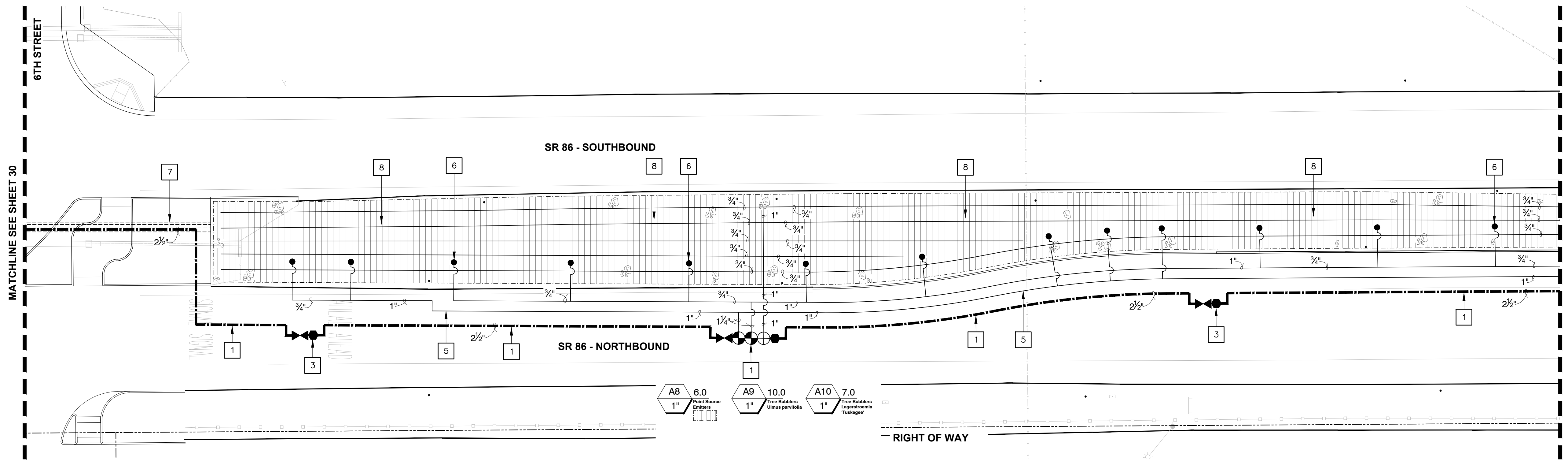
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 BRAD LENTS  
 DATE: 05/28/2024

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
 SHEET CONTENT: IRRIGATION PLAN

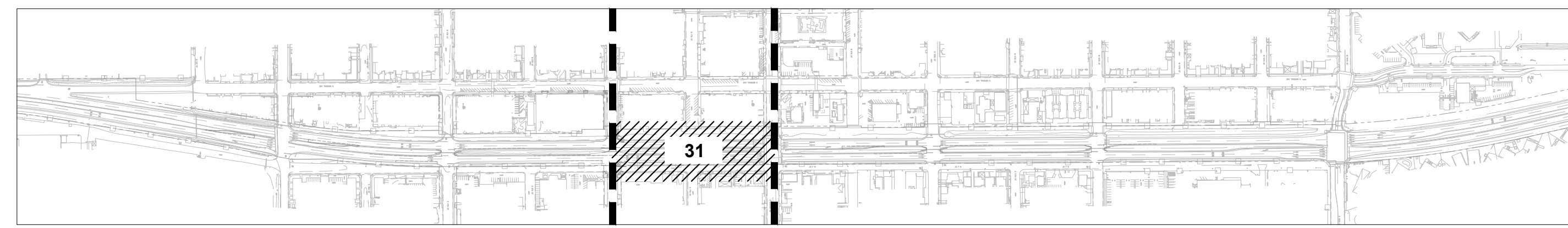
SCALE: DRAWN BY: AK & MS REVISOR BY: YZ  
 SHEET: 30 OF 52 SHEETS  
 JOB NO. XXXXXXXX  
 DATE: JUNE 2024

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Imperial Arroyo Irrigation 4881 (05/28/2024) IRRIGATION PLAN (Key Plan) - Admin/Reviewed Date: 05/28/2024 12:44 PM



6TH STREET TO BARIONI BOULEVARD



SEE SHEET 35 FOR IRRIGATION LEGEND  
SEE SHEET 36 FOR IRRIGATION SCHEDULE

**SPURLOCK**  
LANDSCAPE ARCHITECTS

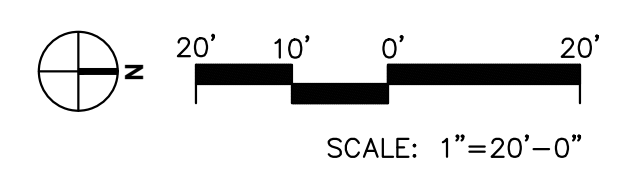
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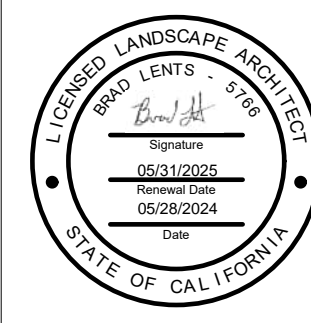


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BRAD LENTS  
DATE: 05/28/2024

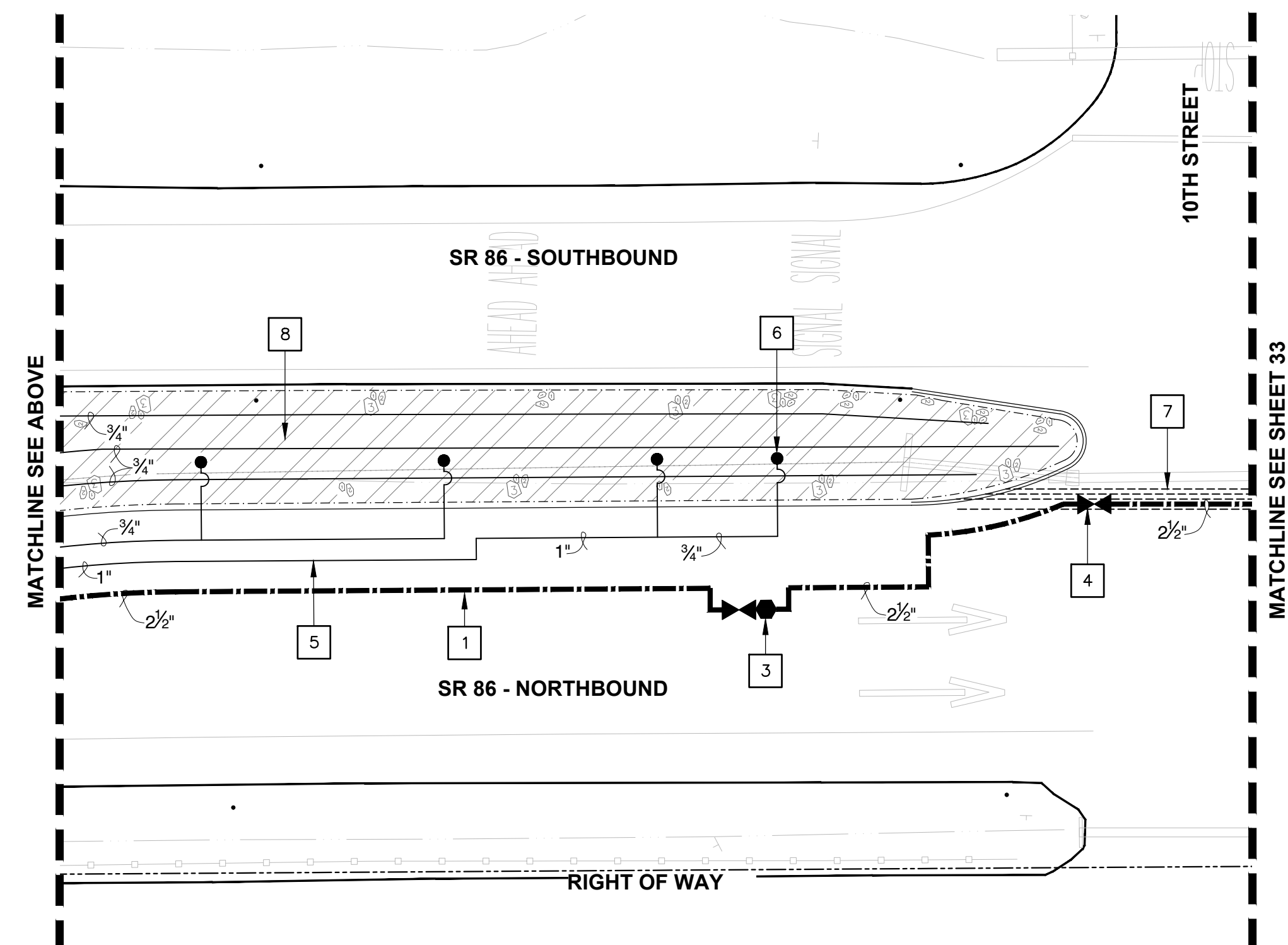
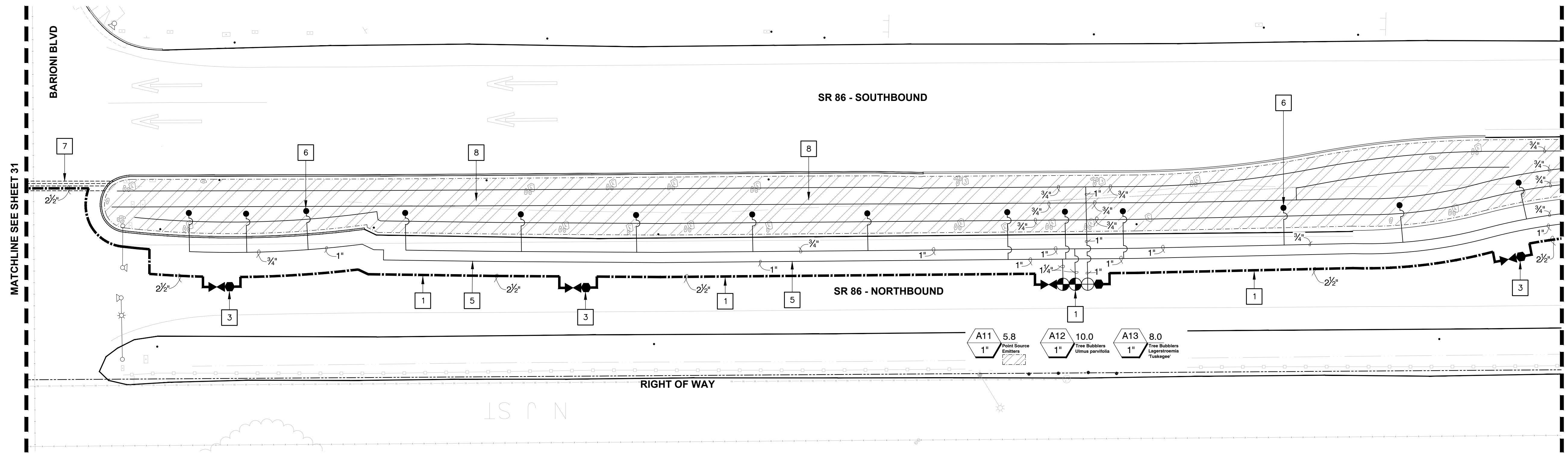
PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1  
SHEET CONTENT: IRRIGATION PLAN

SCALE:  
DRAWN BY: AK & MS  
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JUNE 2024

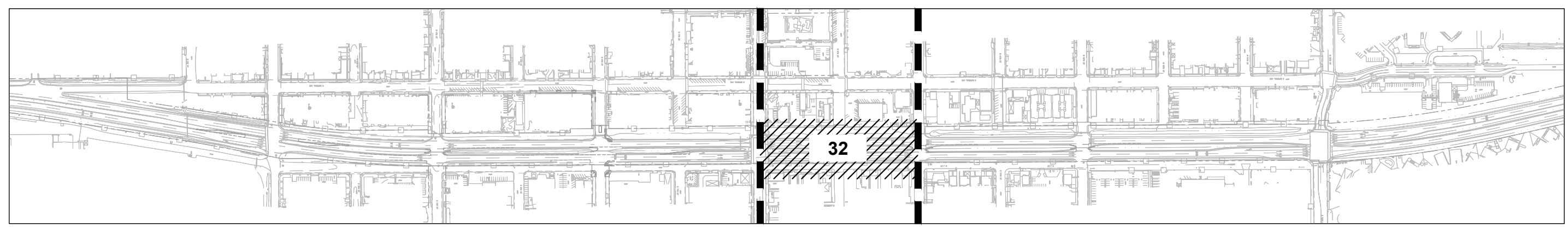
SHEET  
**31**  
OF 52 SHEETS  
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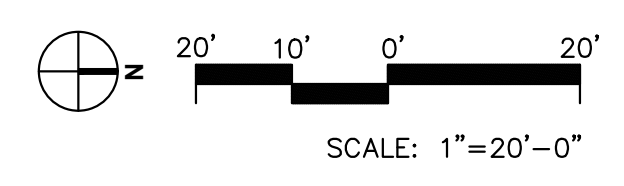
Date: 05/28/2024 10:00:00 AM  
 Project: AHSC-ARPA/HWY 86 BEAUTIFICATION  
 User: Admin  
 License: 05122024



BARIONI BOULEVARD TO 10TH STREET



KEYMAP  
N.T.S.



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**SEE SHEET 35 FOR IRRIGATION LEGEND  
SEE SHEET 36 FOR IRRIGATION SCHEDULE**

| NO. | REVISIONS: | APPROVED | DATE |
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|     |            |          |      |
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BRAD LENTS  
DATE: 05/28/2024

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1  
SHEET CONTENT: IRRIGATION PLAN

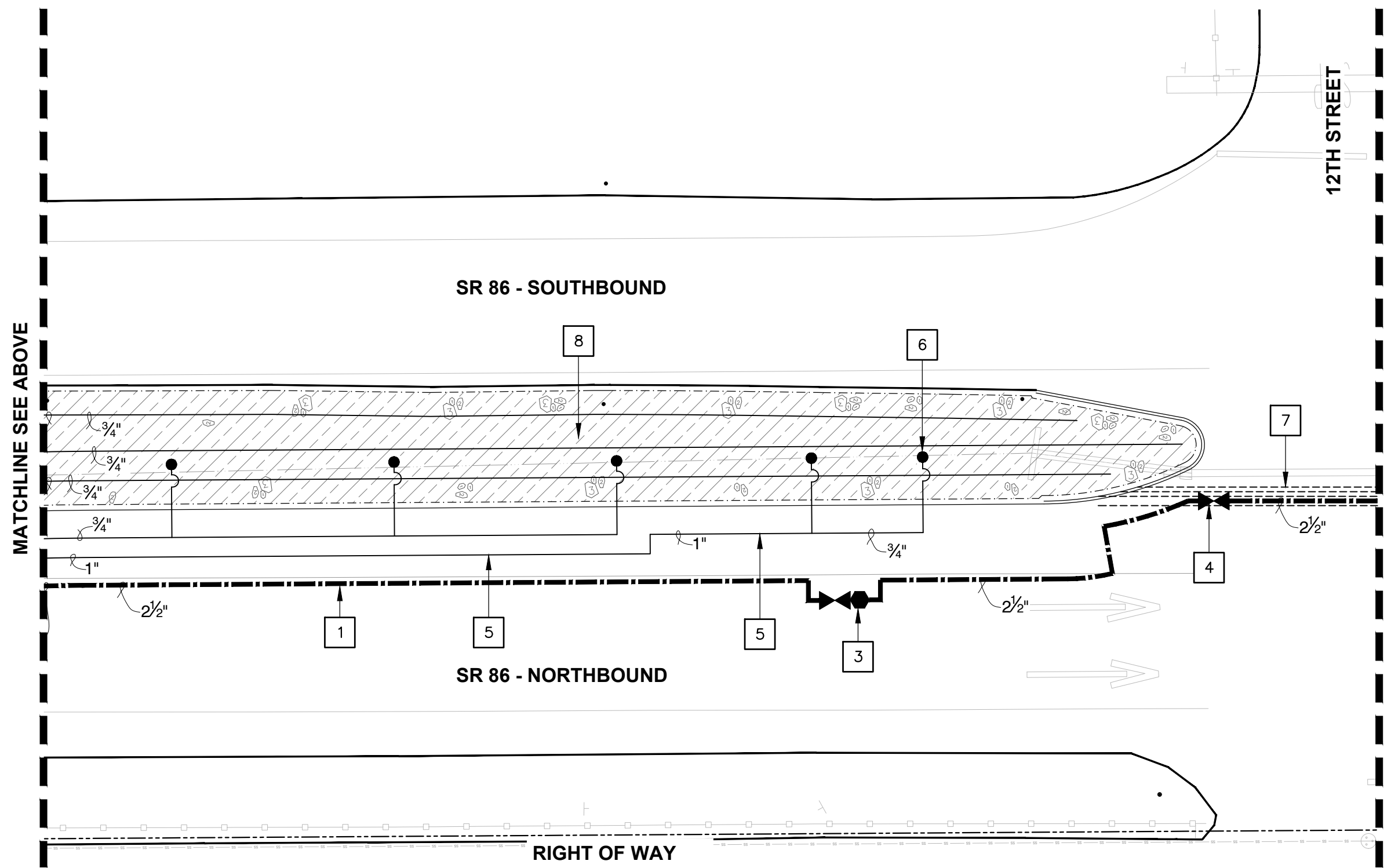
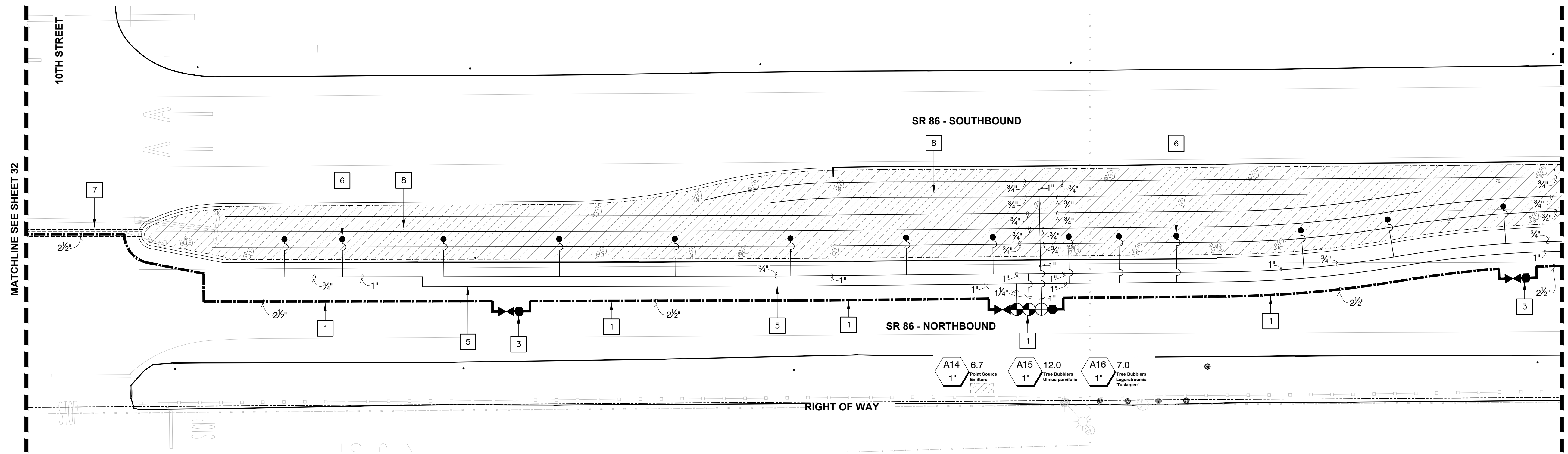
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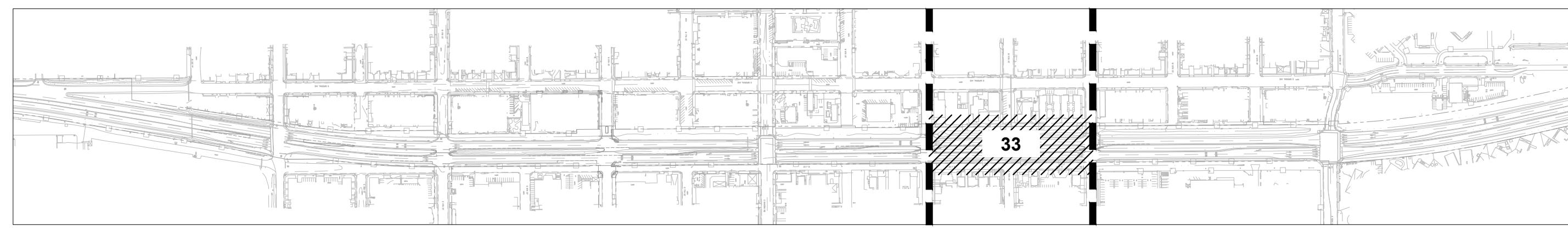
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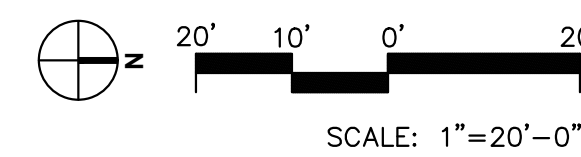
Imperial City of Imperial, 420 South Imperial Avenue, Imperial, CA 92251, Date: 05/28/2024, 12:01:11 PM



10TH STREET TO 12TH STREET



KEYMAP  
N.T.S.



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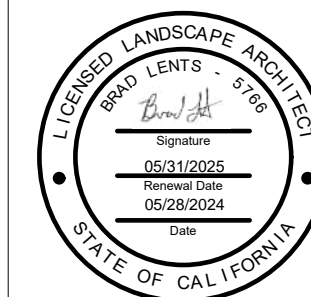
SEE SHEET 35 FOR IRRIGATION LEGEND  
SEE SHEET 36 FOR IRRIGATION SCHEDULE

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BRAD LENTS  
05/28/2024  
DATE

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

5766  
LA NO.  
05/31/2025  
REG. EXP.

SHEET CONTENT:  
IRRIGATION PLAN

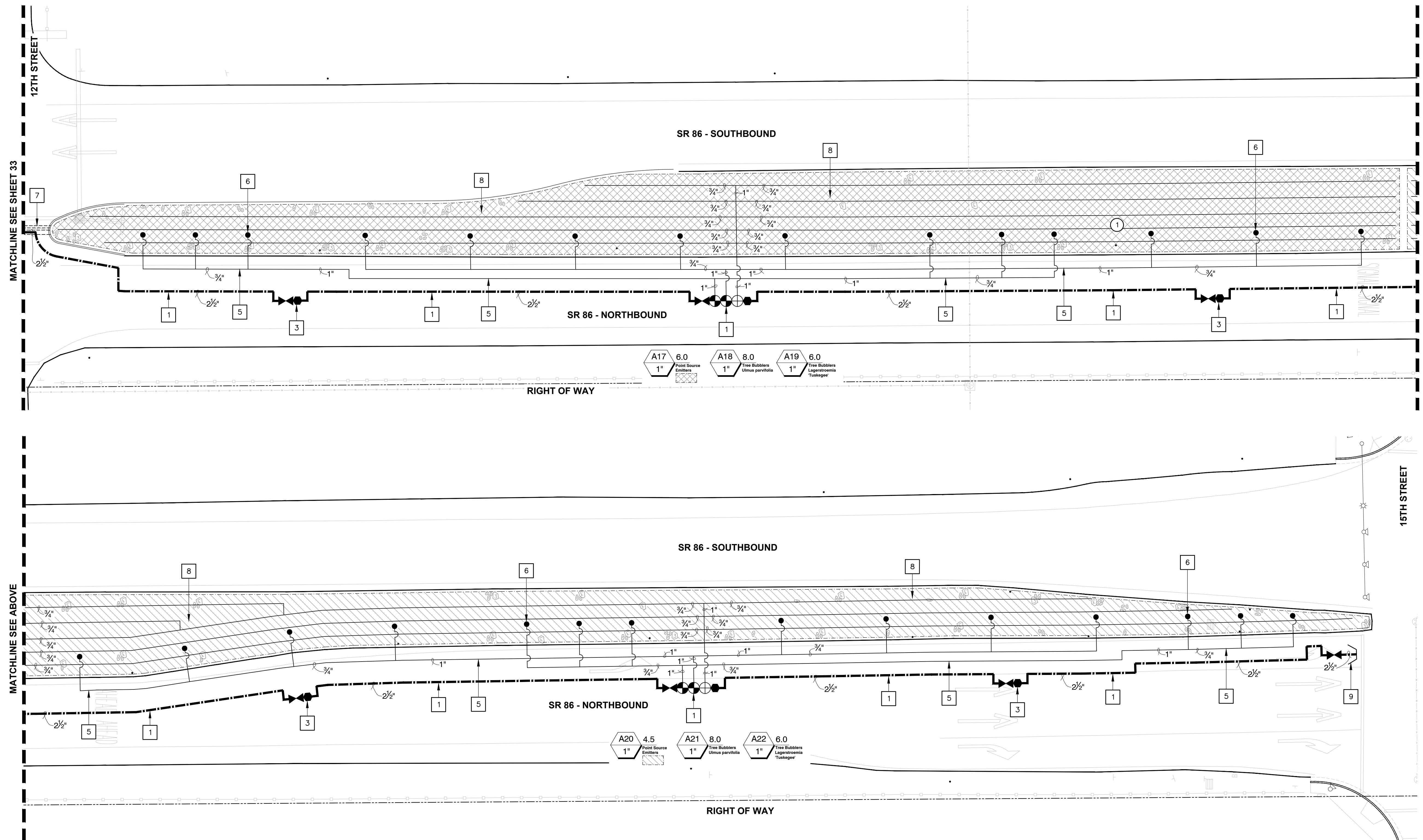
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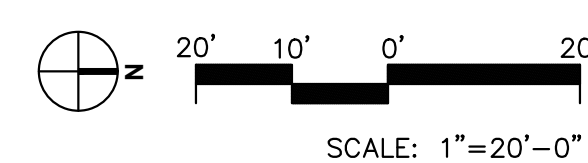
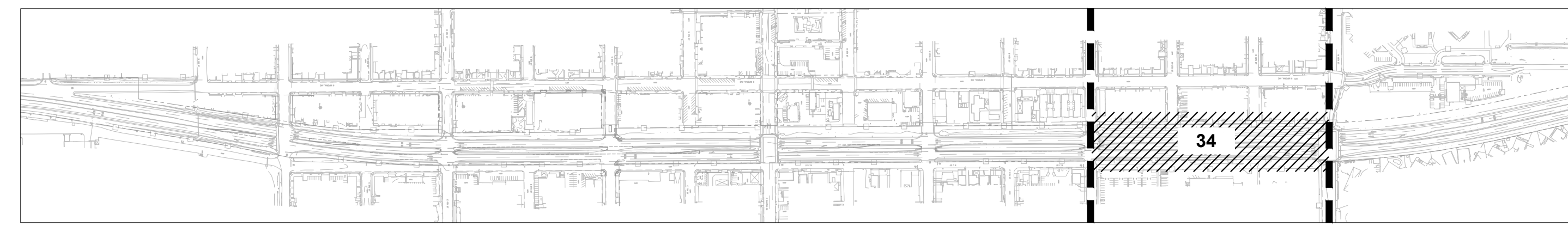
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**33**  
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Imperial City of Imperial ARPA AHSC-ARPA/HWY 86 Beautification Plan, Imperial, California  
 Date: 05/28/2024 1:29:33 PM



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SEE SHEET 36 FOR IRRIGATION SCHEDULE



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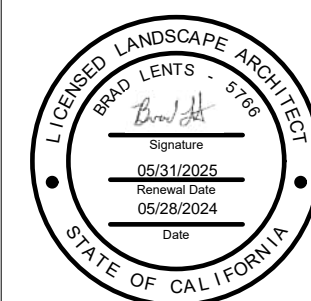


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PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Brad Lents*  
**BRAD LENTS**  
DATE: 05/28/2024

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: IRRIGATION PLAN

SCALE:  
DRAWN BY: AK & MS  
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SHEET  
**34**  
OF 52 SHEETS  
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Irrigation Equipment Legend - Imperial CA - 2024 - 05/28/2024 - 1:20:38 PM

### IRRIGATION EQUIPMENT LEGEND

| SYMBOL                                   | DESCRIPTION                         | MANUFACTURER | MODEL   | SIZE          | NOTES   | DETAIL                         |
|--|-------------------------------------|--------------|---|---------------|---|--------------------------------|
|  | POTABLE WATER METER                 |              |   | 1-1/2"        | APPROX. WHERE SHOWN, FIELD VERIFY. INSTALLED BY OTHERS PER CITY OF IMPERIAL DETAILS.  |                                |
|  | REDUCED PRESSURE BACKFLOW PREVENTER | FEBCO        | 825Y  | 1-1/2"        | CONTRACTOR SHALL INSTALL WITH WILKINS 1-1/2" 500XLYSBR 80 MESH Y-STRAINER. IF PSI IS FOUND TO EXCEED 80 PSI, INSTALL 25-75 PSI REGULATOR DOWNSTREAM ON BACKFLOW ASSEMBLY. INSTALL WITH STRONG BOX SMOOTH TOUCH VANDAL RESISTANT BACKFLOW ENCLOSURE. ENCLOSURE SHALL BE LARGE ENOUGH TO ACCOMMODATE BACKFLOW ASSEMBLY. INSTALL PER MANUF. RECOMMENDATIONS. INSTALL PER CITY OF IMPERIAL APPROVED DETAIL.   |                                |
|  | PRESSURE REDUCING VALVE             | WILKINS      | 500 SERIES  | LINE SIZE     | INSTALL DOWNSTREAM ON BACKFLOW ASSEMBLY IF PSI IS FOUND TO EXCEED 80 PSI. SEE REDUCED PRESSURE BACKFLOW PREVENTER ABOVE.  |                                |
|  | MASTER CONTROL VALVE (BRASS)        | SUPERIOR     | 320 NO MINIMUM FLOW - MODEL: 3200150  | 1-1/2"        | CONNECT TO CONTROLLER 'A'. INSTALL IN VALVE BOX WITH TAN LID. INSTALL ALL WIRES CONNECTING MASTER VALVE TO THE CONTROLLER IN A CONTINUOUS CONDUIT   |                                |
|  | FLOW SENSOR                         | FLOMEC       | QC200-15  | 1-1/2"        | CONNECT TO CONTROLLER 'A'. INSTALL WITH A 1-1/2" SCH. 80 PVC TEE. INSTALL IN VALVE BOX WITH GREEN LID. VALVE BOX SHALL BE LARGE ENOUGH TO ACCOMMODATE FLOW SENSOR ASSEMBLY. CONTRACTOR TO INPUT THE K VALUE AND OFFSET VALUE AT THE CONTROLLER. INSTALL ALL WIRE CONNECTING FLOW SENSOR TO THE CONTROLLER IN A CONTINUOUS CONDUIT. INSTALL PER MANUFACTURER'S SPECIFICATIONS.   |                                |
|  | REMOTE CONTROL VALVE                | HUNTER       | ICV-xxxG  | SIZE PER PLAN | INSTALL IN VALVE BOX WITH TAN LID.  |                                |
|  | DRIP REMOTE CONTROL VALVE ASSEMBLY  | HUNTER       | ICZ-101-40-LF   | SEE NOTES     | ASSEMBLY SHALL INCLUDE:<br>(1) HUNTER 1" ICV CONTROL VALVE, MODEL ICV-101G WITH 1"HFR-100-075 FILTER REGULATOR. INSTALL IN VALVE BOX WITH TAN LID. VALVE BOX SHALL BE LARGE ENOUGH TO ACCOMMODATE CONTROL VALVE ASSEMBLY.   |                                |
|  | QUICK COUPLER                       | RAIN BIRD    | 44-LRC  | 1"            | INSTALL IN 10" ROUND VALVE BOX WITH TAN LID. INSTALL WITH ACME THREADS. BRAND LID WITH LETTERS "QC".  |                                |
|  | BALL VALVE                          | KBI          | WLT-0000-T  | LINE SIZE     | INSTALL IN 10" ROUND VALVE BOX WITH TAN LID   |                                |
|  | CONTROLLER 'A'                      | HUNTER       | ACC2 DECODER CONTROLLER MODEL: A2C-750-SS/PED-SS/SOLARSYNC-SEN/ICD-HP/ROAMXL-KIT (2-WIRE CONTROLLER DECODER SYSTEM) | 75-STATIONS   | INSTALL IN STAINLESS STEEL PEDESTAL ENCLOSURE. INSTALL WITH HUNTER SOLAR SYNC. INSTALL CONTROLLER WITHIN THE CITY RIGHT-OF-WAY. INSTALL WITH HUNTER ICD DECODERS. PROVIDE HAND HELD DECODER PROGRAMMER, HUNTER PART NUMBER ICD-HP AND TRANSMITTER, HUNTER PART NUMBER ROAMXL-KIT. FINAL LOCATION OF CONTROLLER AND SOLAR SYNC SHALL BE APPROVED BY AUTHORIZED CITY REPRESENTATIVE PRIOR TO INSTALLATION. INSTALL PER MANUFACTURER'S SPECIFICATIONS. SEE NOTE BELOW. |                                |
| NO SYMBOL                                | DECODER                             | HUNTER       | ICD-100<br>ICD-200<br>ICD-400<br>ICD-SEN  |               | DECODERS SHALL MATCH STATION OUTPUT QUANTITY. DO NOT LEAVE ANY OPEN STATIONS. OUTPUT FROM DECODER TO VALVE SHALL NOT EXCEED 150 FEET. INSTALL DECODERS IN VALVE BOXES AT EACH VALVE CLUSTER. ATTACH DECODER TO PVC PIPE STAKE.  |                                |
| NO SYMBOL                                | WIRE                                | HUNTER       | SEE NOTES   | 12 AWG        | INSTALL (3) THREE WIRE PATHS GOING OUT OF THE CONTROLLER IN DIFFERENT DIRECTIONS TO THE ENDS OF MAINLINE. INSTALL 12-2 TWISTED PAIR WIRE IN PROTECTIVE JACKET AS FOLLOWS:<br>ID-WIRE2 BLU 12AWG FOR PATH ONE.<br>ID-WIRE2 YLW 12AWG FOR PATH TWO.<br>ID-WIRE2 ORG 12AWG FOR PATH THREE.   | SEE NOTES FOR DETAIL REFERENCE |
|  | ELECTRICAL CONNECTION               |              |   | 120-VOLT      | PROVIDED BY ELECTRICIAN. PLUG OR HARD WIRE CONTROLLER ONTO GFI ELECTRICAL OUTLET. LOCATION TO BE DETERMINED BY OWNER.   |                                |
|  | RAIN SENSOR                         | HUNTER       | SOLAR SYNC-SEN  |               | MOUNT PER MANUFACTURER'S SPECIFICATIONS ON A METAL 8' HIGH POLE. MOUNT IN AN AREA THAT WILL BE EXPOSED TO UNOBSTRUCTED RAINFALL, BUT NOT IN THE PATH OF SPRINKLER SPRAY.  |                                |
| NO SYMBOL                                | CHECK VALVE                         | KBI          | KC-SERIES   |               | INSTALL WHERE REQUIRED TO PREVENT LOW HEAD DRAINAGE.  |                                |
| SHOWN ON PLAN IN DIFFERENT HATCH SYMBOLS | POINT SOURCE EMITTERS               | RAIN BIRD    | SEE NOTES   | SEE NOTES     | XQ SERIES 1/4" DISTRIBUTION TUBING, 72" MAXIMUM LENGTH, WITH XB-05PC (0.5 GPH, 0.008 GPM) BLUE XERI-BUG EMITTERS. HATCH REPRESENTS TWO (2) EMITTERS PER SHRUB, PLACE EMITTERS AT EDGE OF ROOTBALL ON OPPOSITE SIDES OF SHRUB, TYPICAL. PROVIDE FLUSH CAP AT TUBING END.   |                                |
|  | PRESSURIZED MAINLINE                | PVC          | CLASS 315   | 2-1/2"        | INSTALL AT 18" DEPTH. INSTALL TRUST BLOCKS ON MAINLINE AT DIRECTION CHANGES.  |                                |

### IRRIGATION EQUIPMENT LEGEND

| SYMBOL   | DESCRIPTION   | MANUFACTURER              | MODEL   | SIZE          | NOTES   | DETAIL |
|--|---|---------------------------|---|---------------|---|--------|
|  | NON-PRESSURIZED LATERAL   | PVC                       | SCH. 40   | SIZE PER PLAN | INSTALL AT 12" DEPTH.   |        |
|  | SLEEVE  | PVC                       | SEE NOTES   | SIZE PER PAN  | SLEEVE UNDER IMPROVEMENTS:<br>UNDER VEHICLE PAVING INSTALL MAINLINE, WRING AND LATERALS IN SEPARATE PVC SCH. 80 SLEEVES AT 36" DEPTH.<br>UNDER PEDESTRIAN PAVING INSTALL MAINLINE, WRING AND LATERALS IN SEPARATE PVC SCH. 40 SLEEVES AT 24" DEPTH.<br>ALL SLEEVES SHALL BE TWICE THE DIAMETER OF THE PIPE. INSTALL SLEEVES AT LEAST 24" AWAY FROM THE EXISTING SD PIPE WHERE PRESENT.  |        |
| NOT SHOWN  | BOOSTER PUMP (BID ALTERNATE)  | BARRETT ENGINEERING PUMPS | SYSTEM MODEL: IBGA5-5-2-1.5/QP PUMP MODEL NUMBER: 5GA5-1 1/4" | 1/2 HP        | CONTRACTOR SHALL PROVIDE A BID ALTERNATE FOR BOOSTER PUMP ASSEMBLY IF THE AVAILABLE PRESSURE IS INADEQUATE TO SUPPORT THE DESIGNED HYDRAULIC CRITERIA AT THE TIME OF CONSTRUCTION. PROVIDE BID ALTERNATE FOR EACH POINT-OF-CONNECTION. DUE TO FLUCTUATING PRESSURE A BOOSTER PUMP MIGHT BE NEEDED. SHOULD PRESSURE BE DIFFERENT THEN SHOWN ON THE PLAN CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR INSTRUCTIONS PRIOR TO PROCEEDING WITH INSTALLATION.<br>CONTACT: DARYL GREEN AT GREEN PRODUCT SALES<br>PHONE: 949-584-7311<br>E-MAIL: DGREEN@GPS-10.COM |        |
|  | CONTROLLER STATION<br>MAXIMUM GPM<br>POINT SOURCE EMITTER ZONE HATCH SYMBOL<br>VALVE SIZE |                           |   |               |   |        |
| <b>NOTES:</b>  |   |                           |   |               |   |        |
| 1. ALL SPRAY HEADS ARE TO BE EQUIPPED WITH BUILT-IN CHECK VALVES. ALL SPRAY HEADS TO BE EQUIPPED WITH A PRESSURE COMPENSATING DEVICE. ALL HEADS ARE TO BE ADJUSTED TO PROVIDE BEST COVERAGE TO THE LANDSCAPED AREA WITHOUT OVER SPRAY ONTO BUILDINGS, WALLS, WALKWAYS AND PAVING.  |   |                           |   |               |   |        |
| 2. IRRIGATION SYSTEM IS DESIGNED TO OPERATE ONE VALVE AT A TIME. IF NECESSARY CONTRACTOR CAN COMBINE THE RUN TIME OF SOME VALVES TO ASSURE THE PROPER PERFORMANCE OF THE MASTER VALVE AND THE FLOW SENSOR. (FLOW SENSOR AND MASTER VALVE NEED MORE THEN 1 GPM TO OPERATE PROPERLY). CONTRACTOR CAN SET THE CONTROLLER TO OPERATE TWO OR MORE VALVES AT THE SAME TIME ONLY IF THE TOTAL COMBINED FLOW OF THE VALVES DO NOT EXCEED 16 GPM. |   |                           |   |               |   |        |
| 3. CONTRACTOR SHALL CONTACT RAIN BIRD MANUFACTURER'S REP. AND SHALL SCHEDULE PRE-CONSTRUCTION MEETING TO REVIEW INSTALLATION DETAILS AND SPECIFICATIONS IN FIELD.  |   |                           |   |               |   |        |
| 4. CONTRACTOR SHALL CONTACT HUNTER SPECIFICATION MANAGER AND SHALL SCHEDULE PRE-CONSTRUCTION MEETING TO REVIEW INSTALLATION DETAILS AND SPECIFICATIONS IN FIELD.   |   |                           |   |               |   |        |

### IRRIGATION LEGEND

| SYMBOL | DESCRIPTION  | MANUFACTURER | MODEL            | PSI | RADIUS    | GPM | NOTES  | DETAIL |
|--------|--------------|--------------|------------------|-----|-----------|-----|--|--------|
|        | Bubbler      | Hunter       | PROS-06-PRS30-CV |     |           |     | Body Style   |        |
|        | TREE BUBBLER | MSBN-50H     | 30               |     | (2X) 0.50 |     | INSTALL TWO (2) BUBBLERS AT EACH TREE LOCATION. INSTALL MULTI-STREAM BUBBLERS WITH HUNTER MSBN-50H NOZZLES ON A 6" POP-UP BODIES. USE BOTTOM INLET ONLY. |        |

### SPURLOCK LANDSCAPE ARCHITECTS

2122 Hancock Street  
San Diego, California 92110  
619.681.0090  
spurlock-land.com

APPROVED BY DIRECTOR OF PUBLIC WORKS  
CITY OF IMPERIAL, CA

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.  
Underground Service Alert  
Call: TOLL FREE  
1-800-227-2600  
TWO WORKING DAYS BEFORE YOU DIG.



| NO. | REVISIONS: | APPROVED | DATE |
|-----|------------|----------|------|
|     |            |          |      |
|     |            |          |      |
|     |            |          |      |

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.



**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
BENCHMARK ELEVATION =  
BENCHMARK DESCRIPTION:



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Brad Lents*  
BRAD LENTS  
5766  
LA NO.  
05/28/2024  
DATE  
05/31/2025  
REG. EXP.

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1  
SHEET CONTENT: IRRIGATION LEGEND

SCALE:  
DRAWN BY: AK & MS  
REVISED BY: YZ  
JUNE 2024  
SHEET  
35  
OF 52 SHEETS  
JOB NO.  
XXXXXXXX

**IRRIGATION NOTES**

- 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 THESE SPECIFICATIONS AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, STRUCTURES AND SERVICES BEFORE COMMENCING WORK. THE LOCATIONS OF UTILITIES, STRUCTURES AND SERVICES SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED TO PERFORM THE WORK INDICATED HEREIN BEFORE BEGINNING WORK. THE CONTRACTOR SHALL OBTAIN THE PERTINENT ENGINEERING OR ARCHITECTURAL PLANS AND AS-BUILT DRAWINGS BEFORE BEGINNING WORK.
- CONTRACTOR SHALL COORDINATE ALL IRRIGATION LINES AND CONTROLLER WIRES WITH PROPOSED LOCATIONS OF PLANT MATERIAL AND ROOT BARRIERS PRIOR TO INSTALLATION. ALL IRRIGATION SLEEVES SHALL BE COORDINATED AND INSTALLED PRIOR TO INSTALLATION OF ANY PAVING, WALL FOOTINGS / FOUNDATIONS, CURBS AND ETC.
- THIS DESIGN IS DIAGRAMMATIC. ALL EQUIPMENT SHOWN IN PAVED AREAS IS FOR DESIGN CLARITY ONLY AND IS TO BE INSTALLED WITHIN PLANTING AREAS AS NECESSARY.
- DO NOT WILLFULLY INSTALL ANY EQUIPMENT AS SHOWN ON THE PLANS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN CONDITIONS EXIST THAT WERE NOT EVIDENT AT THE TIME THESE PLANS WERE PREPARED. ANY SUCH CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER PRIOR TO ANY WORK OR THE IRRIGATION CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY FIELD CHANGES DEEMED NECESSARY BY THE OWNER.
- INSTALL ALL EQUIPMENT AS SHOWN IN THE DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH LOCAL WATER AUTHORITY, CITY OF IMPERIAL, COUNTY AND STATE REQUIREMENTS FOR BOTH EQUIPMENT AND INSTALLATION.
- ALL LATERALS, MAINLINE AND WIRE UNDER PEDESTRIAN PAVED AREAS TO BE INSTALLED IN A SCH. 40 SLEEVE TWICE THE DIAMETER OF THE PIPE CARRIED. ALL LATERALS, MAINLINE AND WIRE UNDER VEHICLE PAVED AREAS TO BE INSTALLED IN A SCH. 80 SLEEVE TWICE THE DIAMETER OF THE PIPE CARRIED. ALL WIRE UNDER PAVED AREAS TO BE INSTALLED IN A SCH. 40 SLEEVE THE SIZE REQUIRED TO EASILY PULL WIRE THROUGH. ALL SLEEVES TO BE INSTALLED WITH A MINIMUM DEPTH AS SHOWN ON THE SLEEVING DETAILS. SLEEVES TO EXTEND AT LEAST 12" PAST THE EDGE OF THE PAVING. ALL SLEEVES TO BE AS SHOWN ON THE PLANS.
- ALL HEADS ARE TO BE INSTALLED WITH THE NOZZLE, SCREEN AND ARCS SHOWN ON THE PLANS. ALL HEADS ARE TO BE ADJUSTED TO PREVENT OVERSPRAY ONTO BUILDING, WALLS, FENCES AND HARDSCAPE. THIS INCLUDES, BUT NOT LIMITED TO, ADJUSTMENT OF DIFFUSER PIN OR ADJUSTMENT SCREW, REPLACEMENT OF PRESSURE COMPENSATING SCREENS, REPLACEMENT OF NOZZLES WITH MORE APPROPRIATE RADIUS UNITS AND THE REPLACEMENT OF NOZZLES WITH ADJUSTABLE ARC UNITS.
- ALL HEADS INDICATED ON THE PLANS AT A SPACING LESS THAN 75% OF FULL OPEN THROW, AS PER MANUFACTURER'S RECOMMENDATIONS, ARE TO RECEIVE A PCS SCREEN OF APPROPRIATE SIZE TO REDUCE THE RADIUS TO MORE CLOSELY MATCH THE SPACING. REFER TO THE MANUFACTURER'S CHARTS PROVIDED WITH PCS SCREENS FOR SIZING OF SCREENS.
- PROVIDE CLEAN SAND BEDDING AND BACKFILL FOR PRESSURE MAINLINE PIPE (3 IN. BELOW AND 6 IN. ABOVE PIPE MINIMUM).
- IRRIGATION SYSTEMS ARE TO BE INSTALLED AS SHOWN ON THE PLANS & IN ACCORDANCE W/THE CRITERIA AND STANDARDS OF THE CITY OF IMPERIAL AS OF THE APPROVED DATE OF THESE PLANS.
- USE VARIABLE ARC NOZZLES AS REQUIRED TO ACHIEVE COMPLETE COVERAGE WITH MINIMAL OVERSPRAY
- SYSTEMS ARE DESIGNED FOR A MINIMUM OF 30 PSI FOR SPRINKLER HEADS.
- ALL LATERAL END RUNS SHALL BE 3/4" SCH. 40, UNLESS OTHERWISE NOTED.
- ALL REMOTE CONTROL VALVES SHALL BE INSTALLED IN VALVE BOXES, ONE VALVE PER BOX. LOCATE ALL REMOTE CONTROL AND QUICK COUPLING VALVES ADJACENT TO WALKS OR CURBS.
- CHECK VALVES SHALL BE INSTALLED AS REQUIRED TO PREVENT ALL LOW HEAD DRAINAGE.
- CONTRACTOR SHALL VERIFY THAT THERE IS ADEQUATE PRESSURE AVAILABLE AT THE SITE FOR THE IRRIGATION SYSTEM TO WORK PROPERLY. IDEALLY THERE SHOULD BE 30 POUNDS OF PRESSURE AT LAST HEAD ON EVERY CIRCUIT. DESIGN ASSUMES 72 PSI AT THE POINT OF CONNECTION AS PROVIDED BY THE CITY OF IMPERIAL. SHOULD PRESSURE BE DIFFERENT THEN SHOWN ON THE PLAN CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR INSTRUCTIONS PRIOR TO PROCEEDING WITH INSTALLATION.
- IF AVAILABLE PRESSURE EXCEEDS 80 PSI CONTRACTOR SHALL ADJUST PRESSURE AT PRESSURE REGULATOR.
- CONTRACTOR SHALL VERIFY PROPOSED LOCATION FOR BACKFLOW PREVENTER AND IRRIGATION CONTROLLER PRIOR TO INSTALLATION. CITY OF IMPERIAL BACKFLOW SPECIALIST TO APPROVE BACKFLOW PREVENTER LOCATION.

- INSTALL (1) HUNTER SOLAR-SYNC RAIN SHUT-OFF DEVICE, PER CONTROLLER, PER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL PROVIDE LANDSCAPE AND IRRIGATION MAINTENANCE SCHEDULE TO THE LANDSCAPE ARCHITECT AT THE TIME OF FINAL INSPECTION.
- IRRIGATION SYSTEM IS DESIGNED TO OPERATE ONE VALVE AT A TIME. IF NECESSARY CONTRACTOR CAN COMBINE THE RUN TIME OF SOME VALVES TO ASSURE THE PROPER PERFORMANCE OF THE MASTER VALVE AND THE FLOW SENSOR. (FLOW SENSOR NEEDS MORE THEN 1 GPM TO OPERATE PROPERLY). CONTRACTOR CAN SET THE CONTROLLER TO OPERATE TWO OR MORE VALVES AT THE SAME TIME ONLY IF THE TOTAL COMBINED FLOW OF THE VALVES DO NOT EXCEED 16 GPM.
- CONTRACTOR SHALL PROVIDE IRRIGATION WATERING SCHEDULES FOR PLANT ESTABLISHMENT PERIOD, ESTABLISHED LANDSCAPING, TEMPORARILY IRRIGATED AREAS AND DIFFERENT SEASONS. IRRIGATION WATERING SCHEDULE SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT AT THE TIME OF FINAL INSPECTION.
- IRRIGATION AUDIT SHALL BE CONDUCTED BY A THIRD PARTY IF REQUIRED BY THE CITY.
- CONTRACTOR SHALL PROVIDE A BID ALTERNATE FOR BOOSTER PUMP ASSEMBLY IF THE AVAILABLE PRESSURE IS INADEQUATE TO SUPPORT THE DESIGNED HYDRAULIC CRITERIA AT THE TIME OF CONSTRUCTION. PROVIDE BID ALTERNATE FOR EACH POINT-OF-CONNECTION. DUE TO FLUCTUATING PRESSURE A BOOSTER PUMP MIGHT BE NEEDED. PROVIDE BOOSTER PUMP SUFFICIENT ENOUGH TO INSURE THAT THE IRRIGATION SYSTEM SHALL WORK PROPERLY. SHOULD PRESSURE BE DIFFERENT THEN SHOWN ON THE PLAN CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR INSTRUCTIONS PRIOR TO PROCEEDING WITH INSTALLATION.

| IRRIGATION SCHEDULE |  |
|---------------------|--|
| 1                   | MAINLINE AND REMOTE CONTROL VALVES SHOWN IN HARDSCAPE FOR CLARITY ONLY. LOCATE IRRIGATION MAINLINE AND REMOTE CONTROL VALVES IN THE MEDIAN PLANTER AREA. INSTALL IRRIGATION MAINLINE AT 36" FROM THE EDGE OF PAVEMENT. SEE DETAIL 5, SHEET 37 FOR REMOTE CONTROL VALVE MANIFOLD INSTALLATION.  |
| 2                   | INSTALL IRRIGATION MAINLINE AT 18" FROM THE EDGE OF PAVEMENT.  |
| 3                   | QUICK COUPLER WITH BALL VALVE SHOWN IN HARDSCAPE FOR CLARITY ONLY. INSTALL QUICK COUPLER AND BALL VALVE IN THE MEDIAN PLANTER AREA AT 36" FROM EDGE OF PAVEMENT (TYP).   |
| 4                   | BALL VALVE SHOWN IN HARDSCAPE FOR CLARITY ONLY. INSTALL BALL VALVE IN THE MEDIAN PLANTER AREA (TYP).   |
| 5                   | LATERAL LINES SHOWN IN HARDSCAPE FOR CLARITY ONLY. INSTALL ALL LATERAL LINES IN THE MEDIAN PLANTER AREAS (TYP).  |
| 6                   | TREE BUBBLER LOCATION SHOWN IS APPROXIMATE. SEE PLANTING PLAN FOR EXACT TREE LOCATION.   |
| 7                   | IRRIGATION MAINLINE AND WIRE SLEEVES (TYP). INSTALL PER SLEEVING DETAIL 4, SHEET 39. INSTALL SLEEVES AT LEAST 24" AWAY FROM THE EXISTING SD PIPE WHERE PRESENT.  |
| 8                   | POINT SOURCE EMITTER ZONES SHOWN IN DIFFERENT HATCH SYMBOLS (TYP.). INSTALL RAIN BIRD XQ SERIES 1/4" DISTRIBUTION TUBING, 72" MAXIMUM LENGTH, WITH XB-05PC (0.5 GPH, 0.008 GPM) BLUE XERI-BUG EMITTERS. HATCH REPRESENTS TWO (2) EMITTERS PER SHRUB, PLACE EMITTERS AT EDGE OF ROOTBALL ON OPPOSITE SIDES OF SHRUB, TYPICAL. PROVIDE FLUSH CAP AT TUBING END. INSTALL PER DETAIL 1, SHEET 40.                |
| 9                   | INSTALL IRRIGATION MAINLINE AND WIRE STUB-OUTS WITH A SHUT-OFF VALVE AT THIS APPROXIMATE LOCATION IN THE MEDIAN PLANTER AREA FOR POSSIBLE FUTURE EXPANSION. INSTALL MAINLINE STUB-OUT AND SHUT-OFF VALVE IN A STANDARD RECTANGULAR VALVE BOX WITH A TAN COLOR LID. INSTALL WIRES WITH WATER PROOF SPLICES 3M PART NUMBER DBRY-6 DISTRIBUTED BY PAIGE ELECTRIC IN A 10" ROUND VALVE BOX WITH A TAN COLOR LID. |

**PRESSURE LOSS CALCULATION FOR POINT-OF-CONNECTION 'A'**

| PROJECT: CITY OF IMPERIAL SR-86 MEDIAN IMPROVEMENTS  |           |           |             |            |                |      |
|--|-----------|-----------|-------------|------------|----------------|------|
| LOCATION: CITY OF IMPERIAL, CA                       |           |           |             |            |                |      |
| PRESS ZONE / SOURCE ELEV.: _____                     |           |           |             |            |                |      |
| DATE OF PRESSURE CHECK: 12/5/23 BY: CITY OF IMPERIAL |           |           |             |            |                |      |
| JOB NO.: CRA-214                                     |           |           |             |            |                |      |
| CLIENT NO.: 760.355.4371                             |           |           |             |            |                |      |
| WATER AUTHORITY: CITY OF IMPERIAL                    |           |           |             |            |                |      |
| CALC. DATE: 4/3/24 BY: MS                            |           |           |             |            |                |      |
| VALVE NO. CHECKED: A21                               |           |           |             |            |                |      |
| PRESS. AT POC: 72 PSI                                |           |           |             |            |                |      |
| POC ELEVATION: 939 HIGHEST HEAD: 942                 |           |           |             |            |                |      |
| PIPE SECTION   | PIPE TYPE | PIPE SIZE | PIPE LENGTH | ACCUM. GPM | LOSS IN PSI    |      |
| 1  | SCH. 40   | 3/4"      | 50'         | 2.0        | 0.22           |      |
| 2  | SCH. 40   | 3/4"      | 50'         | 3.0        | 0.47           |      |
| 3  | SCH. 40   | 3/4"      | 50'         | 4.0        | 0.8            |      |
| 4  | SCH. 40   | 3/4"      | 50'         | 5.0        | 1.2            |      |
| 5  | SCH. 40   | 1"        | 50'         | 6.0        | 0.51           |      |
| 6  | SCH. 40   | 1"        | 50'         | 7.0        | 0.68           |      |
| 7  | SCH. 40   | 1-1/4"    | 20'         | 12.0       | 0.19           |      |
| A. TOTAL LATERAL SYSTEM LOSSES                       |           |           |             |            | 4.07           |      |
| MAINLINE SYSTEM:                                     |           |           |             |            |                |      |
| PIPE SECTION   | PIPE TYPE | PIPE SIZE | PIPE LENGTH | ACCUM. GPM | LOSS IN PSI    |      |
| 1  | CL. 315   | 2-1/2"    | 3,237'      | 12.0       | 1.9            |      |
| B. TOTAL MAINLINE SYSTEM LOSSES                      |           |           |             |            | 1.9            |      |
| MISCELLANEOUS LOSSES:                                |           | SIZE:     |             |            |                |      |
| WATER METER  |           | 1-1/2"    |             |            |                | 0.4  |
| CONTROL VALVE  |           | 1"        |             |            |                | 3.0  |
| MASTER CONTROL VALVE                                 |           | 1-1/2"    |             |            |                | 0.45 |
| BACKFLOW PREVENTER                                   |           | 1-1/2"    |             |            |                | 12   |
| FLOW SENSOR  |           | 1-1/2"    |             |            |                | 0.5  |
| C. TOTAL MISCELLANEOUS LOSSES                        |           |           |             |            | 16.3           |      |
| D. TOTAL SYSTEM LOSSES (A+B+C)                       |           |           |             |            | 22.3           |      |
| E. FITTING LOSSES ( 15% OF TOTAL LOSSES )            |           |           |             |            | 3.3            |      |
| F. HEAD LOSS / GAIN IN SYSTEM                        |           |           |             |            | 1.3            |      |
| G. MINIMUM REQUIRED PRESSURE AT LAST HEAD            |           |           |             |            | 30             |      |
| H. DESIGN PRESSURE ( D+E+F+G )                       |           |           |             |            | 56.9           |      |
| I. AVAILABLE PSI                                     |           |           |             |            | 72             |      |
| J. RESIDUAL PSI ( I-H )                              |           |           |             |            | 15.1           |      |
| K. PUMP BOOST  |           |           |             |            | SEE NOTE BELOW |      |
| L. ADJUSTED RESIDUAL PSI ( J+K )                     |           |           |             |            | 15.1           |      |

**BOOSTER PUMP NOTE:**  
 CONTRACTOR SHALL PROVIDE A BID ALTERNATE FOR BOOSTER PUMP ASSEMBLY IF THE AVAILABLE PRESSURE IS INADEQUATE TO SUPPORT THE DESIGNED HYDRAULIC CRITERIA AT THE TIME OF CONSTRUCTION. PROVIDE BID ALTERNATE FOR EACH POINT-OF-CONNECTION. DUE TO FLUCTUATING PRESSURE A BOOSTER PUMP MIGHT BE NEEDED. PROVIDE BOOSTER PUMP SUFFICIENT ENOUGH TO INSURE THAT THE IRRIGATION SYSTEM SHALL WORK PROPERLY. SHOULD PRESSURE BE DIFFERENT THEN SHOWN ON THE PLAN CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR INSTRUCTIONS PRIOR TO PROCEEDING WITH INSTALLATION.

**WATER USE CALCULATIONS**

**MAXIMUM APPLIED WATER ALLOWANCE CALCULATION - MAWA**

$MAWA = (Eto)(0.62)[(0.45 \times LA) + (1 - 0.45 \times SLA)]$  where:  
 Eto = Reference Evapotranspiration (inches/year) - Imperial Valley, CA = 71.6  
 0.45 (non-residential) or 0.55 (residential) = ET Adjustment Factor  
 LA = Landscape Area (square feet)  
 0.62 = Conversion Factor (to gallons per square foot)  
 SLA = Special Landscape Area

$MAWA = (Eto)(0.62)[(0.45 \times LA) + (1 - 0.45 \times SLA)]$   
 $MAWA = (71.6)(0.62)[(0.45 \times 103,862) + (0.55 \times 0)]$   
**MAWA = 2,074,695 Gallons per Year**  
**MAWA = 2,074,695 / 748 = 2,773 HCF (Hundred-Cubic-Foot Per Year)**

**ESTIMATED TOTAL WATER USE CALCULATION - ETWU**

$ETWU \text{ Hydrozone} = [(Eto)(0.62)][(PF)(HA)](IE) + SLA$  where:  
 Eto = Reference Evapotranspiration (inches/year) - Imperial Valley, CA = 71.6  
 PF = Plant Factor  
 IE = Irrigation Efficiency - 0.81 for Drip Devices and 0.75 for Overhead Spray Devices  
 HA = Hydrozone Area (square feet)  
 0.62 = Conversion Factor (to gallons per square foot)  
 SLA = Special Landscape Area

**HYDROZONE 1 - TREE BUBBLERS**

$ETWU = [(Eto)(0.62)][(PF)(HA)](IE) + SLA$   
 $ETWU = [(71.6)(0.62)][(0.4)(2,420)](0.75) + 0$   
**ETWU = 57,292 Gallons per Year**  
**ETWU = 57,292 / 748 = 77 HCF (Hundred-Cubic-Foot Per Year)**

**HYDROZONE 2 - DRIP**

$ETWU = [(Eto)(0.62)][(PF)(HA)](IE) + SLA$   
 $ETWU = [(71.6)(0.62)][(0.2)(101,442)](0.81) + 0$   
**ETWU = 1,111,854 Gallons per Year**  
**ETWU = 1,111,854 / 748 = 1,486 HCF (Hundred-Cubic-Foot Per Year)**

**TOTAL FOR ALL HYDROZONES**

$ETWU = \text{HYDROZONE 1} + \text{HYDROZONE 2}$   
 $ETWU = 57,292 + 1,111,854$   
**ETWU = 1,169,146 Gallons per Year**  
**ETWU = 1,169,146 / 748 = 1,563 HCF (Hundred-Cubic-Foot Per Year)**

**CONCLUSION**

The ETWU (1,169,146 gallons per year) is less than MAWA (2,074,695 gallons per year). The water budget for City of Imperial SR-86 Median Improvements complies with MAWA.

| NO. | REVISIONS: | APPROVED | DATE |
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**CITY OF IMPERIAL**  
 420 South Imperial Avenue  
 Imperial, CA 92251  
 Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
 BENCHMARK ELEVATION =  
 BENCHMARK DESCRIPTION:



PREPARED UNDER THE DIRECT SUPERVISION OF:  
 5766  
 LA NO.  
 05/28/2024  
 DATE

APPROVED BY DIRECTOR OF PUBLIC WORKS  
 CITY OF IMPERIAL, CA

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PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1

SHEET CONTENT: IRRIGATION NOTES, SCHEDULE AND CALCULATIONS

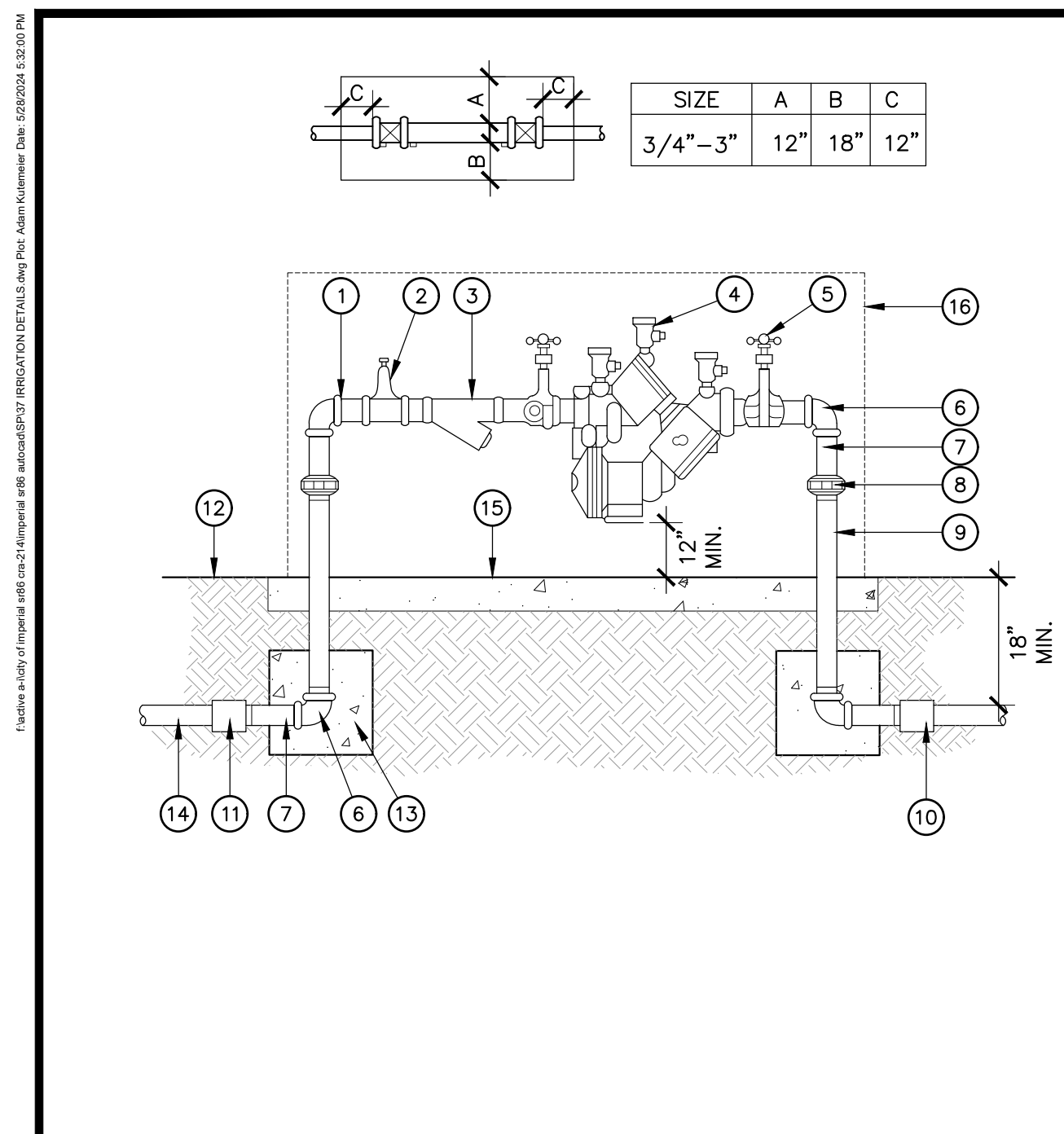
SCALE: DRAWN BY: AK & MS REVISOR BY: YZ

SHEET 36 OF 52 SHEETS

JUNE 2024

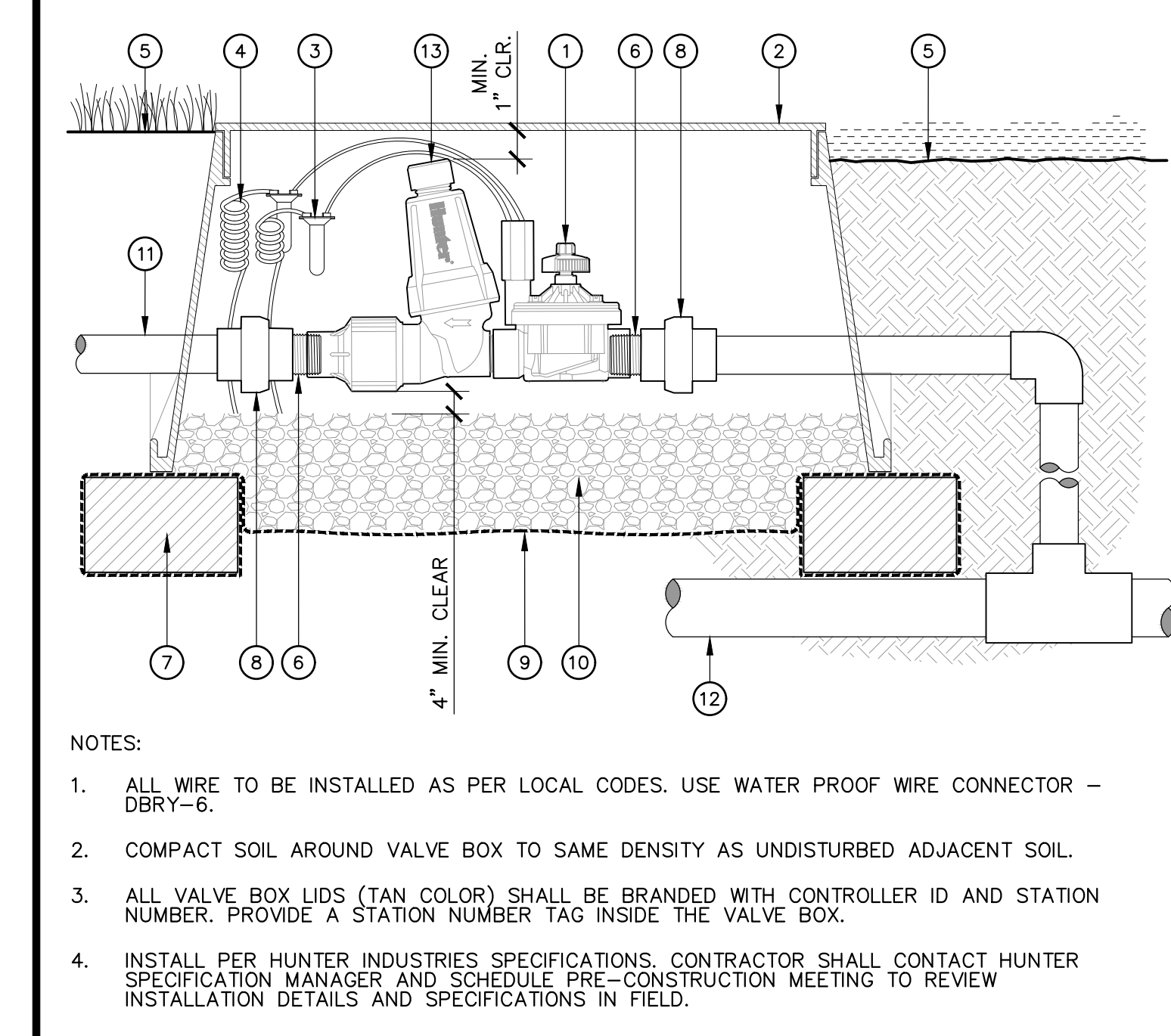
JOB NO. XXXXXXXX

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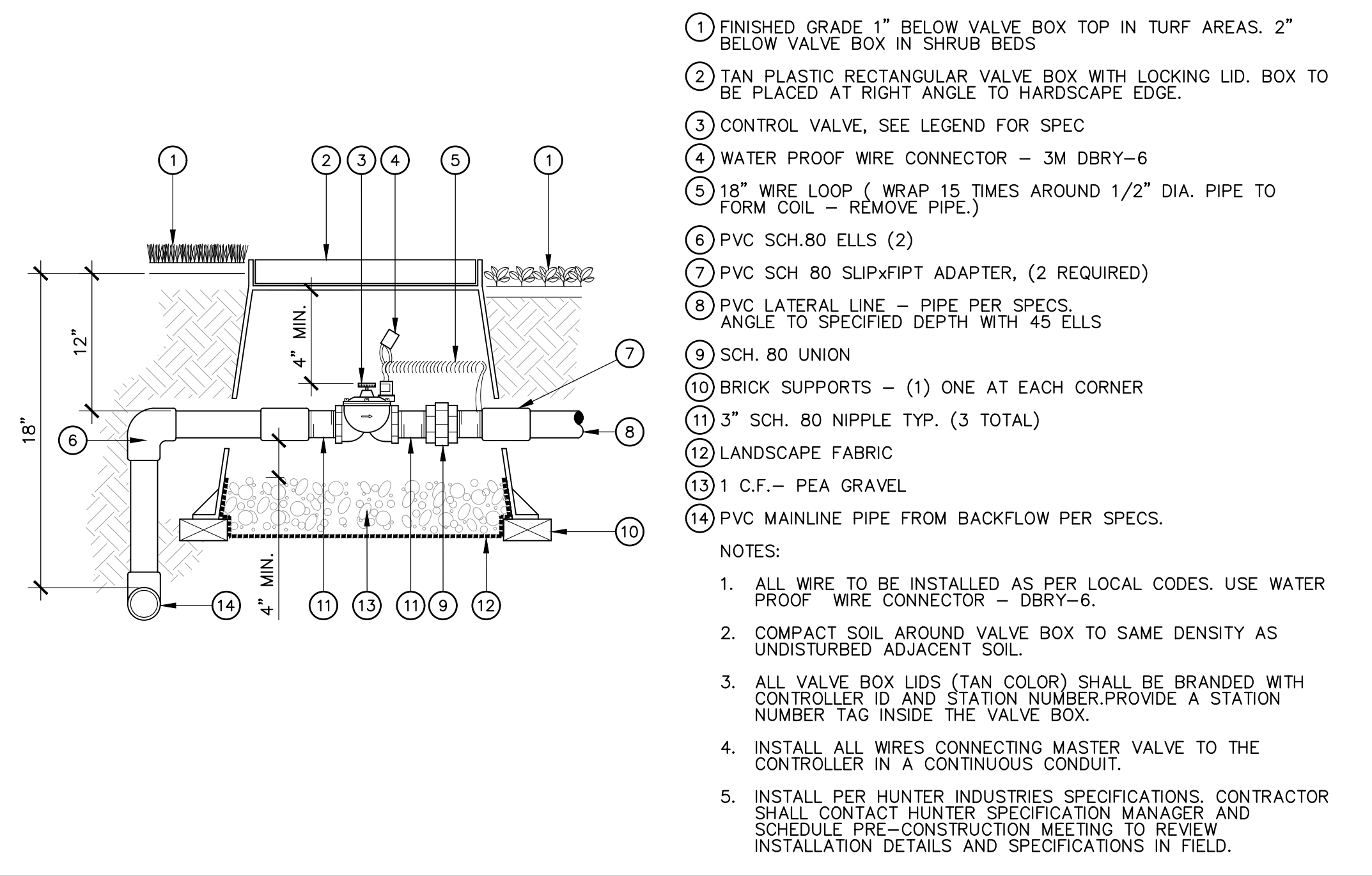
- 1 3" BRASS NIPPLES (4)
  - 2 PRESSURE REGULATOR
  - 3 Y- STRAINER.
  - 4 R.P. BACKFLOW PREVENTER
  - 5 BALL VALVES (2)
  - 6 BRASS ELLS (2)
  - 7 BRASS NIPPLES (4)
  - 8 BRASS UNIONS (2)
  - 9 BRASS RISERS (2)
  - 10 S X T SCH. 40 PVC ADAPTER
  - 11 DIELECTRIC ADAPTER
  - 12 FINISHED GRADE
  - 13 CONCRETE FOOTINGS 2 CU. FT. EACH
  - 14 WATER SUPPLY: SOLID COPPER LOCATE AS CLOSE TO PROPERTY LINE AS POSSIBLE
  - 15 CONCRETE SLAB (4" THICK)
  - 16 STRONG BOX SMOOTH TOUCH VANDAL RESISTANT BACKFLOW ENCLOSURE. ENCLOSURE SHALL BE LARGE ENOUGH TO ACCOMMODATE BACKFLOW ASSEMBLY. INSTALL PER MANUF. RECOMMENDATIONS.
- NOTES:
1. DETAIL FOR REFERENCE ONLY. INSTALL PER CITY OF IMPERIAL APPROVED DETAIL. COORDINATE ALL INSTALLATION WITH CITY OF IMPERIAL INSPECTOR.
  2. CONTRACTOR MAY SUBSTITUTE TYPE K OR L COPPER PIPE FOR BRASS. THIS INSTALLATION IS TYPICAL. CLEARANCES SHALL APPLY TO ALL OTHER TYPES OF BACKFLOW PREVENTION DEVICES.

1 R.P. BACKFLOW PREVENTER NOT TO SCALE



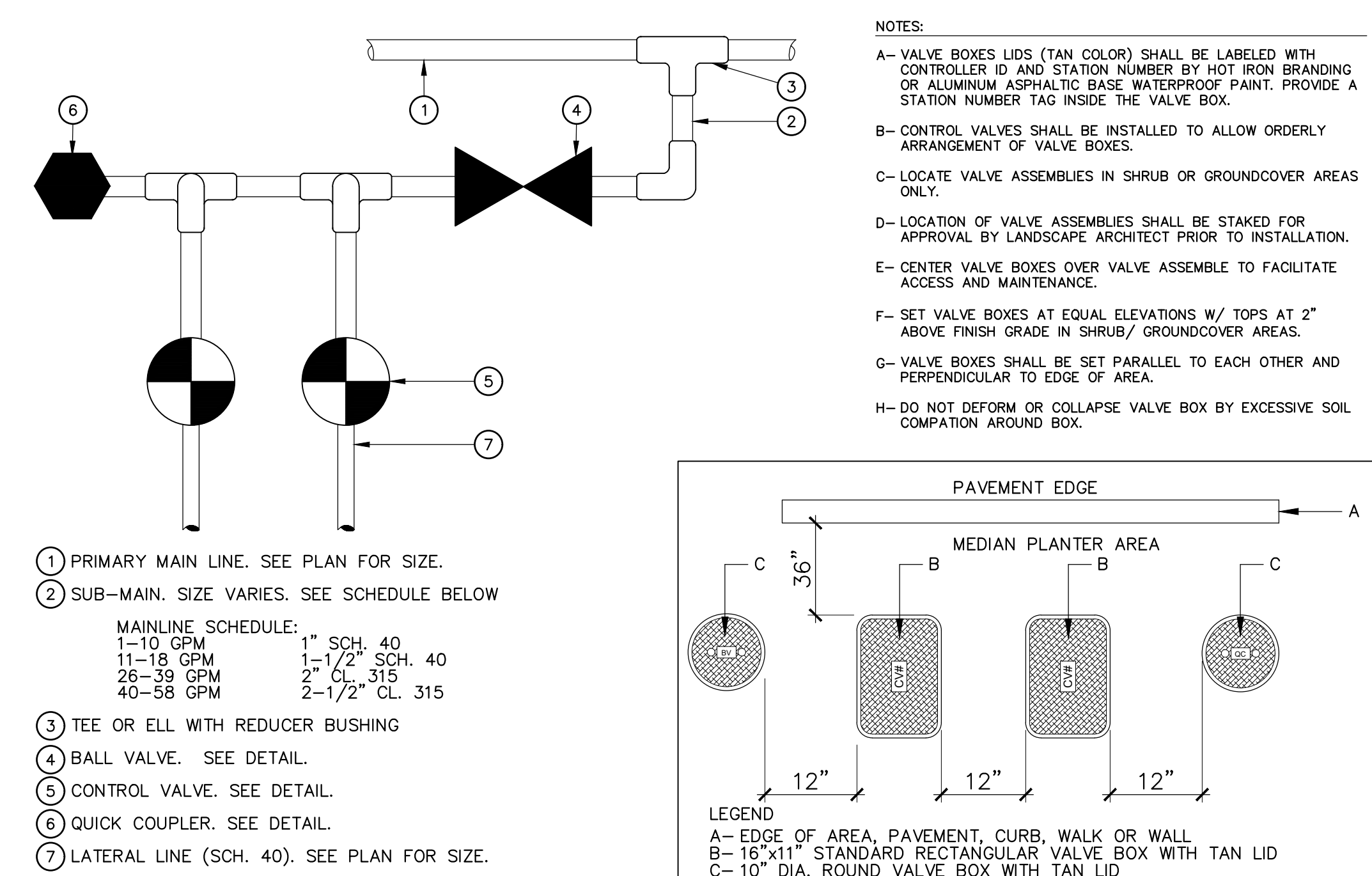
- 1 HUNTER REMOTE CONTROL VALVE (ICZ) WITH FILTER REGULATOR
  - 2 TAN PLASTIC RECTANGULAR VALVE BOX WITH LOCKING LID. BOX TO BE PLACED AT RIGHT ANGLE TO HARDSCAPE EDGE. VALVE BOX SHALL BE LARGE ENOUGH TO ACCOMMODATE VALVE ASSEMBLY.
  - 3 WATER PROOF WIRE CONNECTOR - 3M DBRY-6.
  - 4 18"-24" COILED WIRE TO CONTROLLER
  - 5 FINISHED GRADE 1" BELOW VALVE BOX TOP IN TURF AREAS. 2" BELOW VALVE BOX IN SHRUB BEDS
  - 6 80 CLOSE NIPPLE, MATCH SIZE TO VALVE.
  - 7 BRICK SUPPORTS - (1) ONE AT EACH CORNER
  - 8 SCH. 80 UNION
  - 9 FILTER FABRIC - WRAP TWICE AROUND BRICK SUPPORT
  - 10 3/4" WASHED GRAVEL - 4" MIN. DEPTH
  - 11 PVC LATERAL LINE - PIPE PER SPECS. ANGLE TO SPECIFIED DEPTH WITH 45 ELLS
  - 12 MAINLINE LATERAL AND FITTINGS
  - 13 HUNTER FILTER REGULATOR PER LEGEND
- NOTES:
1. ALL WIRE TO BE INSTALLED AS PER LOCAL CODES. USE WATER PROOF WIRE CONNECTOR - DBRY-6.
  2. COMPACT SOIL AROUND VALVE BOX TO SAME DENSITY AS UNDISTURBED ADJACENT SOIL.
  3. ALL VALVE BOX LIDS (TAN COLOR) SHALL BE BRANDED WITH CONTROLLER ID AND STATION NUMBER. PROVIDE A STATION NUMBER TAG INSIDE THE VALVE BOX.
  4. INSTALL PER HUNTER INDUSTRIES SPECIFICATIONS. CONTRACTOR SHALL CONTACT HUNTER SPECIFICATION MANAGER AND SCHEDULE PRE-CONSTRUCTION MEETING TO REVIEW INSTALLATION DETAILS AND SPECIFICATIONS IN FIELD.

4 DRIP REMOTE CONTROL VALVE ASSEMBLY NOT TO SCALE

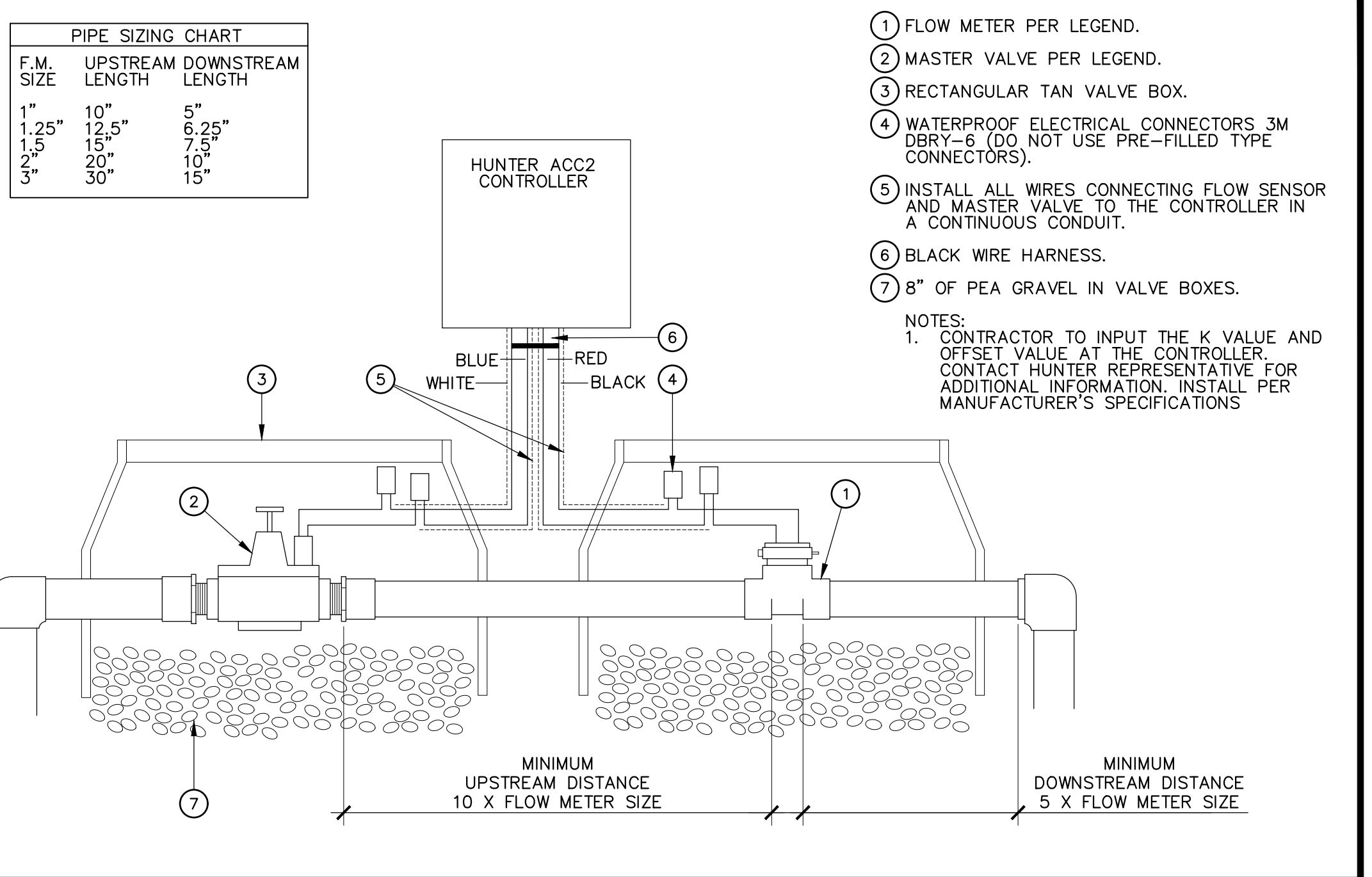


- 1 FINISHED GRADE 1" BELOW VALVE BOX TOP IN TURF AREAS. 2" BELOW VALVE BOX IN SHRUB BEDS
  - 2 TAN PLASTIC RECTANGULAR VALVE BOX WITH LOCKING LID. BOX TO BE PLACED AT RIGHT ANGLE TO HARDSCAPE EDGE.
  - 3 CONTROL VALVE, SEE LEGEND FOR SPEC
  - 4 WATER PROOF WIRE CONNECTOR - 3M DBRY-6
  - 5 18" WIRE LOOP ( WRAP 15 TIMES AROUND 1/2" DIA. PIPE TO FORM COIL - REMOVE PIPE.)
  - 6 PVC SCH.80 ELLS (2)
  - 7 PVC SCH 80 SLIPxPIPT ADAPTER, (2 REQUIRED)
  - 8 PVC LATERAL LINE - PIPE PER SPECS. ANGLE TO SPECIFIED DEPTH WITH 45 ELLS
  - 9 SCH. 80 UNION
  - 10 BRICK SUPPORTS - (1) ONE AT EACH CORNER
  - 11 3" SCH. 80 NIPPLE TYP. (3 TOTAL)
  - 12 LANDSCAPE FABRIC
  - 13 1 C.F.- PEA GRAVEL
  - 14 PVC MAINLINE PIPE FROM BACKFLOW PER SPECS.
- NOTES:
1. ALL WIRE TO BE INSTALLED AS PER LOCAL CODES. USE WATER PROOF WIRE CONNECTOR - DBRY-6.
  2. COMPACT SOIL AROUND VALVE BOX TO SAME DENSITY AS UNDISTURBED ADJACENT SOIL.
  3. ALL VALVE BOX LIDS (TAN COLOR) SHALL BE BRANDED WITH CONTROLLER ID AND STATION NUMBER. PROVIDE A STATION NUMBER TAG INSIDE THE VALVE BOX.
  4. INSTALL ALL WIRES CONNECTING MASTER VALVE TO THE CONTROLLER IN A CONTINUOUS CONDUIT.
  5. INSTALL PER HUNTER INDUSTRIES SPECIFICATIONS. CONTRACTOR SHALL CONTACT HUNTER SPECIFICATION MANAGER AND SCHEDULE PRE-CONSTRUCTION MEETING TO REVIEW INSTALLATION DETAILS AND SPECIFICATIONS IN FIELD.

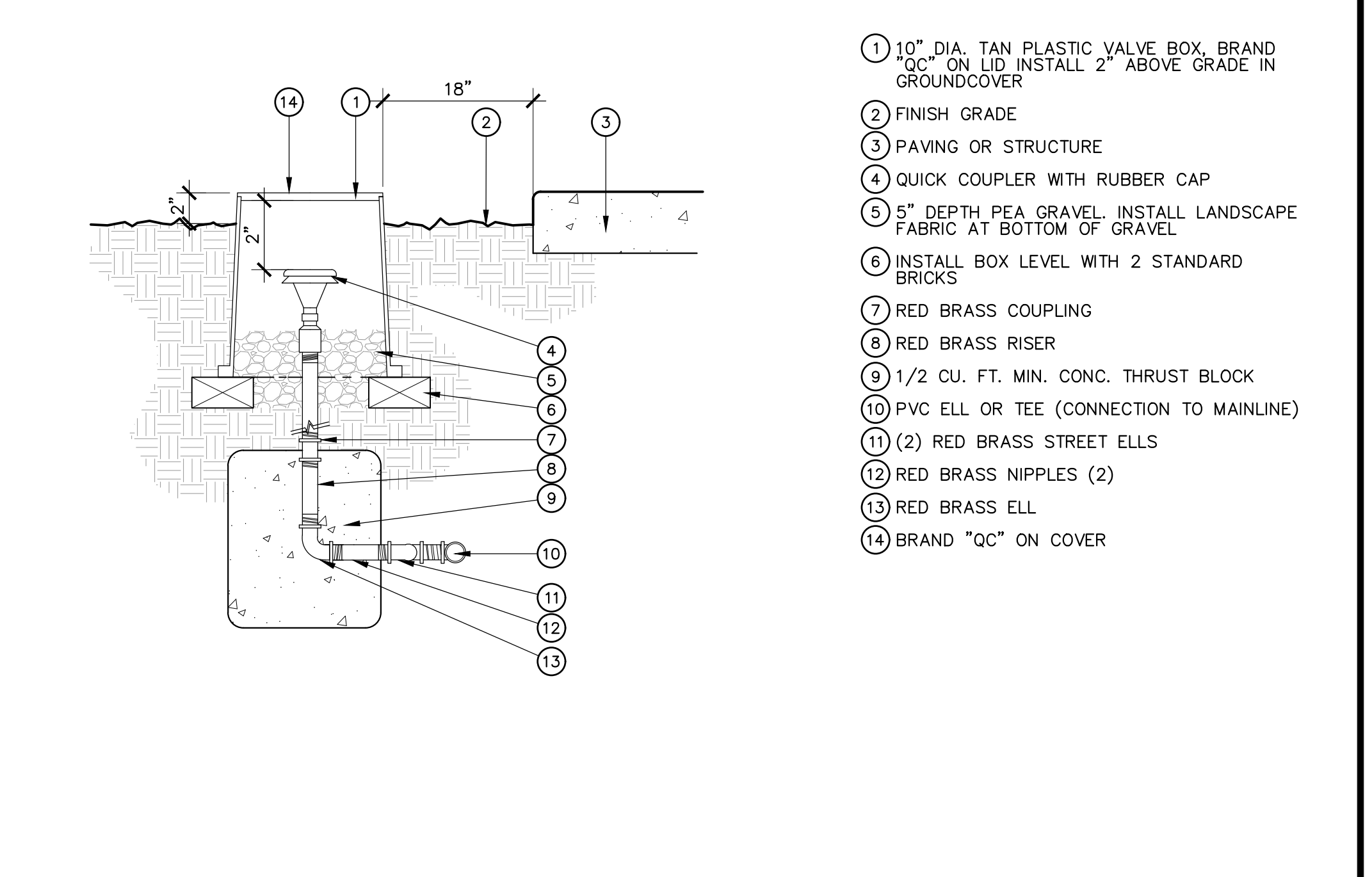
2 MASTER AND REMOTE CONTROL VALVE NOT TO SCALE



5 VALVE MANIFOLD INSTALLATION (TYPICAL) NOT TO SCALE



3 FLOW SENSOR NOT TO SCALE



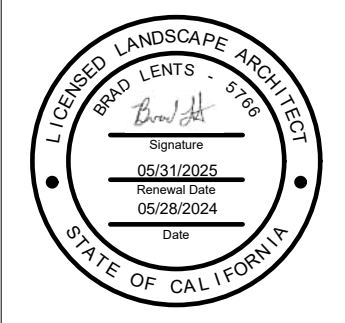
6 QUICK COUPLER NOT TO SCALE

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**CITY OF IMPERIAL**  
 420 South Imperial Avenue  
 Imperial, CA 92251  
 Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK**  
 BENCHMARK ELEVATION =  
 BENCHMARK DESCRIPTION:



PREPARED UNDER THE DIRECT SUPERVISION OF:  
 BRAD LENTS  
 5766 LA NO.  
 05/28/2024 DATE  
 05/31/2025 REG. EXP.

APPROVED BY DIRECTOR OF PUBLIC WORKS  
 CITY OF IMPERIAL, CA  
 BY: \_\_\_\_\_ DATE \_\_\_\_\_

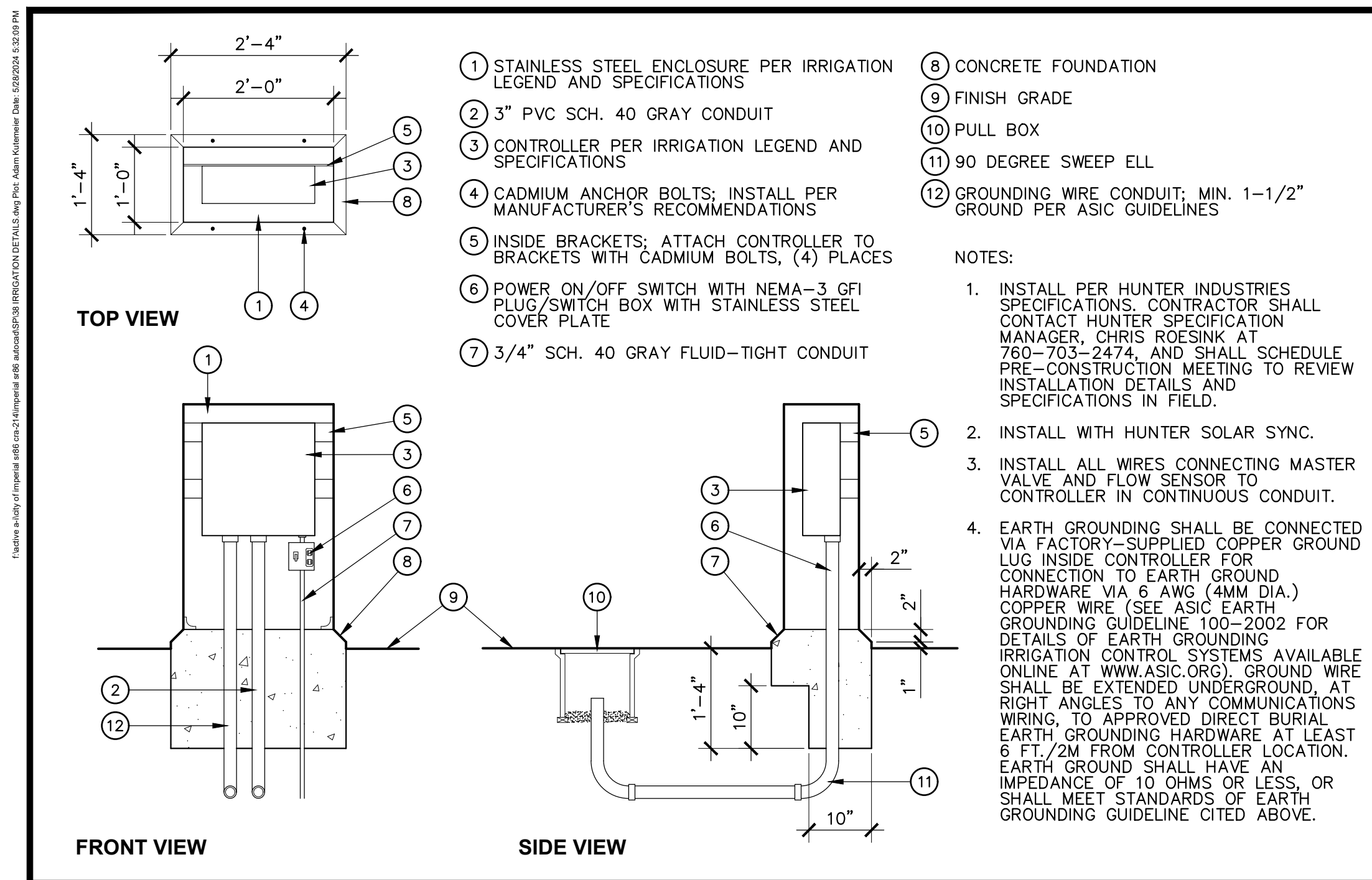
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PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
 SHEET CONTENT: IRRIGATION DETAILS

SCALE: \_\_\_\_\_ SHEET 37 OF 52 SHEETS  
 DRAWN BY: AK & MS  
 REVISED BY: YZ  
 JOB NO. XXXXXXXX  
 JUNE 2024

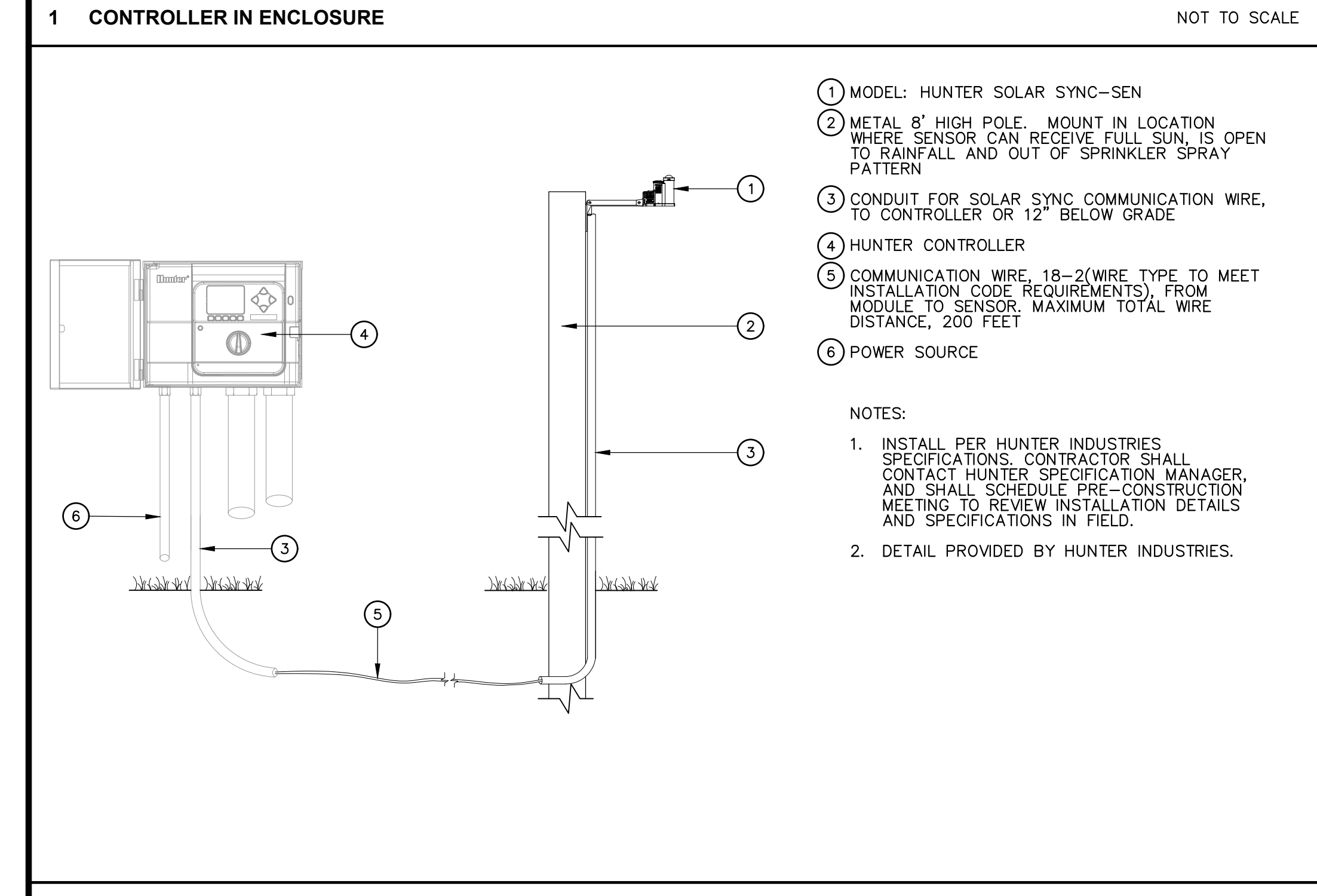
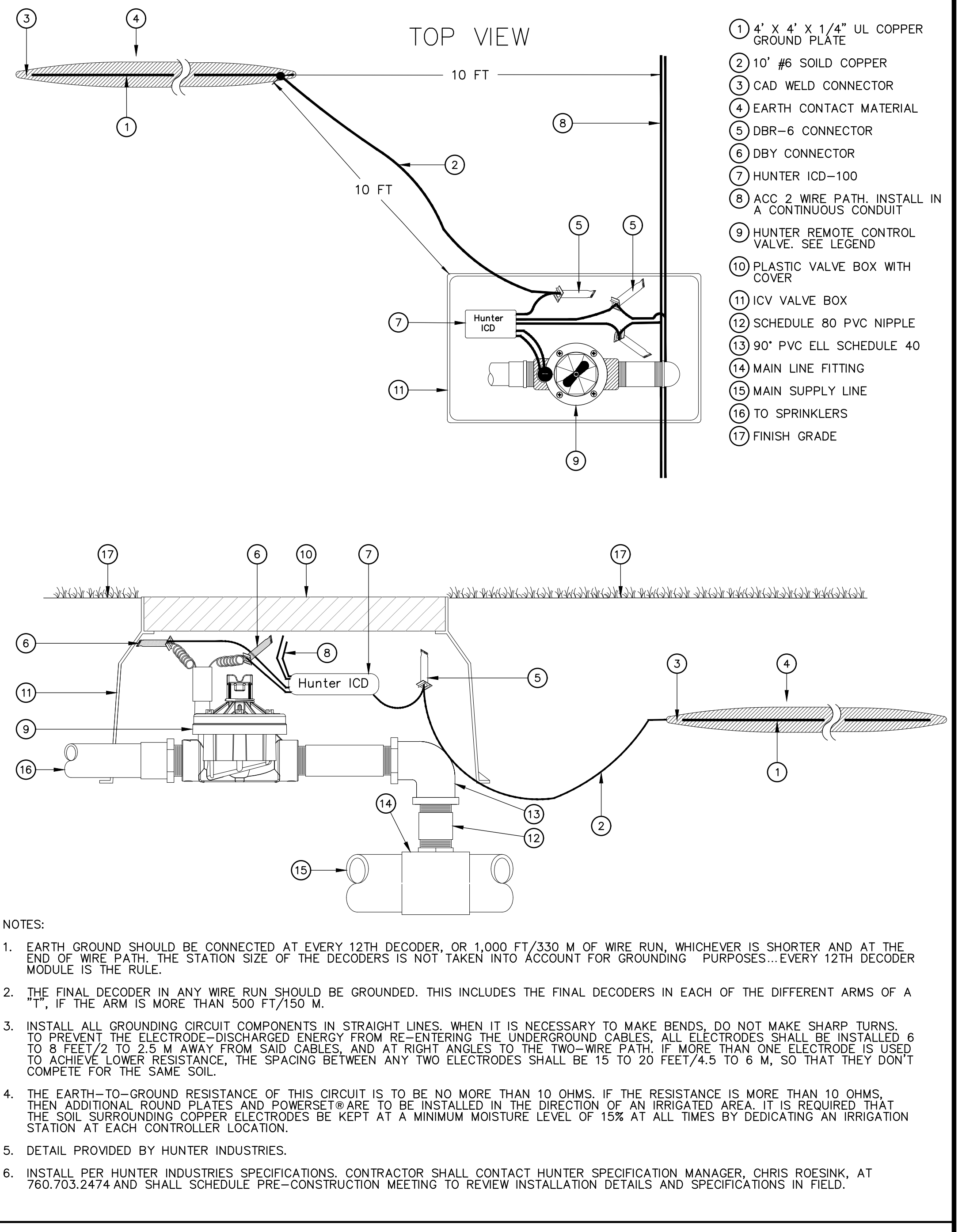
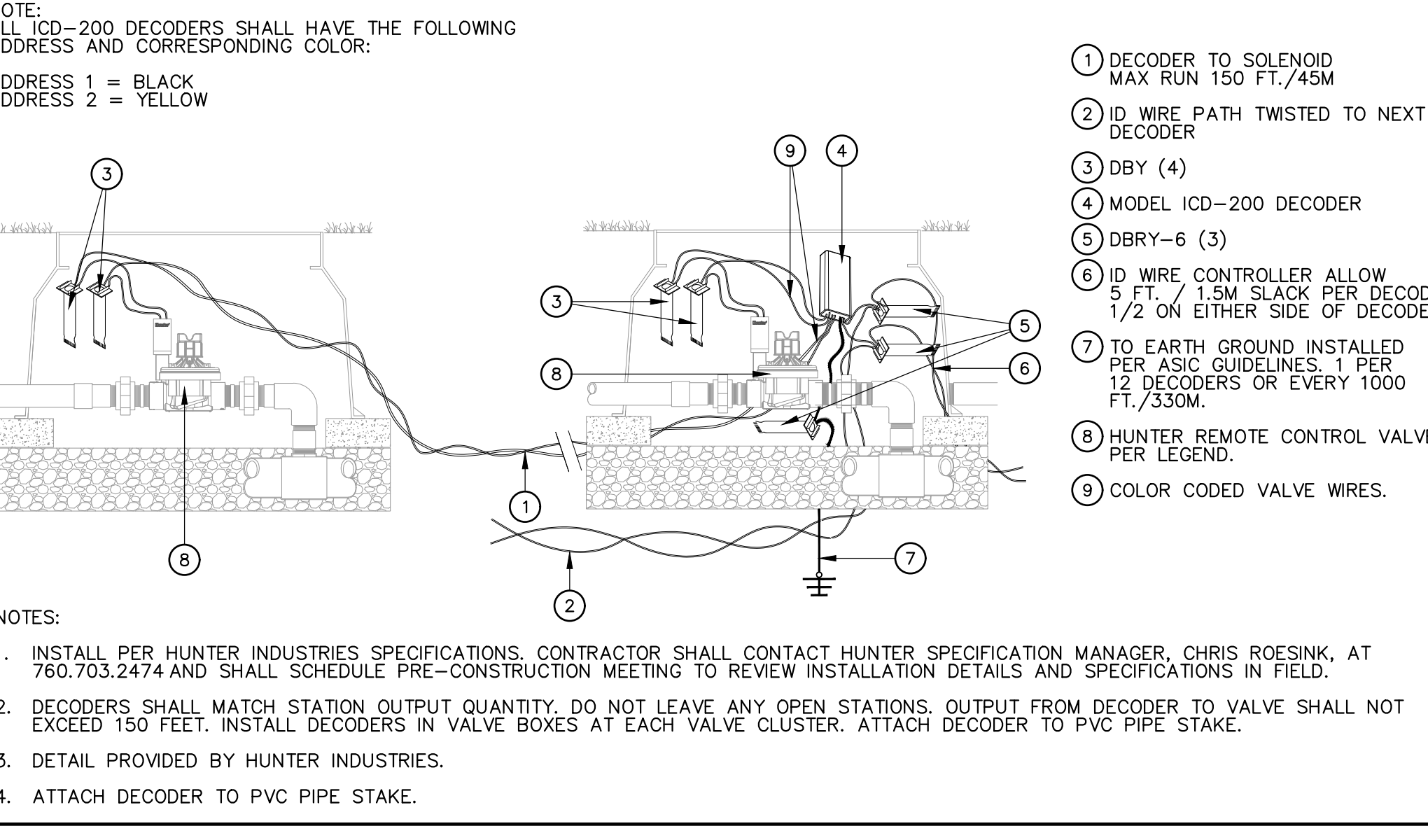
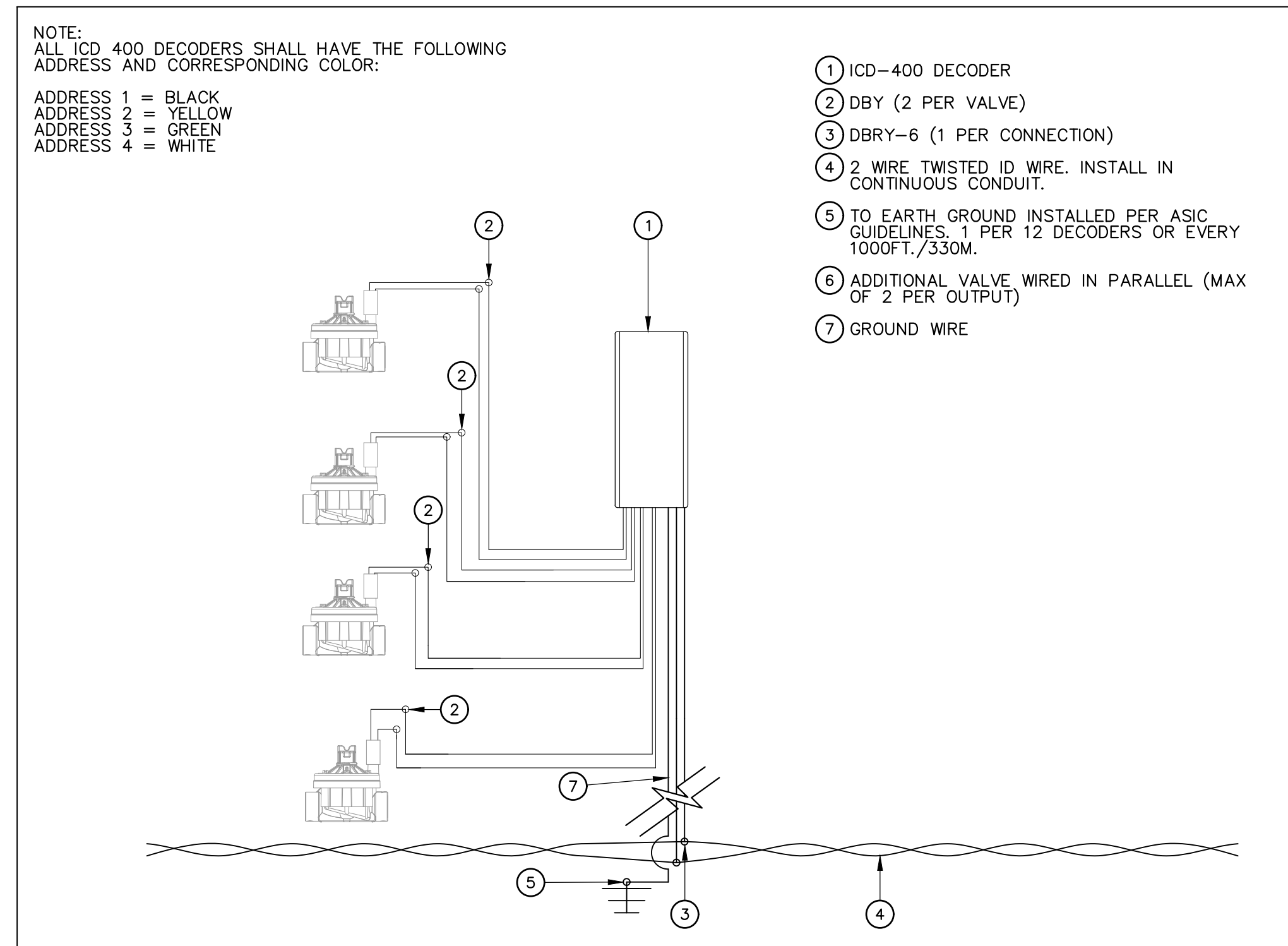
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- 1 STAINLESS STEEL ENCLOSURE PER IRRIGATION LEGEND AND SPECIFICATIONS
- 2 3" PVC SCH. 40 GRAY CONDUIT
- 3 CONTROLLER PER IRRIGATION LEGEND AND SPECIFICATIONS
- 4 CADMIUM ANCHOR BOLTS; INSTALL PER MANUFACTURER'S RECOMMENDATIONS
- 5 INSIDE BRACKETS; ATTACH CONTROLLER TO BRACKETS WITH CADMIUM BOLTS; (4) PLACES
- 6 POWER ON/OFF SWITCH WITH NEMA-3 GFI PLUG/SWITCH BOX WITH STAINLESS STEEL COVER PLATE
- 7 3/4" SCH. 40 GRAY FLUID-TIGHT CONDUIT
- 8 CONCRETE FOUNDATION
- 9 FINISH GRADE
- 10 PULL BOX
- 11 90 DEGREE SWEEP ELL
- 12 GROUNDING WIRE CONDUIT; MIN. 1-1/2" GROUND PER ASIC GUIDELINES

**NOTES:**

- INSTALL PER HUNTER INDUSTRIES SPECIFICATIONS. CONTRACTOR SHALL CONTACT HUNTER SPECIFICATION MANAGER, CHRIS ROESINK AT 760-703-2474, AND SHALL SCHEDULE PRE-CONSTRUCTION MEETING TO REVIEW INSTALLATION DETAILS AND SPECIFICATIONS IN FIELD.
- INSTALL WITH HUNTER SOLAR SYNC.
- INSTALL ALL WIRES CONNECTING MASTER VALVE AND FLOW SENSOR TO CONTROLLER IN CONTINUOUS CONDUIT.
- EARTH GROUNDING SHALL BE CONNECTED VIA FACTORY-SUPPLIED COPPER GROUND LUG INSIDE CONTROLLER FOR CONNECTION TO EARTH GROUND HARDWARE VIA 6 AWG (4MM DIA.) COPPER WIRE (SEE ASIC EARTH GROUNDING GUIDELINE 100-2002 FOR DETAILS OF EARTH GROUNDING IRRIGATION CONTROL SYSTEMS AVAILABLE ONLINE AT WWW.ASIC.ORG). GROUND WIRE SHALL BE EXTENDED UNDERGROUND, AT RIGHT ANGLES TO ANY COMMUNICATIONS WIRING, TO APPROVED DIRECT BURIAL EARTH GROUNDING HARDWARE AT LEAST 6 FT./2M FROM CONTROLLER LOCATION. EARTH GROUND SHALL HAVE AN IMPEDANCE OF 10 OHMS OR LESS, OR SHALL MEET STANDARDS OF EARTH GROUNDING GUIDELINE CITED ABOVE.



**3 HUNTER ICD DECODER INSTALLATION DETAIL** NOT TO SCALE

**4 DECODER GROUNDING DETAIL** NOT TO SCALE

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**SPURLOCK**  
LANDSCAPE ARCHITECTS

2122 Hancock Street  
San Diego, California 92110  
619.681.0090  
spurlock-land.com

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CITY OF IMPERIAL, CA

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420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
BENCHMARK ELEVATION =  
BENCHMARK DESCRIPTION:

PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Brad Lents*  
BRAD LENTS  
5766  
LA NO.  
05/28/2024  
DATE

PROJECT TITLE:  
CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

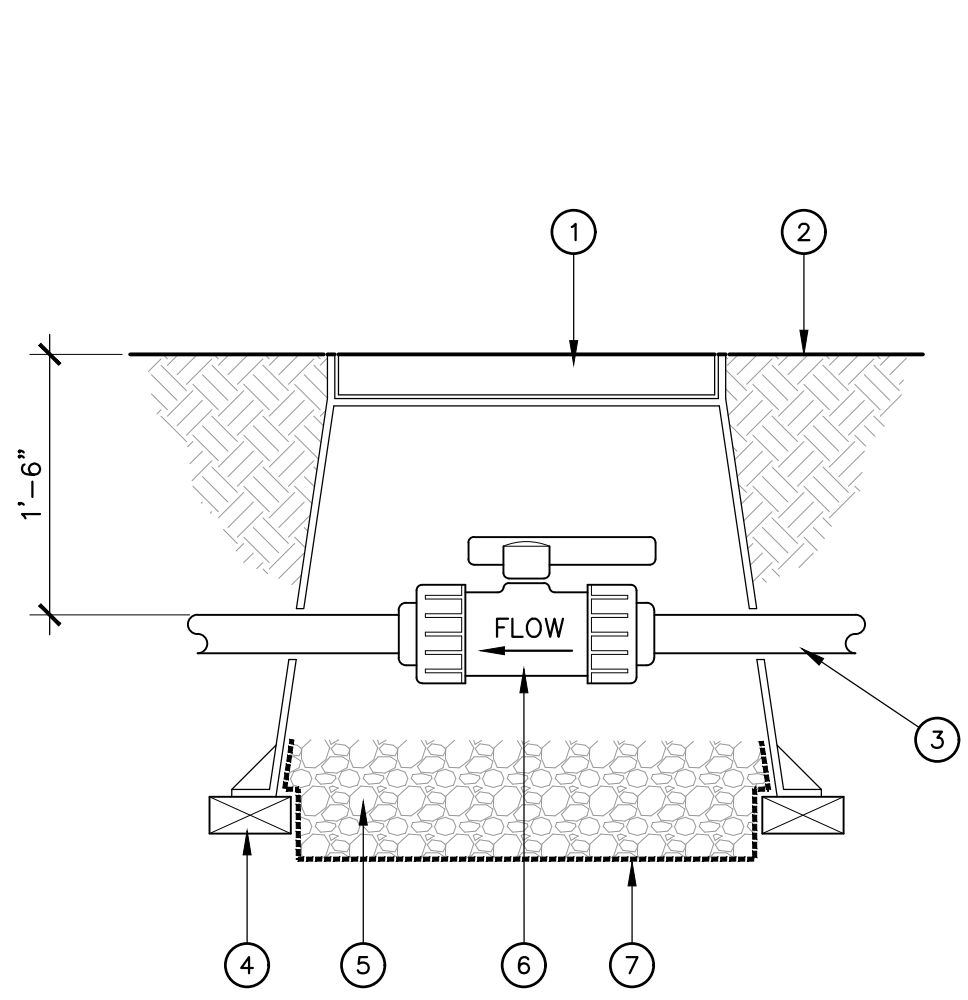
SHEET CONTENT:  
IRRIGATION DETAILS

SCALE:  
DRAWN BY: AK & MS  
REVISED BY: YZ  
JUNE 2024

SHEET  
**38**  
OF 52 SHEETS  
JOB NO.  
XXXXXXXX

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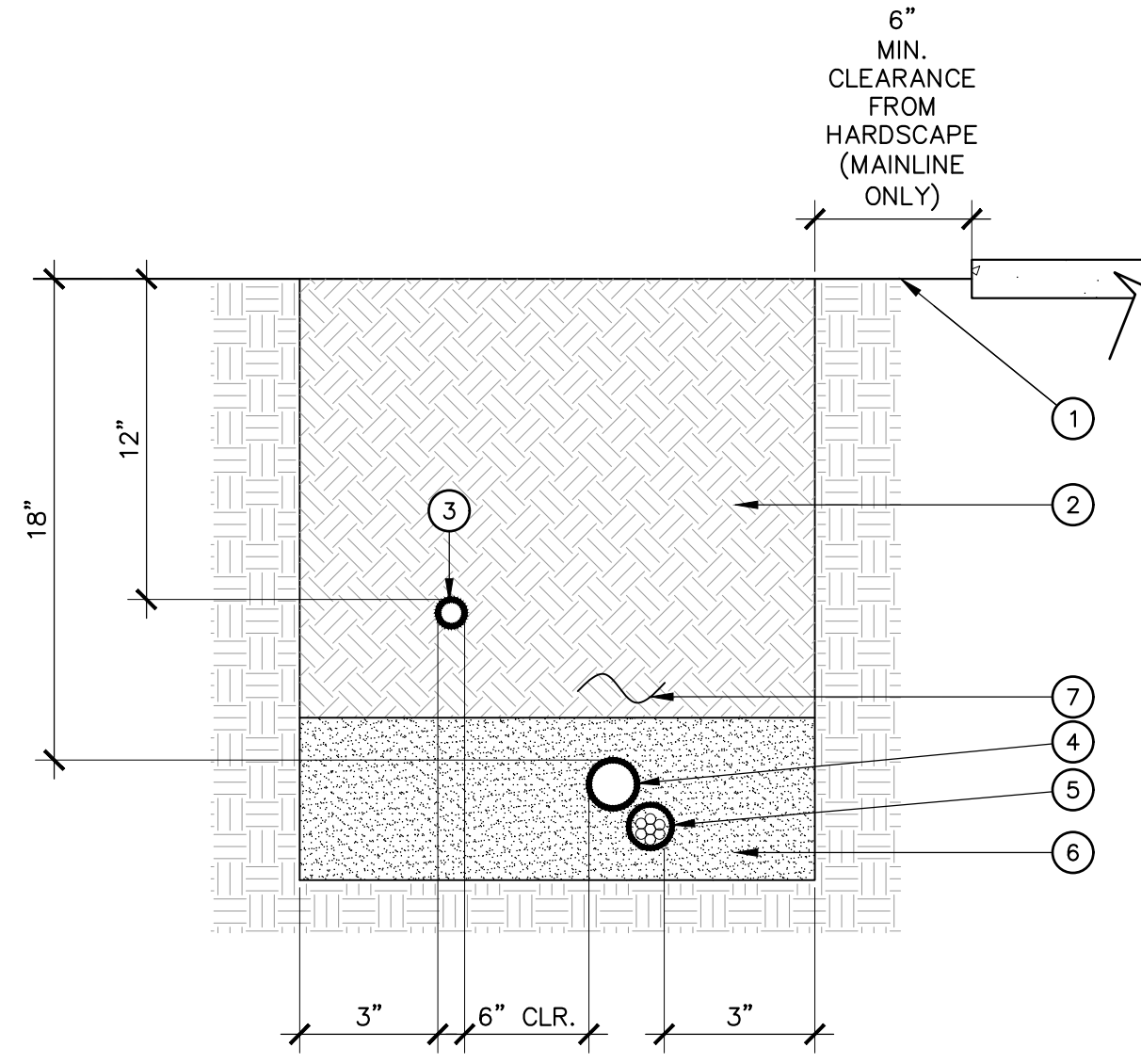
Imperial Irrigation District, 2025-05-28, 11:14 AM



- 1 PLASTIC VALVE BOX (10" ROUND) WITH GREEN BOLTED DOWN COVER, STAINLESS STEEL BOLT, NUT AND WASHER, HEAT BRANDED "GV" ONTO LID
- 2 FINISH GRADE
- 3 MAINLINE
- 4 BRICK SUPPORTS
- 5 1/2 C.F. 3/4" CRUSHED GRAVEL
- 6 BALL VALVE PER LEGEND
- 7 FILTER FABRIC

1 BALL VALVE

NOT TO SCALE

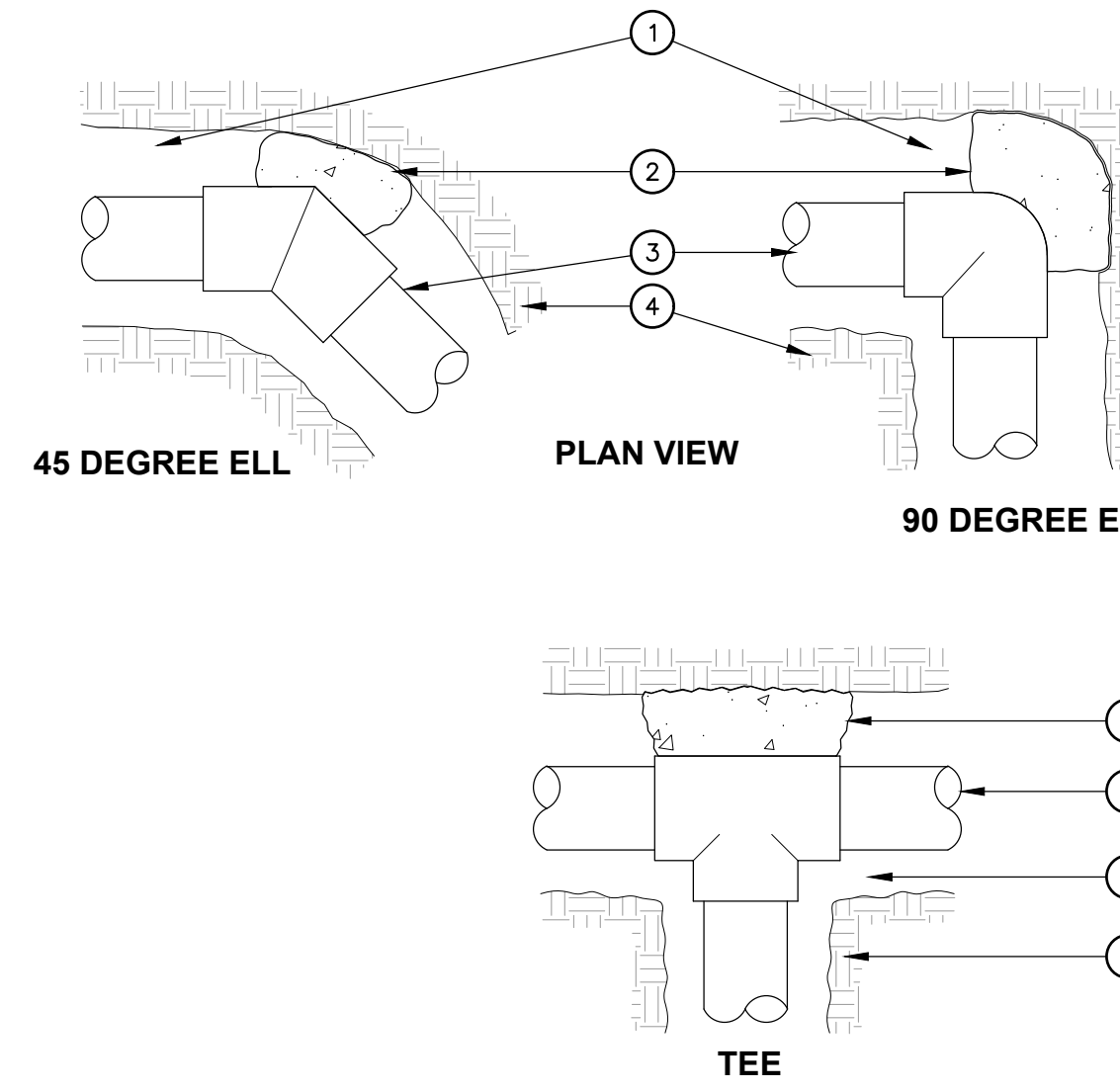


- 1 FINISH GRADE
- 2 CLEAN BACKFILL - 90% COMPACTION REQUIRED - SEE SPECS
- 3 NON-PRESSURE LATERAL LINE PER LEGEND
- 4 PRESSURE SUPPLY LINE PER LEGEND
- 5 DIRECT BURIAL, LOW VOLTAGE CONTROL WIRES (DIBLU) - INSTALL BELOW PRESSURE SUPPLY LINE. INSTALL WIRE IN CONTINUOUS CONDUIT. SPLICING OF WIRE RUNS IS NOT ALLOWED UNLESS APPROVED BY THE OWNER. 14 AWG WIRE FOR FLOW SENSOR AND MASTER VALVE SHALL BE INSTALLED IN A CONTINUOUS ELECTRICAL PVC CONDUIT.
- 6 MAINLINE SHALL BE INSTALLED ON A 6" SAND BED AND COVERED BY 6" OF SAND PRIOR TO ANY OTHER BACKFILL MATERIAL.
- 7 INSTALL CHRISTY'S 3" BLUE IRRIGATION LINE MARKING TAPE DIRECTLY ABOVE MAINLINE (6" ABOVE MAINLINE).

- NOTES:
- MAINLINE SPECIFICATIONS: CL 315 FOR 2" OR MORE SCH. 40 FOR 1-1/2" OR LESS.
  - ALL PRESSURE MAINLINE UNDER DRIVES SHALL BE BURIED TO A 36" MINIMUM DEPTH.
  - PIPE SHALL BE SNAKED SIDE TO SIDE IN TRENCH TO ALLOW EXPANSION.
  - INSTALL TRUST BLOCKS ON MAINLINE AT DIRECTION CHANGES.
  - ALL PRESSURE MAINLINE FITTINGS SHALL BE SCH. 80.
  - CONTRACTOR IS REQUIRED TO CONTACT 811 OR DIGALERT A MINIMUM OF TWO (2) DAYS PRIOR TO ANY EXCAVATION ON THE PROJECT.

2 TRENCHING DETAIL

NOT TO SCALE



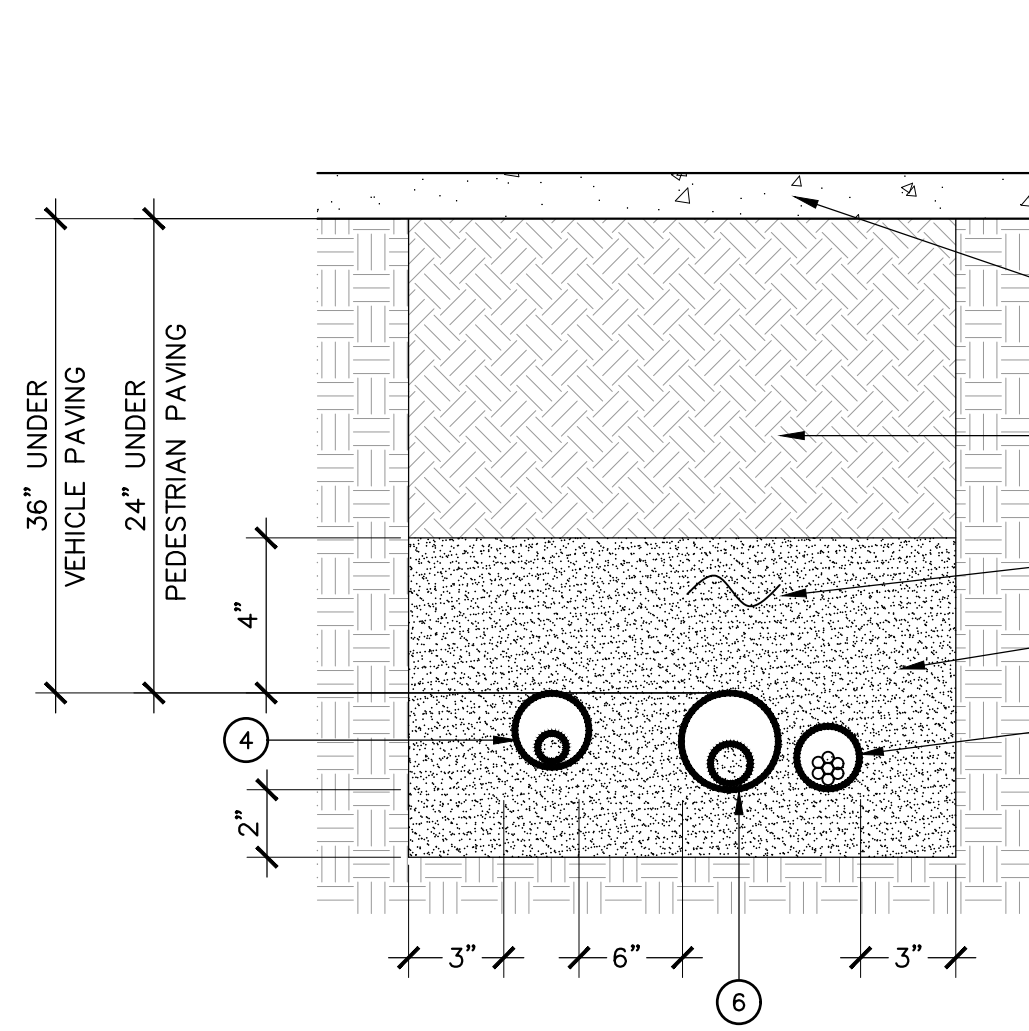
- 1 BACKFILL TRENCH PER SPECIFICATIONS
- 2 CONCRETE THRUST BLOCK (TYPICAL)
- 3 MAINLINE PIPING PER IRRIGATION LEGEND
- 4 NATIVE SOIL

NOTES:

- USE CONCRETE THRUST BLOCKS ON ALL SOLVENT-WELD MAINLINE PIPE AND FITTINGS.
- USE JOINT RESTRAINTS ON ALL BELL AND GASKET MAINLINE PIPING WITH PUSH-ON FITTINGS.
- CONCRETE THRUST BLOCKS SHALL BE A MINIMUM OF ONE CUBIC FOOT IN VOLUME. CONCRETE THRUST BLOCKS SHALL NOT ENCASE THE FITTINGS IN CONCRETE.
- ALL MAINLINE PIPING SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND PRESSURE TESTED PER THE PLAN NOTES OR SPECIFICATIONS.
- THE DEPTH AND WIDTH OF ALL TRENCHES SHALL BE PER THE SPECIFICATIONS.
- ALL MAINLINE PVC FITTINGS THAT ARE IN CONTACT WITH CONCRETE THRUST BLOCKS SHALL BE COVERED WITH BLACK PLASTIC PIPE WRAP.
- ALL CONCRETE USED FOR THRUST BLOCKS SHALL BE 470-C-2000.

3 THRUST BLOCKING FOR MAINLINE

NOT TO SCALE



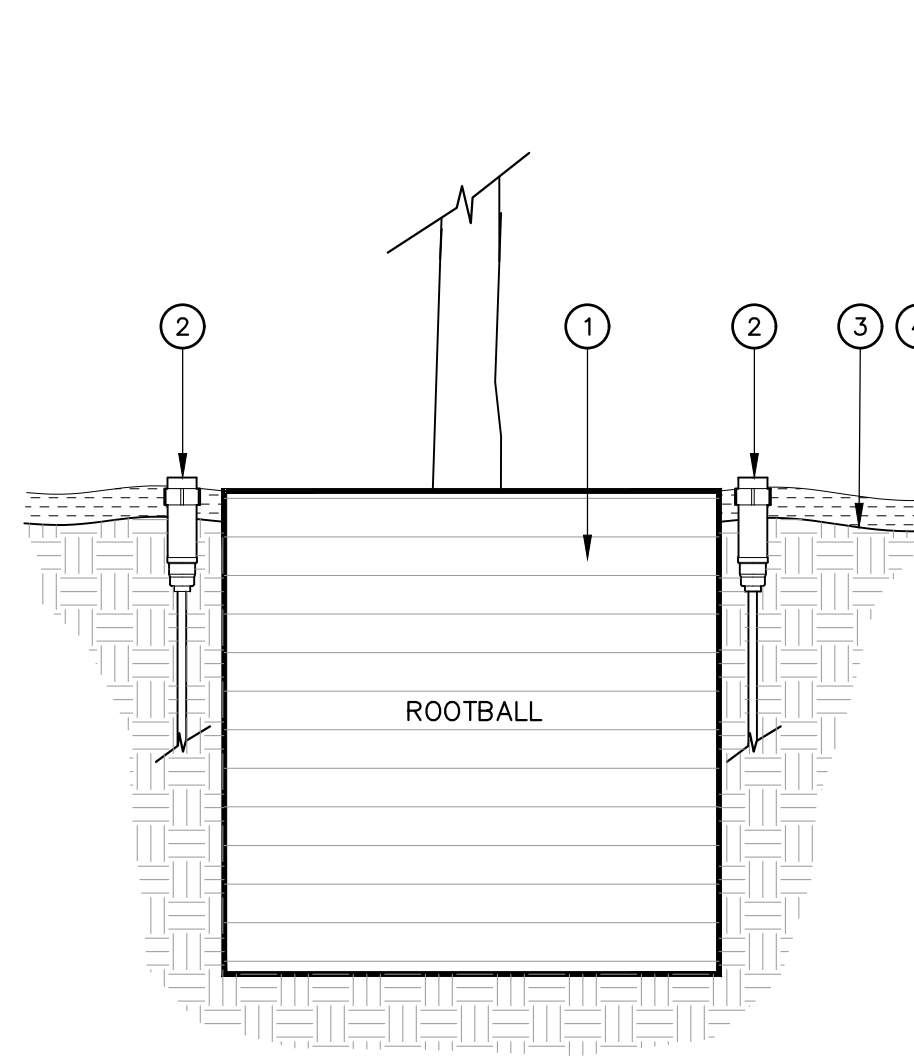
- 1 HARDSCAPE (TYPICAL)
- 2 CLEAN BACKFILL - 90% COMPACTION REQUIRED - SEE SPECS
- 3 SAND (TYPICAL)
- 4 NON-PRESSURE LATERAL LINE IN SLEEVE 24" MINIMUM DEPTH
- 5 CONTROL WIRE SLEEVE ADJACENT TO MAINLINE SLEEVE
- 6 PRESSURE SUPPLY LINE IN SLEEVE 24" MINIMUM DEPTH
- 7 METALLIC BACKED LOCATION TAPE INSTALLED ENTIRE LENGTH OF SLEEVE DIRECTLY ABOVE MAINLINE (6" ABOVE MAINLINE)

NOTES:

- ALL SLEEVES TO BE SCH. 40 PVC (SCH. 80 UNDER VEHICLE PAVING).
- ALL SLEEVES SHALL BE 2X THE SIZE OF THE PIPE BEING CARRIED. MIN. SLEEVE SIZE SHALL BE 2".
- EXTEND SLEEVES 12" BEYOND EDGE OF HARDSCAPE ON BOTH ENDS.
- DURING INSTALLATION TAPE CLOSED ENDS OF PIPES UNTIL ALL LATERALS AND WIRES HAVE BEEN RUN.
- ALL PRESSURE MAINLINE UNDER DRIVES SHALL BE BURIED TO A 36" MINIMUM DEPTH.
- INSTALL SLEEVES AT LEAST 24" AWAY FROM THE EXISTING SD PIPE WHERE PRESENT.

4 SLEEVING DETAIL

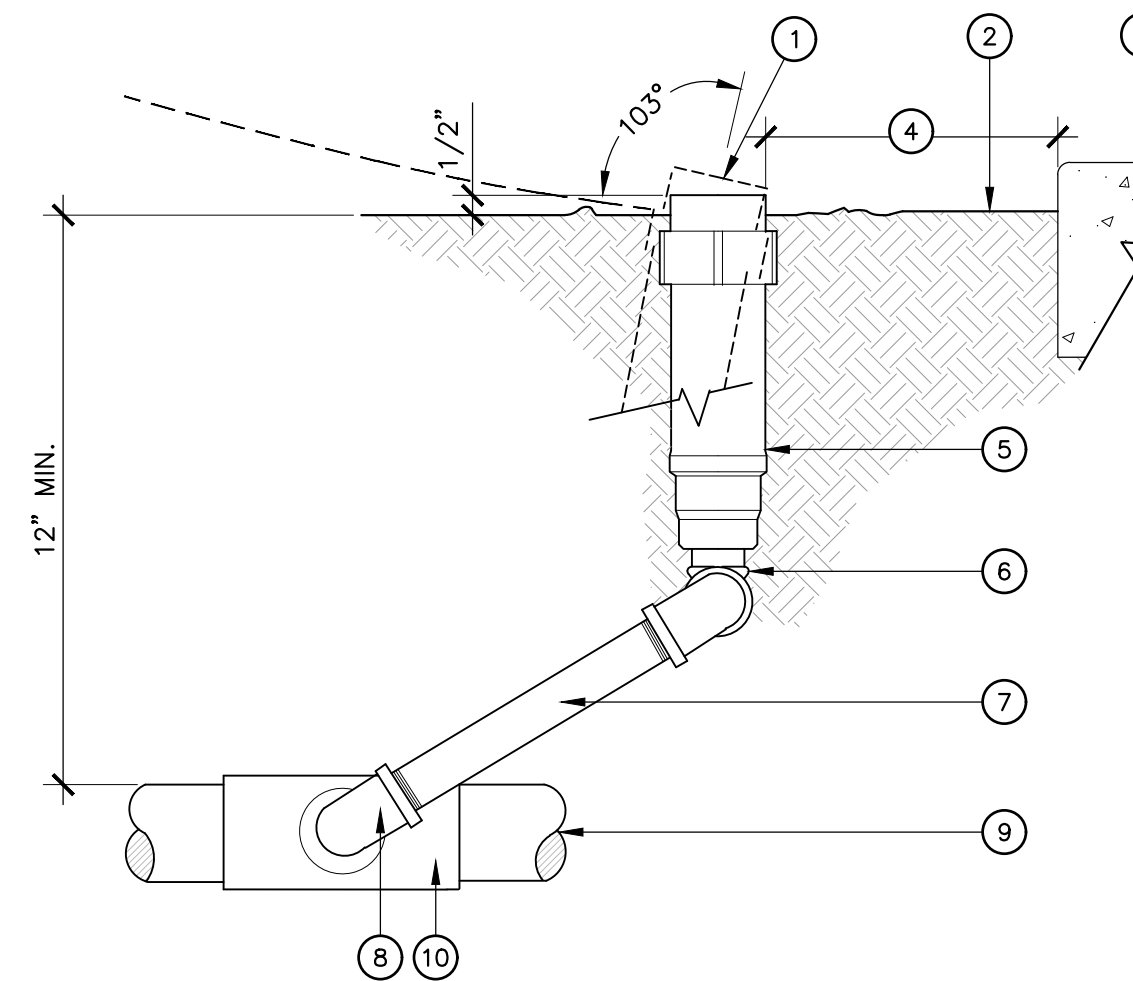
NOT TO SCALE



- 1 TREE ROOT BALL
- 2 BUBBLER HEAD ASSEMBLY ON A 6" POP-UP BODY (2 PER TREE). SEE POP-UP SPRAY HEAD DETAIL. INSTALL AT 6" FROM THE EDGE OF ROOT BALL. ADJUST THE NOZZLE STREAMS TO WET THE ROOT BALL AND AMENDED SOIL AREA WITHOUT HITTING THE TRUNK OF THE TREE. SEE LEGEND FOR NOZZLE AND BODY TYPE.
- 3 FINISH GARDE.
- 4 ROCK MULCH PER PLANTING PLAN

5 TREE BUBBLER INSTALLATION

NOT TO SCALE



- 1 INSTALL SPRAY HEAD AT ANGLE FOR MAX. THROW IF IRRIGATING SLOPES.
  - 2 FINISH GRADE OF SOIL OR MULCH WHERE OCCURS
  - 3 PAVING OR STRUCTURE
  - 4 SPRAY HEADS: 4" FROM WALKS AND CURBS 8" FROM STRUCTURES
  - 5 POP-UP SPRINKLER/MP ROTATOR/ROTOR WITH BUILT-IN CHECK VALVE
  - 6 1/2" MARLEX STREET ELL (MIPT X FIPT)(2)
  - 7 1/2" SCH. 80 PVC THREADED 6" NIPPLE
  - 8 1/2" MARLEX STREET ELL (MIPT x FIPT)
  - 9 PVC LATERAL LINE
  - 10 SCH. 40 PVC S X S X FIPT TEE OR ELL
- NOTES:
- CONTRACTOR SHALL INSTALL ADDITIONAL ANTI-DRAIN VALVES, AS REQUIRED, TO PREVENT LOW HEAD DRAINAGE.
  - USE BOTTOM INLET ONLY.
  - USE TEFLON TAPE ON ALL PVC TO PVC CONNECTIONS; NO PIPE DOPE ALLOWED.

6 POP-UP SPRAY HEAD

NOT TO SCALE

SPURLOCK LANDSCAPE ARCHITECTS

2122 Hancock Street San Diego, California 92110 619.681.0090 spurlock-land.com

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BY: \_\_\_\_\_ DATE \_\_\_\_\_

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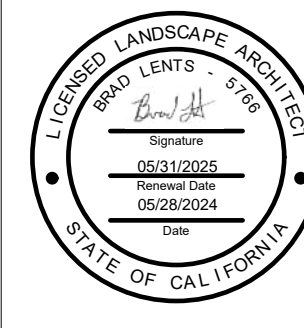
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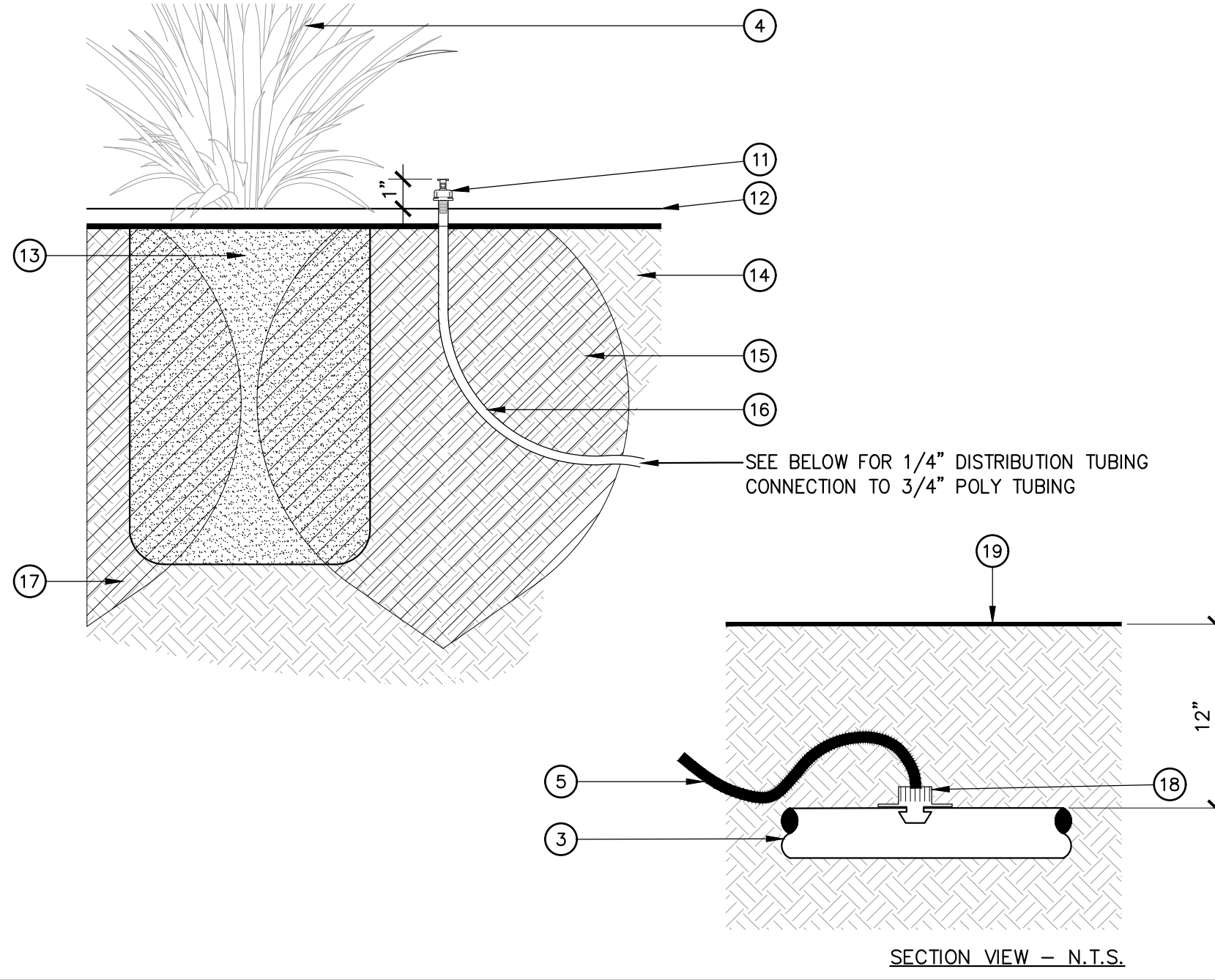
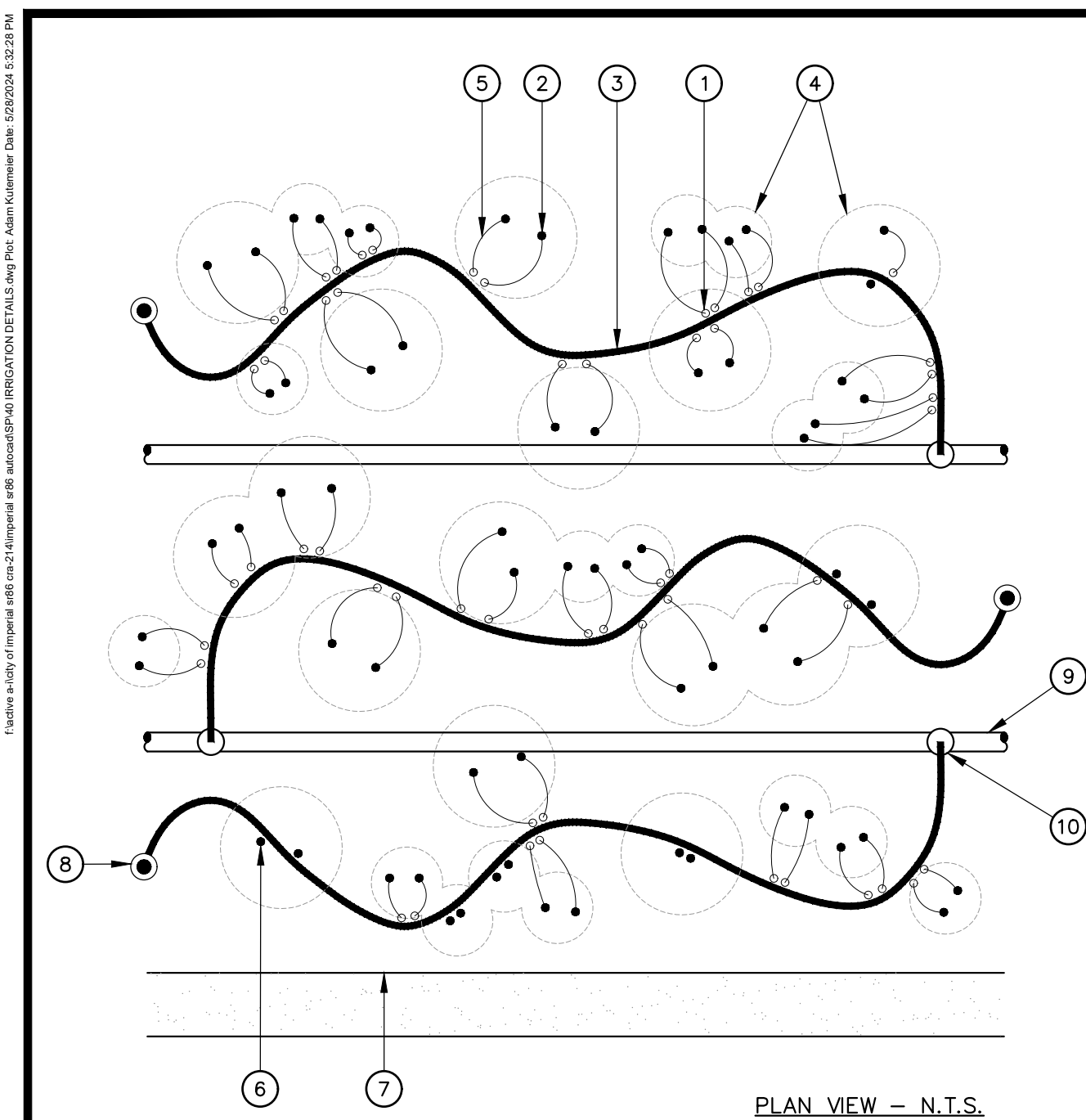
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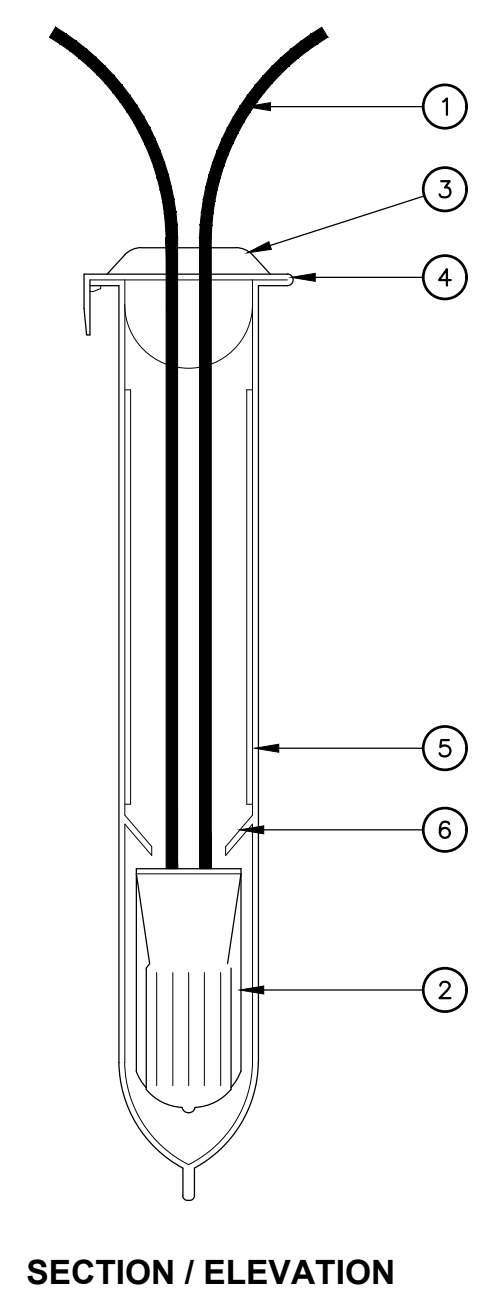
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PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1 SHEET CONTENT: IRRIGATION DETAILS

SCALE: DRAWN BY: AK & MS REVISED BY: YZ SHEET 39 OF 52 SHEETS JOB NO. XXXXXXXX



- 1 BARB CONNECTOR INTO 3/4" POLY TUBING.
  - 2 EMITTER ON END OF 1/4" TUBING.
  - 3 3/4" POLY TUBING (25 FT MAX).
  - 4 PLANTS, SEE PLANTING PLAN.
  - 5 1/4" DISTRIBUTION TUBING TO PLANTS, 72" MAXIMUM LENGTH TYPICAL.
  - 6 EMITTER INTO 3/4" TUBING FINISHED GRADE.
  - 7 CURB OR PAVEMENT EDGE.
  - 8 FLUSH CAP AT TUBING END.
  - 9 PVC LATERAL LINE, 12" BELOW FINISHED GRADE.
  - 10 CONNECTION TO PVC LATERAL LINE.
  - 11 PRESSURE COMPENSATING DRIP EMITTER WITH A DIFFUSER BUG CAP, MODEL XB-05PC. INSTALL (2) TWO EMITTERS PER SHRUB.
  - 12 FINISHED GRADE OR TOP OF ROCK MULCH, SEE PLANTING PLANS.
  - 13 ROOT BALL OF PLANT FROM CONTAINER.
  - 14 AMENDED OR UN-AMENDED SITE SOIL.
  - 15 TYPICAL WETTED AREA FROM A DRIP EMITTER IN SOIL, FOR REFERENCE ONLY.
  - 16 RAIN BIRD XQ 1/4" DISTRIBUTION TUBING, CUT FLEXIBLE RISER TO LENGTH AS REQUIRED. 72" MAXIMUM LENGTH.
  - 17 WETTED AREA OF ADJACENT EMITTER.
  - 18 1/4" BARB CONNECTOR. INSTALL ON SIDE OF TUBING, SHOWN ON TOP FOR CLARITY.
  - 19 FINISHED GRADE.
- NOTES:
1. LOCATE DRIP EMITTER WITHIN 2" OF THE ROOT BALL OF THE PLANT.
  2. INSTALL PER RAIN BIRD SPECIFICATIONS.



- 1 LOW VOLTAGE WIRES - 4 MAXIMUM
  - 2 SCOTCHLOK ELECTRICAL SPRING CONNECTOR - WIRES SHALL BE PRE-STRIPPED OF 3/4" OF THE INSULATION PRIOR TO INSERTION INTO THE CONNECTOR - TWIST CONNECTOR ONTO WIRES TO SEAT FIRMLY.
  - 3 WIRES PASS THROUGH GROOVES IN TUBE LID TO ALLOW LID TO CLOSE. INSERT SCOTCHLOK CONNECTOR AND WIRES INTO TUBE UNTIL THE CONNECTOR PASSES THE LOCK TABS AND RESTS ON THE BOTTOM.
  - 4 CLOSE TUBE LID AFTER WIRE IS INSERTED INTO TUBE.
  - 5 POLY TUBE PRE-FILLED WITH MOISTURE-RESISTANT GREASE.
  - 6 LOCK TABS PREVENT WIRE REMOVAL ONCE CONNECTOR IS INSERTED.
- NOTES:
1. WIRE CONNECTOR SHALL BE A 3M DBR/Y-6 DIRECT BURY SPLICE KIT.
  2. KIT SHALL INCLUDE A SCOTCHLOK SPRING CONNECTOR, A UV-RESISTANT POLYPROPYLENE TUBE AND A MOISTURE-RESISTANT SEALING GEL. TUBE SHALL BE SUPPLIED PRE-FILLED WITH GEL.
  3. DIRECT BURY SPLICE KIT SHALL BE USED TO ELECTRICALLY CONNECT 2-3 #14 OR 2 #12 PRE-STRIPPED COPPER WIRES. LARGER OR GREATER QUANTITIES OF WIRES SHALL REQUIRE A LARGER APPROVED WIRE CONNECTOR.
  4. INSTALL PER HUNTER INDUSTRIES SPECIFICATIONS. CONTRACTOR SHALL CONTACT HUNTER SPECIFICATION MANAGER, CHRIS ROESINK, AT 760.703.2474 AND SHALL SCHEDULE PRE-CONSTRUCTION MEETING TO REVIEW INSTALLATION DETAILS AND SPECIFICATIONS IN FIELD.

1 POINT SOURCE EMITTER LAYOUT

NOT TO SCALE

2 WIRE CONNECTOR

NOT TO SCALE

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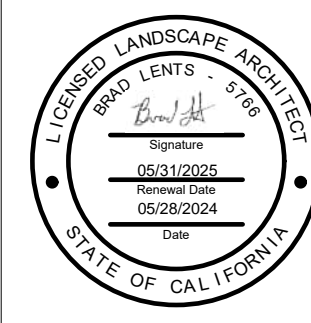
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|-----|------------|----------|------|
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420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
BENCHMARK ELEVATION =  
BENCHMARK DESCRIPTION:



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Brad Lents*  
BRAD LENTS  
5766  
LA NO.  
05/28/2024  
DATE  
05/31/2025  
REG. EXP.

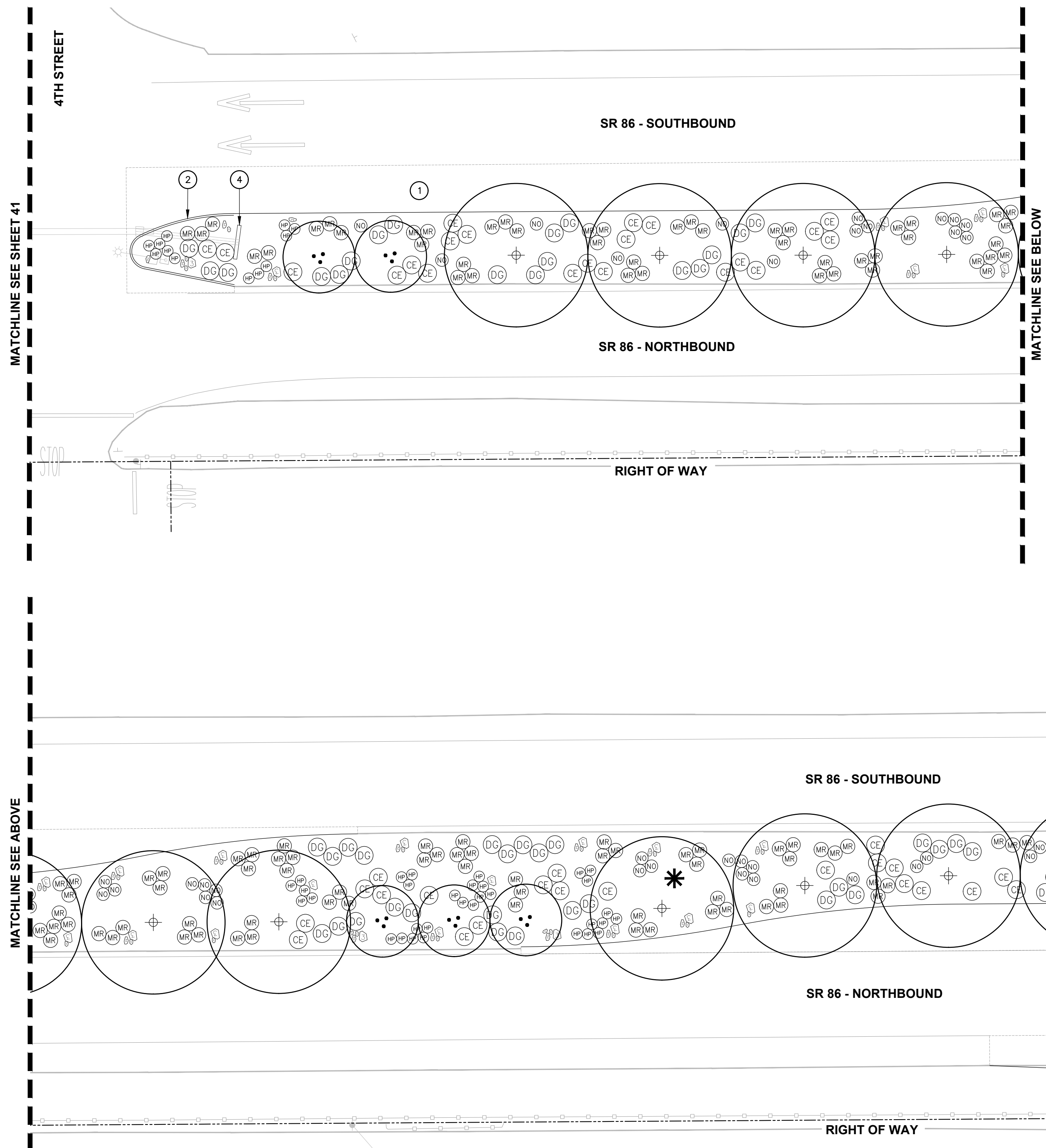
PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1  
SHEET CONTENT: IRRIGATION DETAILS

SCALE:  
DRAWN BY: AK & MS  
REVISED BY: YZ  
JUNE 2024  
SHEET 40  
OF 52 SHEETS  
JOB NO. XXXXXXXX





Imperial City of Imperial 448 (02-2) Improvement #88 - Intermodal Planting Plan - 42 - Admin/Information Date: 05/28/2024 13:53:14 PM



### HARDSCAPE LEGEND

SEE SHEET 47 FOR FULL LEGEND

| SYMBOL | ROCK MULCHES/ BOULDERS        | DETAIL  |
|--------|-------------------------------|---------|
|        | 3/4" ANGULAR ROCK MULCH       |         |
|        | 18"-36" DIA. ANGULAR BOULDERS | 4<br>48 |
|        | ROOT BARRIER                  | 3<br>49 |

MISCELLANEOUS SITE IMPROVEMENTS

|   |                      |           |
|---|----------------------|-----------|
| 1 | ASPHALT PAVING       | PER CIVIL |
| 2 | CURB/AC DIKE         | PER CIVIL |
| 3 | CATCH BASIN          | PER CIVIL |
| 4 | STORM DRAIN HEADWALL | PER CIVIL |
| 5 | ACCESSIBLE RAMP      | PER CIVIL |
| 6 | CONCRETE PAVING      | PER CIVIL |

### PARTIAL PLANTING LEGEND

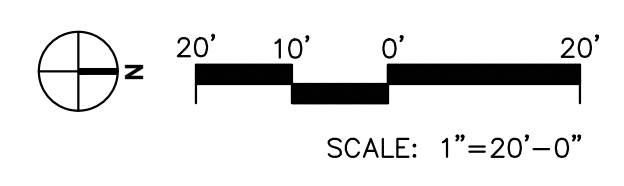
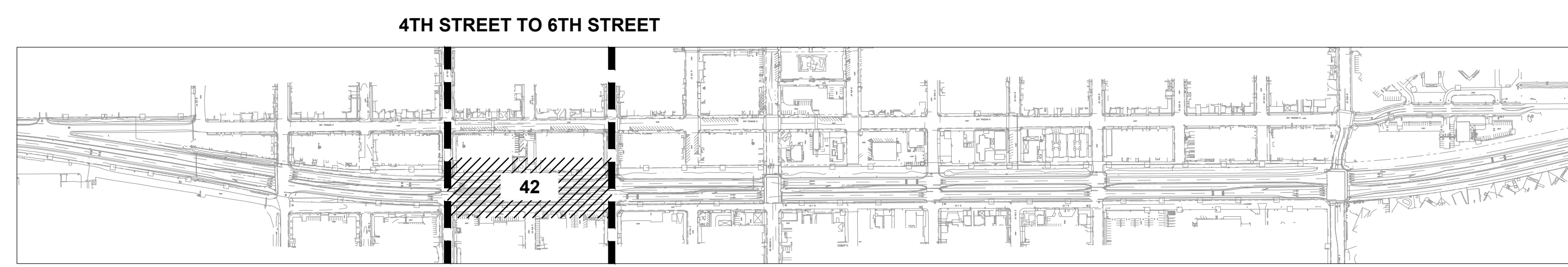
SEE SHEET 47 FOR FULL LEGEND

| SYMBOL        | BOTANICAL / COMMON NAME   | CONTAINER |
|---------------|---|-----------|
| <b>TREES</b>  |   |           |
|               | LAGERSTROEMIA INDICA X FAURIEI<br>"TUSKEGEE"<br>TUSKEGEE CRAPE MYRTLE | 36" BOX   |
|               | ULMUS PARVIFOLIA "DRAKE"<br>DRAKE LACEBARK ELM                        | 36" BOX   |
| <b>SHRUBS</b> |   |           |
|               | CALLIANDRA CALIFORNICA<br>RED BAJA FAIRY DUSTER                       | 5 GAL     |
|               | DALEA GREGGII<br>TRAILING INDIGO BUSH                                 | 5 GAL     |
|               | HESPERALOE PARVIFLORA<br>RED YUCCA                                    | 5 GAL     |
|               | MUHLENBERGIA RIGENS<br>DEER GRASS                                     | 1 GAL     |
|               | NERIUM OLEANDER "LITTLE RED"<br>LITTLE RED OLEANDER                   | 5 GAL     |

\* PERCOLATION/SOIL TEST LOCATION

NOTES:

- PROVIDE IRRIGATION TO ALL PLANTING AREAS
- ALL PLANTING AREAS TO RECEIVE A 3" LAYER ROCK MULCH PER SPECIFICATIONS UNLESS OTHERWISE NOTED. SEE HARDSCAPE LEGEND FOR TYPE AND SIZE.
- ROOT BARRIERS TO BE INSTALLED IN ALL INSTANCES WHERE A TREE WILL BE PLANTED WITHIN 5' OF ADJACENT CURBS, SIDEWALKS, WALLS OR ANY FLATWORK OR HARDSCAPE.



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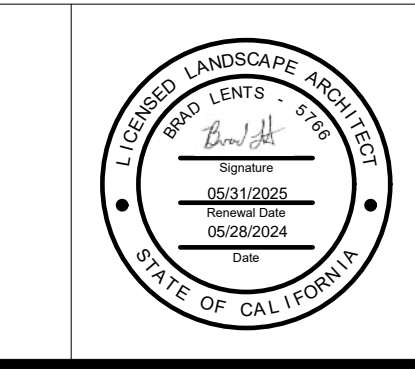


| NO. | REVISIONS: | APPROVED | DATE |
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420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
BENCHMARK ELEVATION =  
BENCHMARK DESCRIPTION:



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Brad Lents*  
BRAD LENTS  
5766  
LA NO.  
05/28/2024  
DATE

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

SHEET CONTENT: PLANTING PLAN

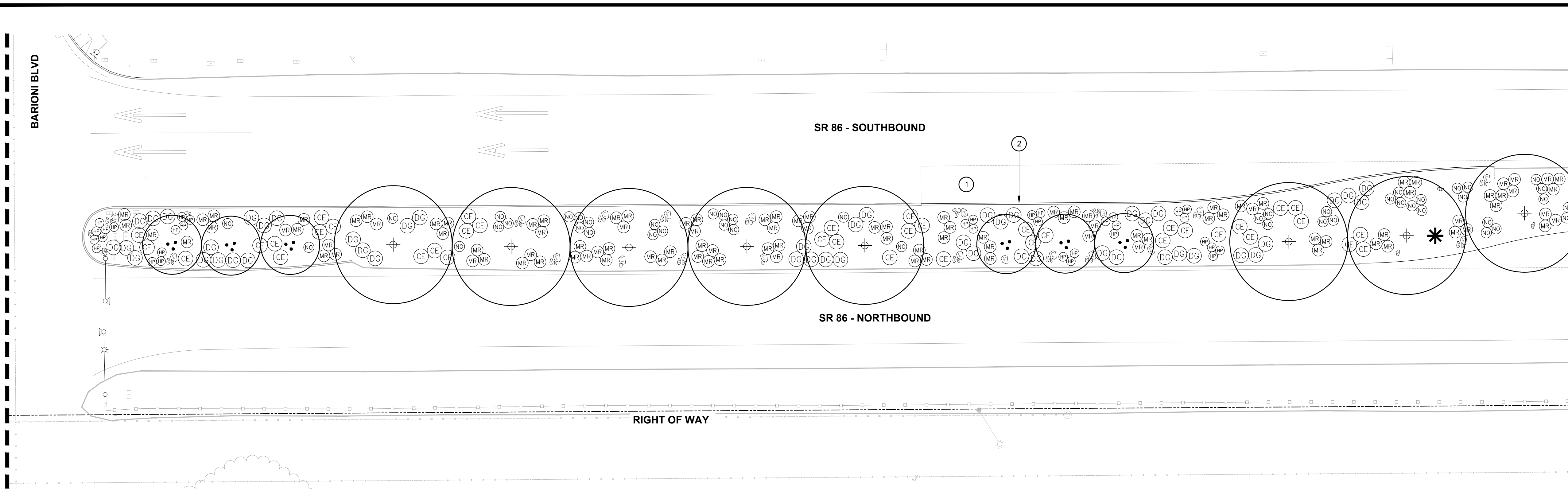
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REVISED BY: YZ  
JUNE 2024

SHEET  
42  
OF 52 SHEETS  
JOB NO.  
XXXXXXXXX



Imperial City of Imperial 444-000-2400 Project: Barioni Blvd. Plan No. 22-0001 Date: 05/28/2024 1:33:13 PM

MATCHLINE SEE SHEET 43



MATCHLINE SEE BELOW

### HARDSCAPE LEGEND

SEE SHEET 47 FOR FULL LEGEND

| SYMBOL | ROCK MULCHES/ BOULDERS        | DETAIL  |
|--------|-------------------------------|---------|
|        | 3/4" ANGULAR ROCK MULCH       |         |
|        | 18"-36" DIA. ANGULAR BOULDERS | 4<br>48 |
|        | ROOT BARRIER                  | 3<br>49 |

### MISCELLANEOUS SITE IMPROVEMENTS

- |   |                      |           |
|---|----------------------|-----------|
| 1 | ASPHALT PAVING       | PER CIVIL |
| 2 | CURB/AC DIKE         | PER CIVIL |
| 3 | CATCH BASIN          | PER CIVIL |
| 4 | STORM DRAIN HEADWALL | PER CIVIL |
| 5 | ACCESSIBLE RAMP      | PER CIVIL |
| 6 | CONCRETE PAVING      | PER CIVIL |

### PARTIAL PLANTING LEGEND

SEE SHEET 47 FOR FULL LEGEND

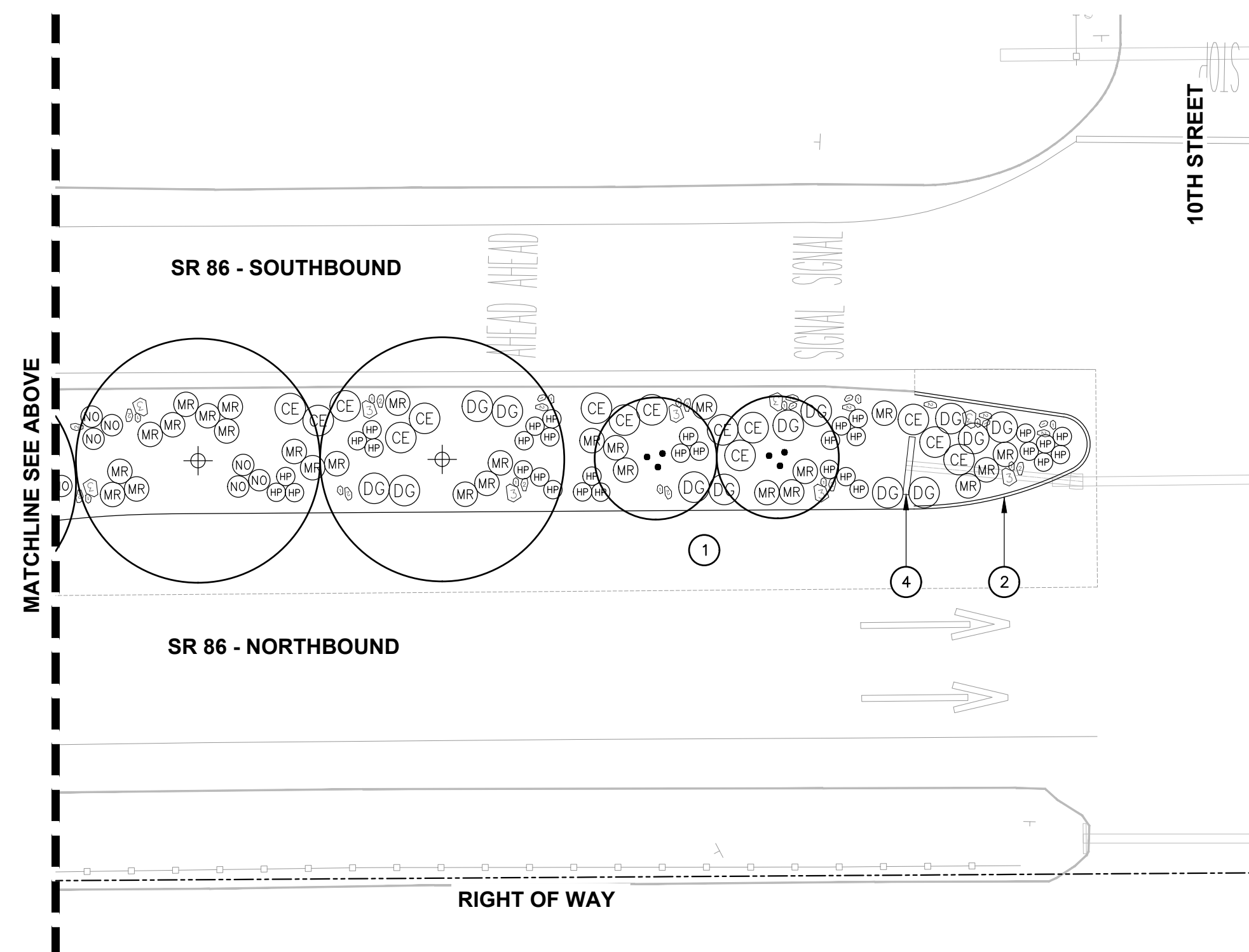
| SYMBOL       | BOTANICAL / COMMON NAME   | CONTAINER |
|--------------|---|-----------|
| <b>TREES</b> |   |           |
|              | LAGERSTROEMIA INDICA X FAURIEI<br>"TUSKEGEE"<br>TUSKEGEE CRAPE MYRTLE | 36" BOX   |
|              | ULMUS PARVIFOLIA "DRAKE"<br>DRAKE LACEBARK ELM                        | 36" BOX   |

| SYMBOL        | BOTANICAL / COMMON NAME                             | CONTAINER |
|---------------|---|-----------|
| <b>SHRUBS</b> |   |           |
|               | CALLIANDRA CALIFORNICA<br>RED BAJA FAIRY DUSTER     | 5 GAL     |
|               | DALEA GREGGII<br>TRAILING INDIGO BUSH               | 5 GAL     |
|               | HESPERALOE PARVIFLORA<br>RED YUCCA                  | 5 GAL     |
|               | MUHLENBERGIA RIGENS<br>DEER GRASS                   | 1 GAL     |
|               | NERIUM OLEANDER "LITTLE RED"<br>LITTLE RED OLEANDER | 5 GAL     |

\* PERCOLATION/SOIL TEST LOCATION

**NOTES:**

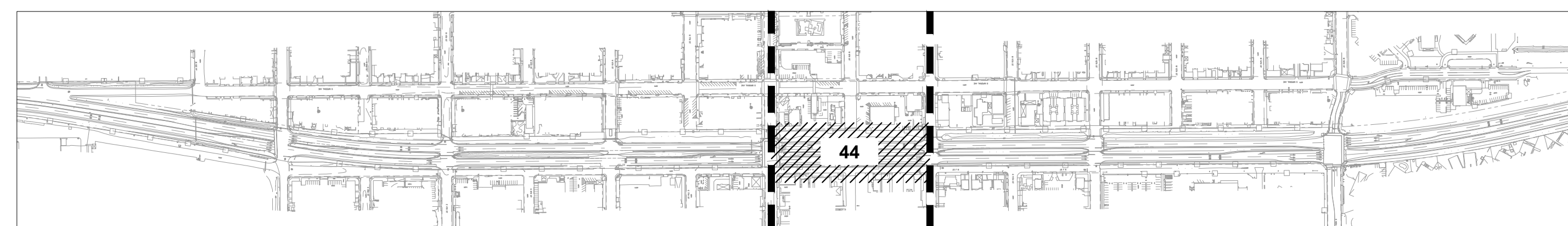
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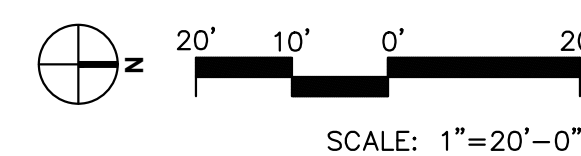
MATCHLINE SEE ABOVE

MATCHLINE SEE SHEET 45

**BARIONI BOULEVARD TO 10TH STREET**



KEYMAP  
N.T.S.



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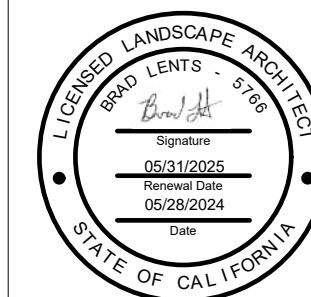
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Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
BENCHMARK ELEVATION =  
BENCHMARK DESCRIPTION:



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**BRAD LENTS**  
5766  
LA NO.  
05/28/2024  
DATE  
05/31/2025  
REG. EXP.

**PROJECT TITLE:** CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1  
**SHEET CONTENT:** PLANTING PLAN

SCALE:  
DRAWN BY: AK & MS  
REVISED BY: YZ  
JUNE 2024  
SHEET  
**44**  
OF 52 SHEETS  
JOB NO.  
XXXXXXXX

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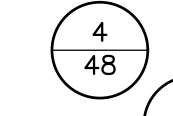
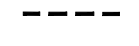
MATCHLINE SEE SHEET 44

10TH STREET

MATCHLINE SEE SHEET 46

### HARDSCAPE LEGEND

SEE SHEET 47 FOR FULL LEGEND

| SYMBOL  | ROCK MULCHES/ BOULDERS        | DETAIL  |
|---|-------------------------------|---------|
|  | 3/4" ANGULAR ROCK MULCH       |         |
|  | 18"-36" DIA. ANGULAR BOULDERS | 4<br>48 |
|  | ROOT BARRIER                  | 3<br>49 |

#### MISCELLANEOUS SITE IMPROVEMENTS

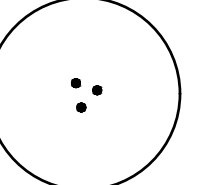
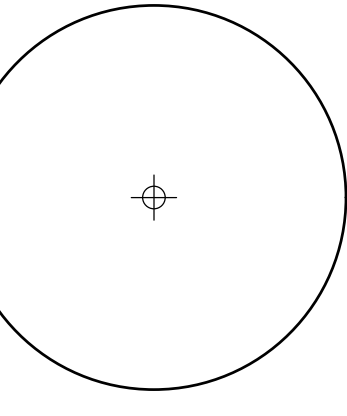
|   |                      |           |
|---|----------------------|-----------|
| 1 | ASPHALT PAVING       | PER CIVIL |
| 2 | CURB/AC DIKE         | PER CIVIL |
| 3 | CATCH BASIN          | PER CIVIL |
| 4 | STORM DRAIN HEADWALL | PER CIVIL |
| 5 | ACCESSIBLE RAMP      | PER CIVIL |
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### PARTIAL PLANTING LEGEND

SEE SHEET 47 FOR FULL LEGEND






| SYMBOL | BOTANICAL / COMMON NAME | CONTAINER |
|--------|-------------------------|-----------|
|--------|-------------------------|-----------|

#### TREES

|  |   |         |
|--|---|---------|
|   | LAGERSTROEMIA INDICA X FAURIEI<br>"TUSKEGEE"<br>TUSKEGEE CRAPE MYRTLE | 36" BOX |
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| SYMBOL | BOTANICAL / COMMON NAME | CONTAINER |
|--------|-------------------------|-----------|
|--------|-------------------------|-----------|

#### SHRUBS

|   |   |       |
|---|---|-------|
|  | CALLIANDRA CALIFORNICA<br>RED BAJA FAIRY DUSTER     | 5 GAL |
|  | DALEA GREGGII<br>TRAILING INDIGO BUSH               | 5 GAL |
|  | HESPERALOE PARVIFLORA<br>RED YUCCA                  | 5 GAL |
|  | MUHLENBERGIA RIGENS<br>DEER GRASS                   | 1 GAL |
|  | NERIUM OLEANDER 'LITTLE RED'<br>LITTLE RED OLEANDER | 5 GAL |

\* PERCOLATION/SOIL TEST LOCATION

#### NOTES:

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RIGHT OF WAY

MATCHLINE SEE ABOVE

SR 86 - SOUTHBOUND

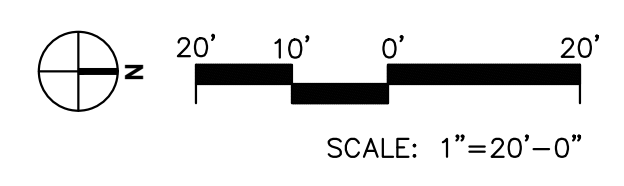
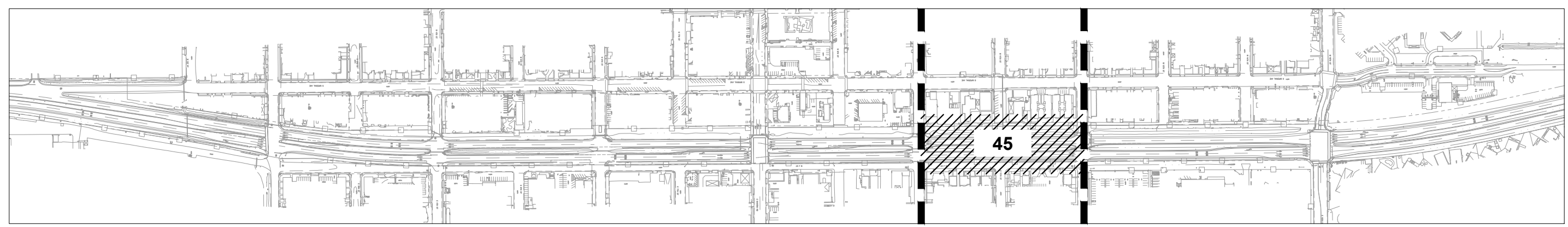
SR 86 - NORTHBOUND

RIGHT OF WAY

12TH STREET

MATCHLINE SEE SHEET 46

10TH STREET TO 12TH STREET



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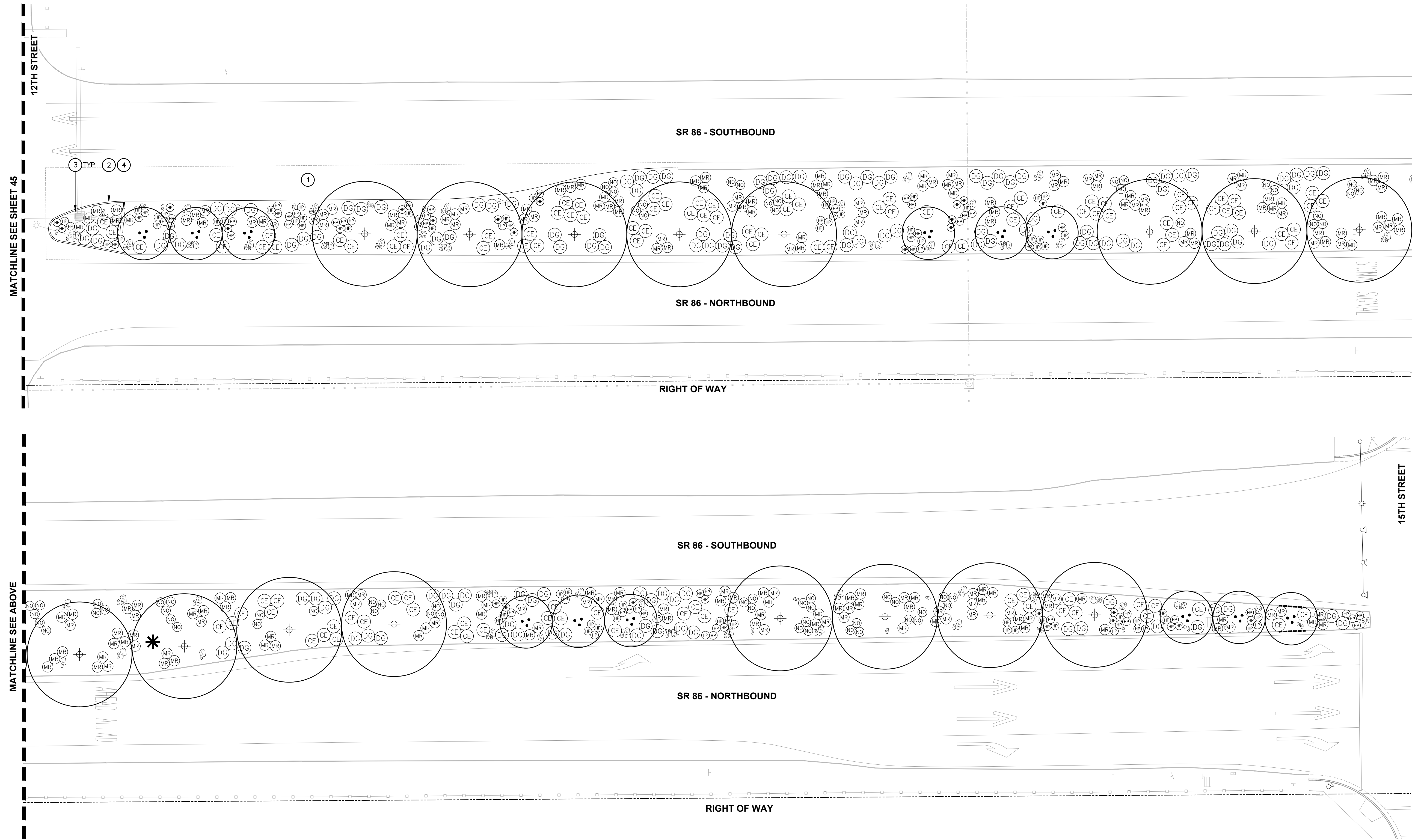
PROJECT TITLE: CITY OF IMPERIAL  
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PHASE 1

SHEET CONTENT: PLANTING PLAN

|                   |                  |
|-------------------|------------------|
| SCALE:            | SHEET            |
| DRAWN BY: AK & MS | <b>45</b>        |
| REVISED BY: YZ    | OF 52 SHEETS     |
| JUNE 2024         | JOB NO. XXXXXXXX |

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Project: City of Imperial AHSC-ARPA/Hwy 86 Beautification 04/23/2024 09:52:24 AM  
 Author: Spencer@spurllock.com  
 Date: 05/28/2024 11:34:14 AM  
 Title: Landscape Architect  
 State: CA  
 Project: City of Imperial AHSC-ARPA/Hwy 86 Beautification 04/23/2024 09:52:24 AM  
 Author: Spencer@spurllock.com  
 Date: 05/28/2024 11:34:14 AM  
 Title: Landscape Architect  
 State: CA



### HARDSCAPE LEGEND

SEE SHEET 47 FOR FULL LEGEND

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|        | 18"-36" DIA. ANGULAR BOULDERS |        |
|        | ROOT BARRIER                  |        |

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### PARTIAL PLANTING LEGEND

SEE SHEET 47 FOR FULL LEGEND

| SYMBOL | BOTANICAL / COMMON NAME | CONTAINER |
|--------|-------------------------|-----------|
|--------|-------------------------|-----------|

|  |   |         |
|--|---|---------|
|  | LAGERSTROEMIA INDICA X FAURIEI<br>'TUSKEGEE'<br>TUSKEGEE CRAPE MYRTLE | 36" BOX |
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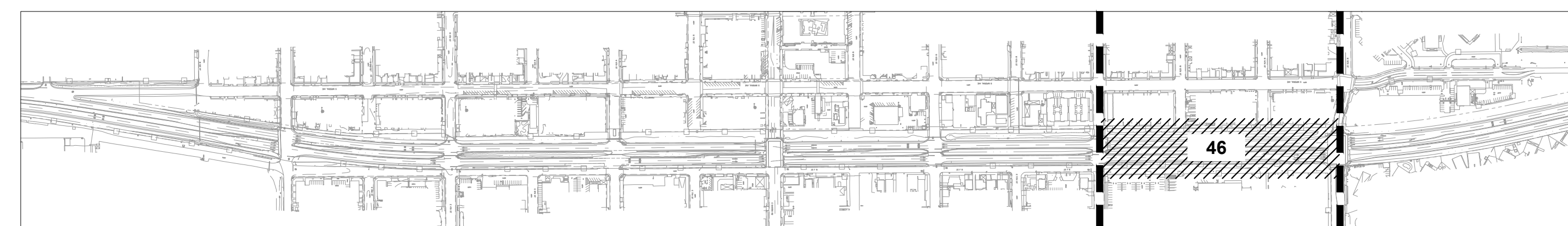
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|--------|-------------------------|-----------|

|  |   |       |
|--|---|-------|
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\* PERCOLATION/SOIL TEST LOCATION

#### NOTES:

- PROVIDE IRRIGATION TO ALL PLANTING AREAS
- ALL PLANTING AREAS TO RECEIVE A 3" LAYER ROCK MULCH PER SPECIFICATIONS UNLESS OTHERWISE NOTED. SEE HARDSCAPE LEGEND FOR TYPE AND SIZE.
- ROOT BARRIERS TO BE INSTALLED IN ALL INSTANCES WHERE A TREE WILL BE PLANTED WITHIN 5' OF ADJACENT CURBS, SIDEWALKS, WALLS OR ANY FLATWORK OR HARDSCAPE.



**SPURLLOCK**  
LANDSCAPE ARCHITECTS

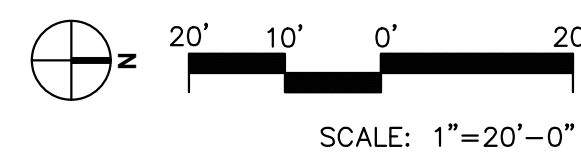
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420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

➤ **BENCHMARK:**  
BENCHMARK ELEVATION =  
BENCHMARK DESCRIPTION:



PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Brad Lents*  
**BRAD LENTS**  
 5766  
 LA NO.  
 05/28/2024  
 DATE

**PROJECT TITLE:** CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1  
**SHEET CONTENT:** PLANTING PLAN

SCALE:  
 DRAWN BY: AK & MS  
 REVISED BY: YZ  
 SHEET  
**46**  
 OF 52 SHEETS  
 JOB NO. XXXXXXXX

# HARDSCAPE LEGEND

SEE SHEET 47 FOR FULL LEGEND

| SYMBOL | ROCK MULCHES/ BOULDERS        | DETAIL | DESCRIPTION   | MANUFACTURER                       | MODEL              |
|--------|-------------------------------|--------|---|------------------------------------|--------------------|
|        | 3/4" ANGULAR ROCK MULCH       |        | 3/4" ANGULAR ROCK MULCH, 3" THICK LAYER                                   | LANDSCAPE ROCK SUPPLY 760-427-9522 | COLOR: CRESTA      |
|        | 18"-36" DIA. ANGULAR BOULDERS |        | ANGULAR BOULDERS: TYPE 1 - 18" DIA., TYPE 2 - 24" DIA., TYPE 3 - 36" DIA. | LANDSCAPE ROCK SUPPLY 760-427-9522 | COLOR: RED GRANITE |
|        | ROOT BARRIER                  |        |   | TYPAR 800-541-1222                 | MODEL: BIO BARRIER |

### MISCELLANEOUS SITE IMPROVEMENTS

|  |                      |           |
|--|----------------------|-----------|
|  | ASPHALT PAVING       | PER CIVIL |
|  | CURB/AC DIKE         | PER CIVIL |
|  | CATCH BASIN          | PER CIVIL |
|  | STORM DRAIN HEADWALL | PER CIVIL |
|  | ACCESSIBLE RAMP      | PER CIVIL |
|  | CONCRETE PAVING      | PER CIVIL |

PERCOLATION/SOIL TEST LOCATION

#### NOTES:

1. PROVIDE IRRIGATION TO ALL PLANTING AREAS
2. ALL PLANTING AREAS TO RECEIVE A 3" LAYER ROCK MULCH PER SPECIFICATIONS UNLESS OTHERWISE NOTED. SEE HARDSCAPE LEGEND FOR TYPE AND SIZE.
3. ROOT BARRIERS TO BE INSTALLED IN ALL INSTANCES WHERE A TREE WILL BE PLANTED WITHIN 5' OF ADJACENT CURBS, SIDEWALKS, WALLS OR ANY FLATWORK OR HARDSCAPE.

# FULL PLANTING LEGEND

| SYMBOL       | BOTANICAL / COMMON NAME   | CONTAINER | MATURE SIZE           | FORM     | WATER USE | QTY |
|--------------|---|-----------|-----------------------|----------|-----------|-----|
| <b>TREES</b> |   |           |                       |          |           |     |
|              | LAGERSTROEMIA INDICA X FAURIEI<br>"TUSKEGEE"<br>TUSKEGEE CRAPE MYRTLE | 36" BOX   | 20'-30' H X 20'-30' W | STANDARD | MODERATE  | 50  |
|              | ULMUS PARVIFOLIA "DRAKE"<br>DRAKE LACEBARK ELM                        | 36" BOX   | 40'-50'H X 30'-40'W   | STANDARD | MODERATE  | 70  |

| SYMBOL        | BOTANICAL / COMMON NAME                             | CONTAINER | MATURE SIZE       | O.C. SPACING | PAV OFFSET | WATER USE |
|---------------|---|-----------|-------------------|--------------|------------|-----------|
| <b>SHRUBS</b> |   |           |                   |              |            |           |
|               | CALLIANDRA CALIFORNICA<br>RED BAJA FAIRY DUSTER     | 5 GAL     | 5'-6' H X 5'-6' W | 60"          | 42"        | LOW       |
|               | DALEA GREGGII<br>TRAILING INDIGO BUSH               | 5 GAL     | 2'H X 6'W         | 60"          | 42"        | LOW       |
|               | HESPERALOE PARVIFLORA<br>RED YUCCA                  | 5 GAL     | 3-4'H X 3-4'W     | 36"          | 30"        | LOW       |
|               | MUHLENBERGIA RIGENS<br>DEER GRASS                   | 1 GAL     | 4'-5' H X 4'-5' W | 48"          | 36"        | MODERATE  |
|               | NERIUM OLEANDER 'LITTLE RED'<br>LITTLE RED OLEANDER | 5 GAL     | 4-5'H X 4-5'W     | 42"          | 36"        | MODERATE  |

# PLANTING NOTES

1. ALL LANDSCAPE AND IRRIGATION SHALL CONFORM TO THE STANDARDS OF THE CITY-WIDE LANDSCAPE REGULATIONS AND THE CITY OF IMPERIAL LANDSCAPE STANDARDS AND ALL OTHER LANDSCAPE RELATED CITY AND REGIONAL STANDARDS.
2. MAINTENANCE: ALL REQUIRED LANDSCAPE AREAS SHALL BE MAINTAINED BY OWNER. LANDSCAPE AND IRRIGATION AREAS IN THE PUBLIC RIGHT-OF-WAY SHALL BE MAINTAINED BY OWNER. THE LANDSCAPE AREAS SHALL BE MAINTAINED FREE OF DEBRIS AND LITTER, AND ALL PLANT MATERIAL SHALL BE MAINTAINED IN A HEALTHY GROWING CONDITION. DISEASED OR DEAD PLANT MATERIAL SHALL BE SATISFACTORILY TREATED OR REPLACED PER THE CONDITIONS OF THE PERMIT.
3. MULCH: ALL REQUIRED PLANTING AREAS AND ALL EXPOSED SOIL AREAS WITHOUT VEGETATION SHALL BE COVERED WITH MULCH TO A MINIMUM DEPTH OF 3 INCHES.
4. TREES SHALL BE MAINTAINED SO THAT ALL BRANCHES OVER PEDESTRIAN WALKWAYS ARE 6 FEET ABOVE THE WALKWAY GRADE AND BRANCHES OVER VEHICULAR TRAVEL WAYS ARE 16 FEET ABOVE THE GRADE OF TRAVEL WAY..
5. ALL PRUNING SHALL COMPLY WITH THE STANDARDS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) FOR TREE CARE OPERATIONS AND INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) FOR FREE PRUNING. TOPPING OF TREES IS NOT PERMITTED.
6. IF ANY REQUIRED LANDSCAPE INDICATED ON THE APPROVED CONSTRUCTION DOCUMENT PLANS IS DAMAGED OR REMOVED, IT SHALL BE REPAIRED AND/OR REPLACED IN KIND AND EQUIVALENT SIZE PER THE APPROVED DOCUMENTS TO THE SATISFACTION OF THE DEVELOPMENT SERVICES DEPARTMENT WITHIN 30 DAYS OF DAMAGE.

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LANDSCAPE ARCHITECTS

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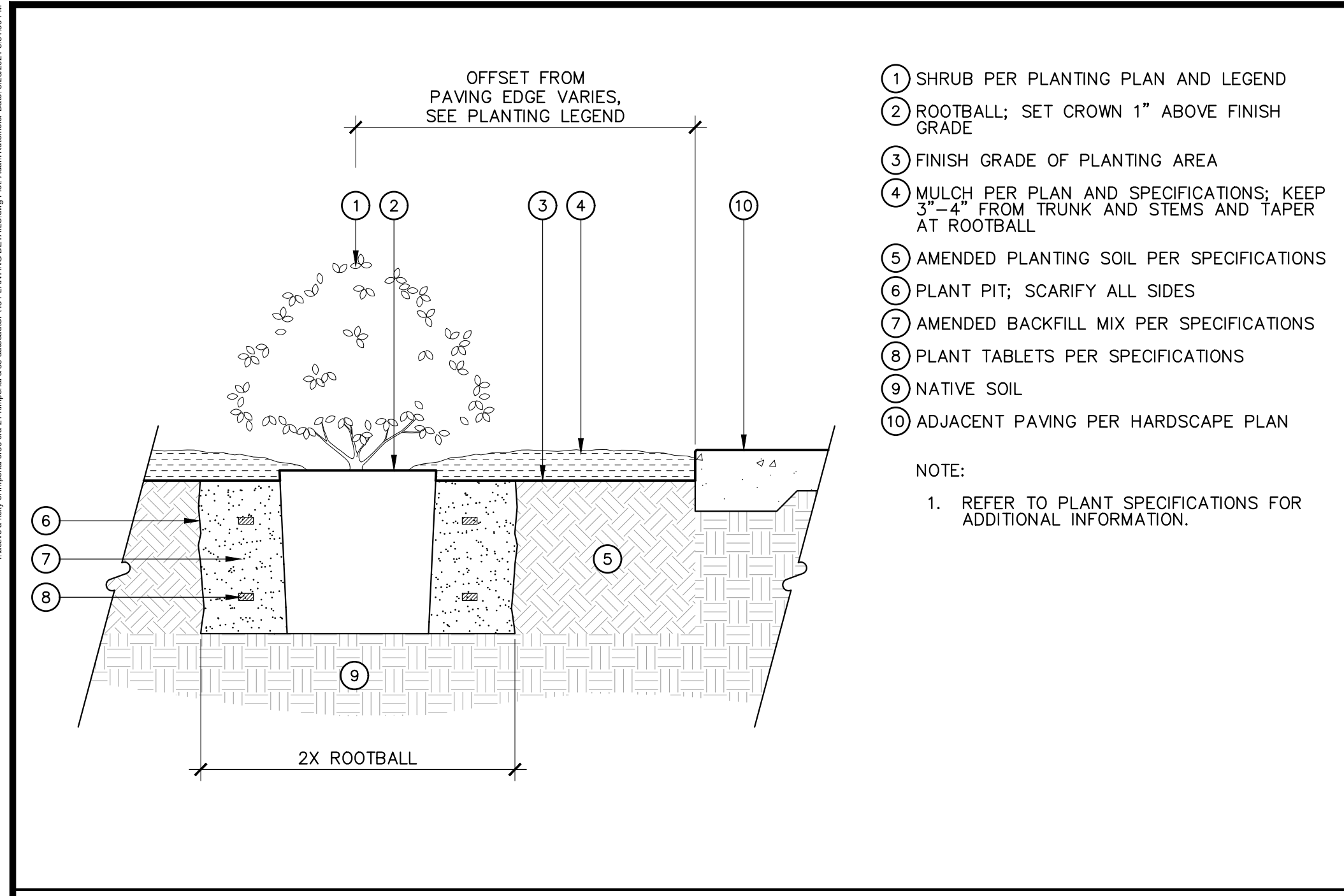
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BRAD LENTS  
DATE: 05/28/2024  
LA NO. 5766  
REG. EXP. 05/31/2025

**PROJECT TITLE:** CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1  
**SHEET CONTENT:** LANDSCAPE LEGENDS & NOTES

SCALE:  
DRAWN BY: AK & MS  
REVISED BY: YZ  
JUNE 2024  
SHEET  
**47**  
OF 52 SHEETS  
JOB NO.  
XXXXXXXX

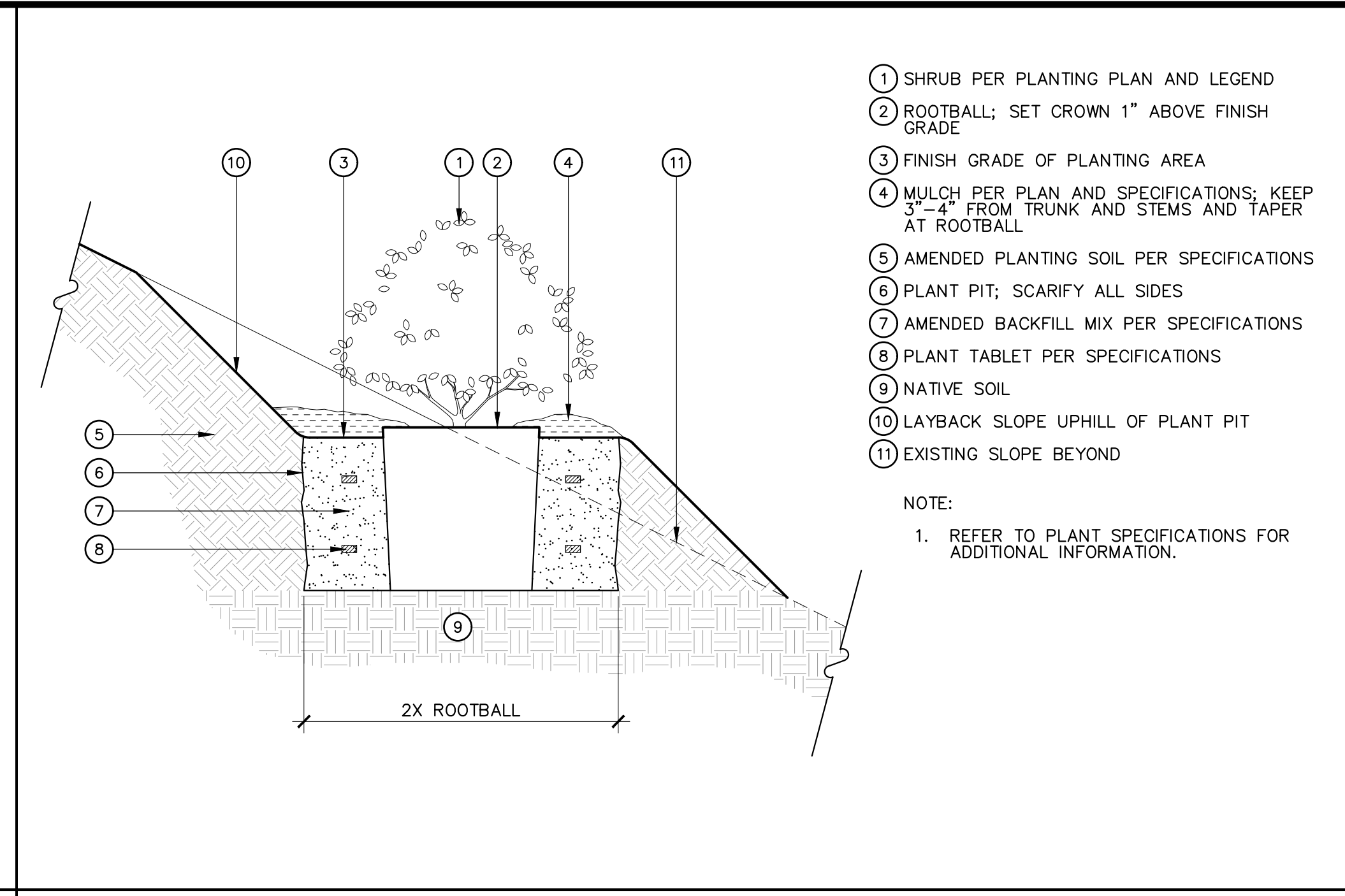
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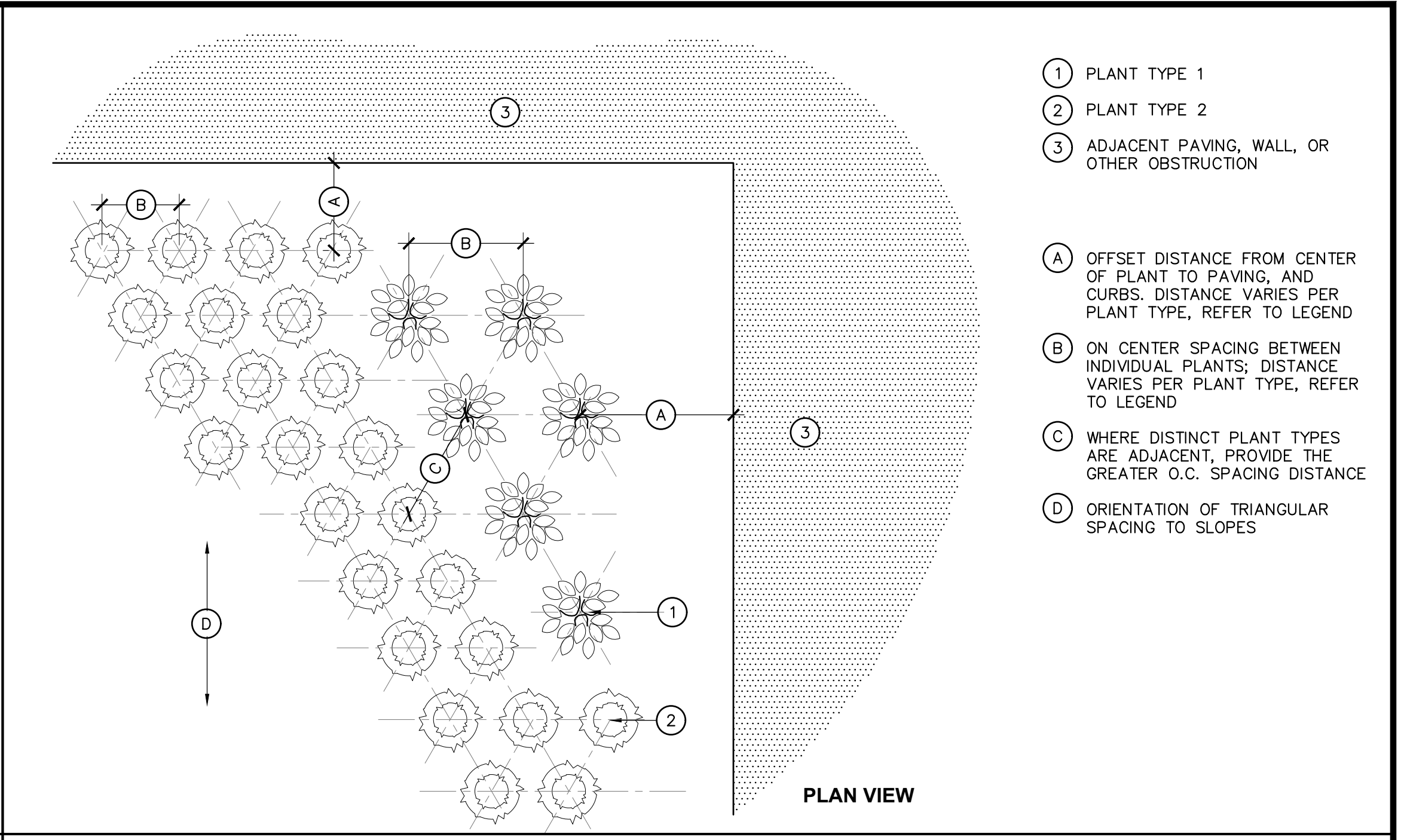
- ① SHRUB PER PLANTING PLAN AND LEGEND
  - ② ROOTBALL; SET CROWN 1" ABOVE FINISH GRADE
  - ③ FINISH GRADE OF PLANTING AREA
  - ④ MULCH PER PLAN AND SPECIFICATIONS; KEEP 3"-4" FROM TRUNK AND STEMS AND TAPER AT ROOTBALL
  - ⑤ AMENDED PLANTING SOIL PER SPECIFICATIONS
  - ⑥ PLANT PIT; SCARIFY ALL SIDES
  - ⑦ AMENDED BACKFILL MIX PER SPECIFICATIONS
  - ⑧ PLANT TABLETS PER SPECIFICATIONS
  - ⑨ NATIVE SOIL
  - ⑩ ADJACENT PAVING PER HARDSCAPE PLAN
- NOTE:  
1. REFER TO PLANT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

1 SHRUB - LEVEL SCALE: NTS



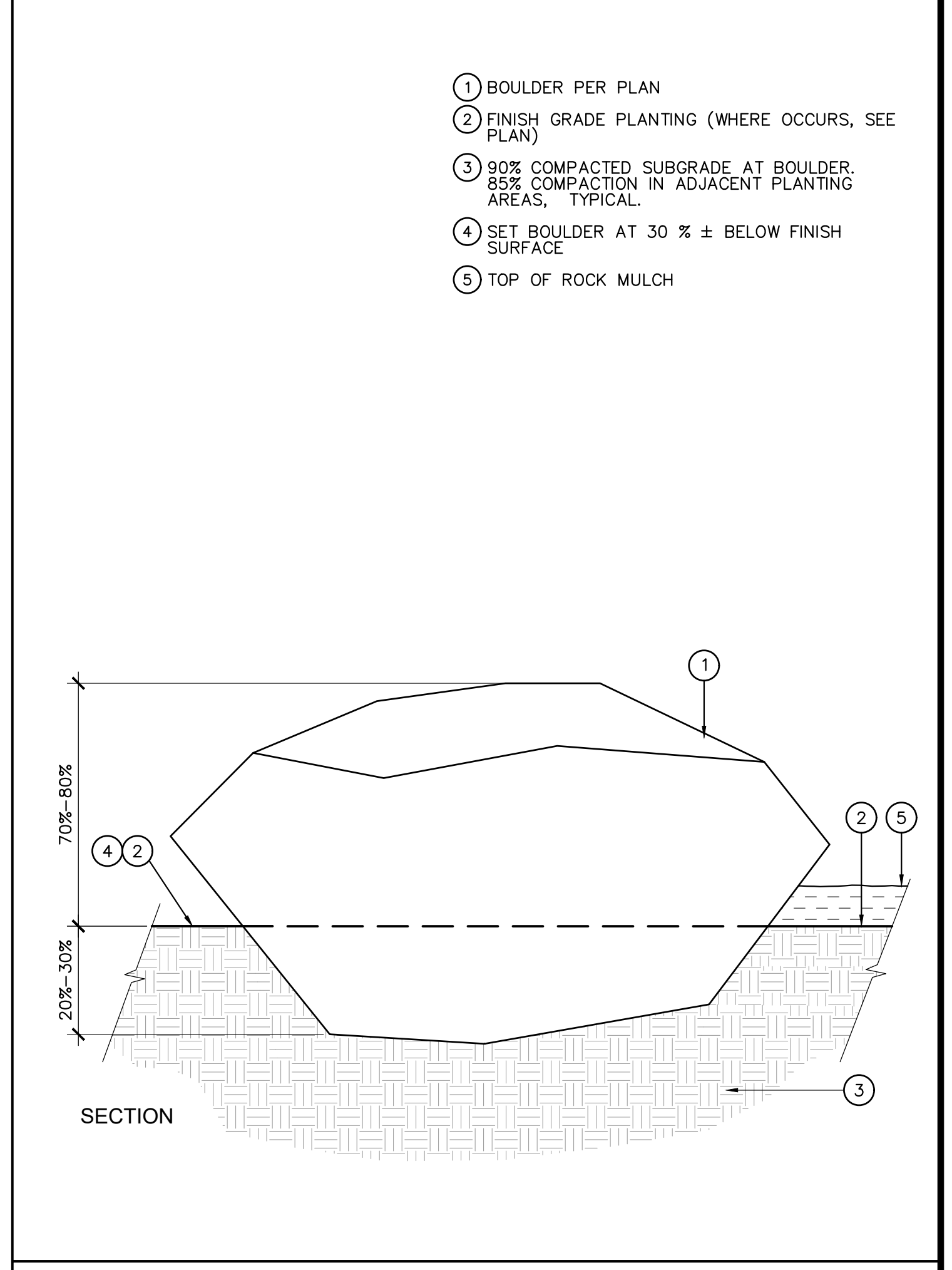
- ① SHRUB PER PLANTING PLAN AND LEGEND
  - ② ROOTBALL; SET CROWN 1" ABOVE FINISH GRADE
  - ③ FINISH GRADE OF PLANTING AREA
  - ④ MULCH PER PLAN AND SPECIFICATIONS; KEEP 3"-4" FROM TRUNK AND STEMS AND TAPER AT ROOTBALL
  - ⑤ AMENDED PLANTING SOIL PER SPECIFICATIONS
  - ⑥ PLANT PIT; SCARIFY ALL SIDES
  - ⑦ AMENDED BACKFILL MIX PER SPECIFICATIONS
  - ⑧ PLANT TABLET PER SPECIFICATIONS
  - ⑨ NATIVE SOIL
  - ⑩ LAYBACK SLOPE UPHILL OF PLANT PIT
  - ⑪ EXISTING SLOPE BEYOND
- NOTE:  
1. REFER TO PLANT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2 SHRUB ON SLOPE SCALE: NTS



- ① PLANT TYPE 1
- ② PLANT TYPE 2
- ③ ADJACENT PAVING, WALL, OR OTHER OBSTRUCTION
- A OFFSET DISTANCE FROM CENTER OF PLANT TO PAVING, AND CURBS. DISTANCE VARIES PER PLANT TYPE, REFER TO LEGEND
- B ON CENTER SPACING BETWEEN INDIVIDUAL PLANTS; DISTANCE VARIES PER PLANT TYPE, REFER TO LEGEND
- C WHERE DISTINCT PLANT TYPES ARE ADJACENT, PROVIDE THE GREATER O.C. SPACING DISTANCE
- D ORIENTATION OF TRIANGULAR SPACING TO SLOPES

3 PLANT SPACING OFFSET SCALE: NTS



- ① BOULDER PER PLAN
- ② FINISH GRADE PLANTING (WHERE OCCURS, SEE PLAN)
- ③ 90% COMPACTED SUBGRADE AT BOULDER, 85% COMPACTED IN ADJACENT PLANTING AREAS, TYPICAL.
- ④ SET BOULDER AT 30% ± BELOW FINISH SURFACE
- ⑤ TOP OF ROCK MULCH

4 BOULDER SCALE: NTS

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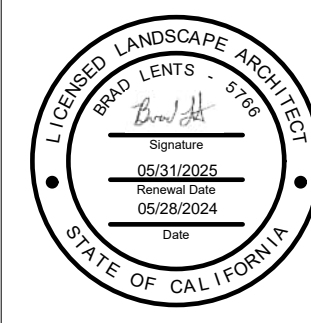
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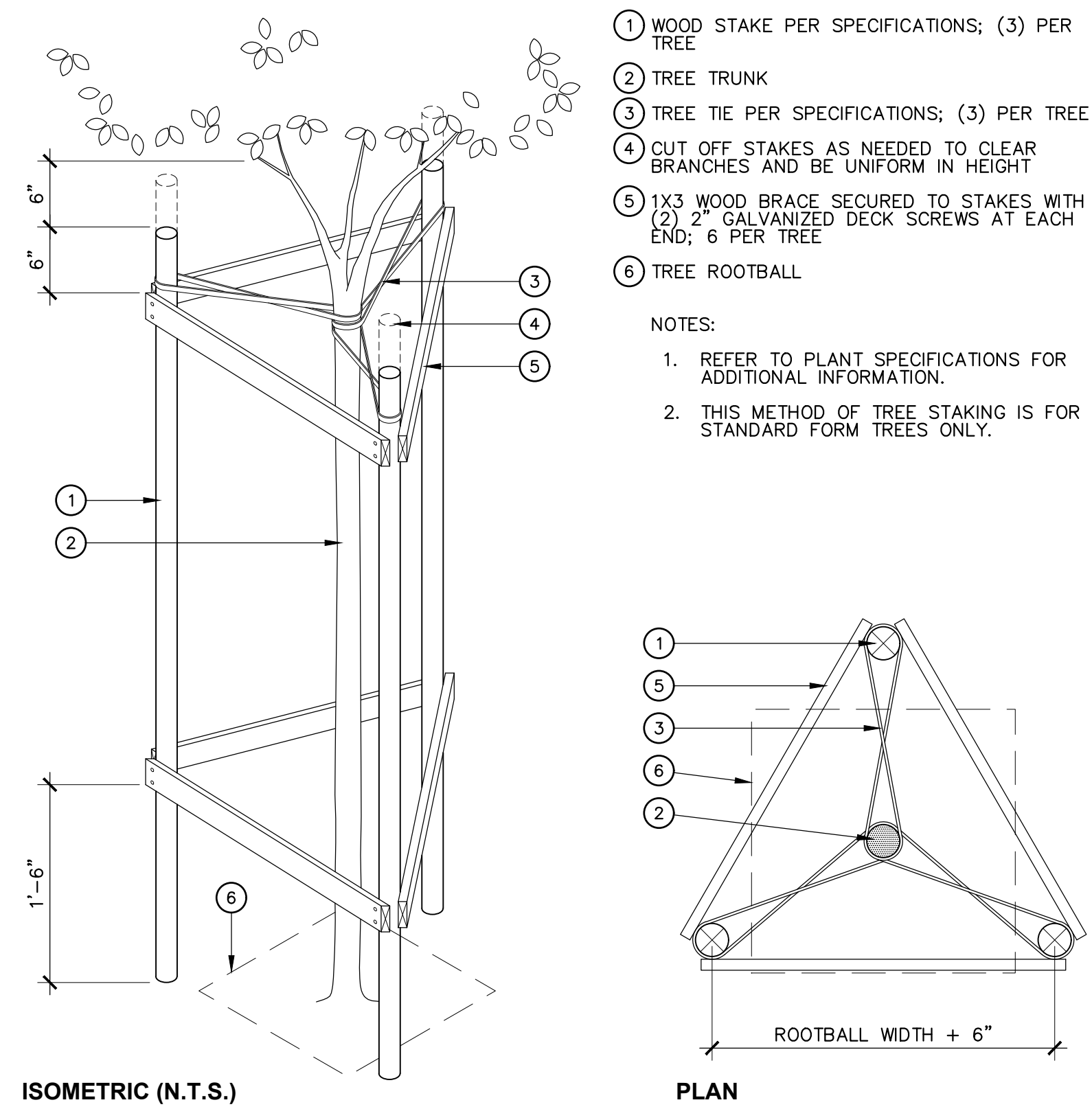
PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: PLANTING DETAILS

SCALE:  
DRAWN BY: AK & MS  
REVISED BY: YZ  
JUNE 2024

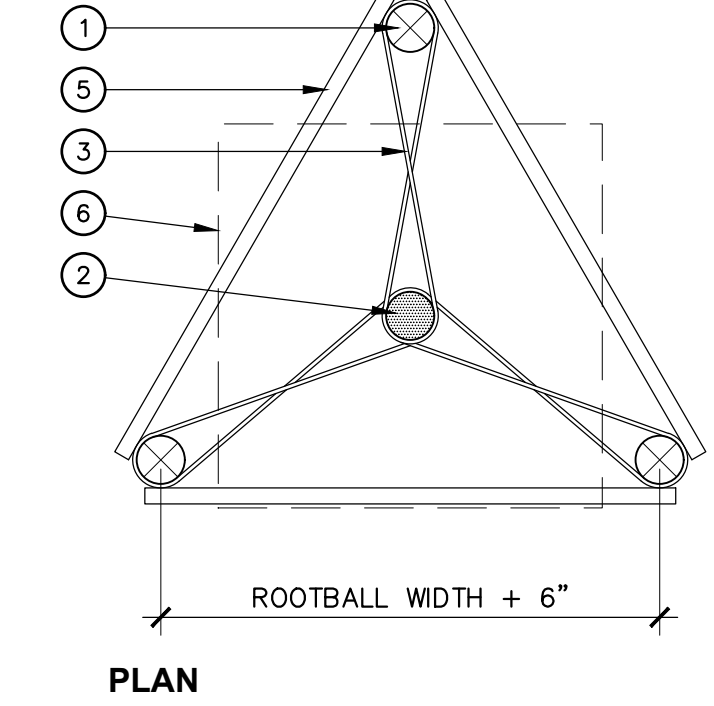
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- 1 WOOD STAKE PER SPECIFICATIONS; (3) PER TREE
  - 2 TREE TRUNK
  - 3 TREE TIE PER SPECIFICATIONS; (3) PER TREE
  - 4 CUT OFF STAKES AS NEEDED TO CLEAR BRANCHES AND BE UNIFORM IN HEIGHT
  - 5 1X3 WOOD BRACE SECURED TO STAKES WITH (2) 2" GALVANIZED DECK SCREWS AT EACH END; 6 PER TREE
  - 6 TREE ROOTBALL
- NOTES:
- REFER TO PLANT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - THIS METHOD OF TREE STAKING IS FOR STANDARD FORM TREES ONLY.

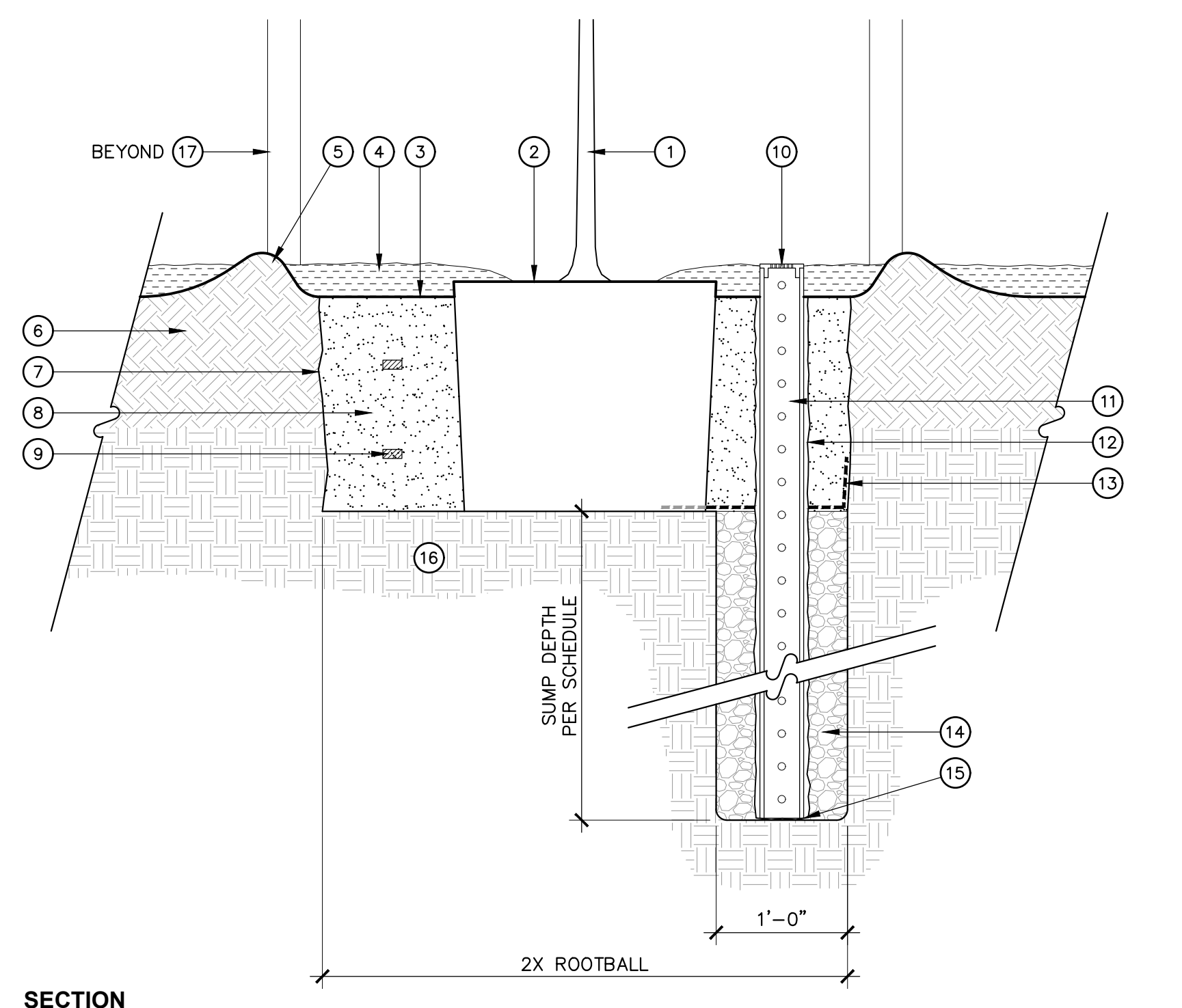


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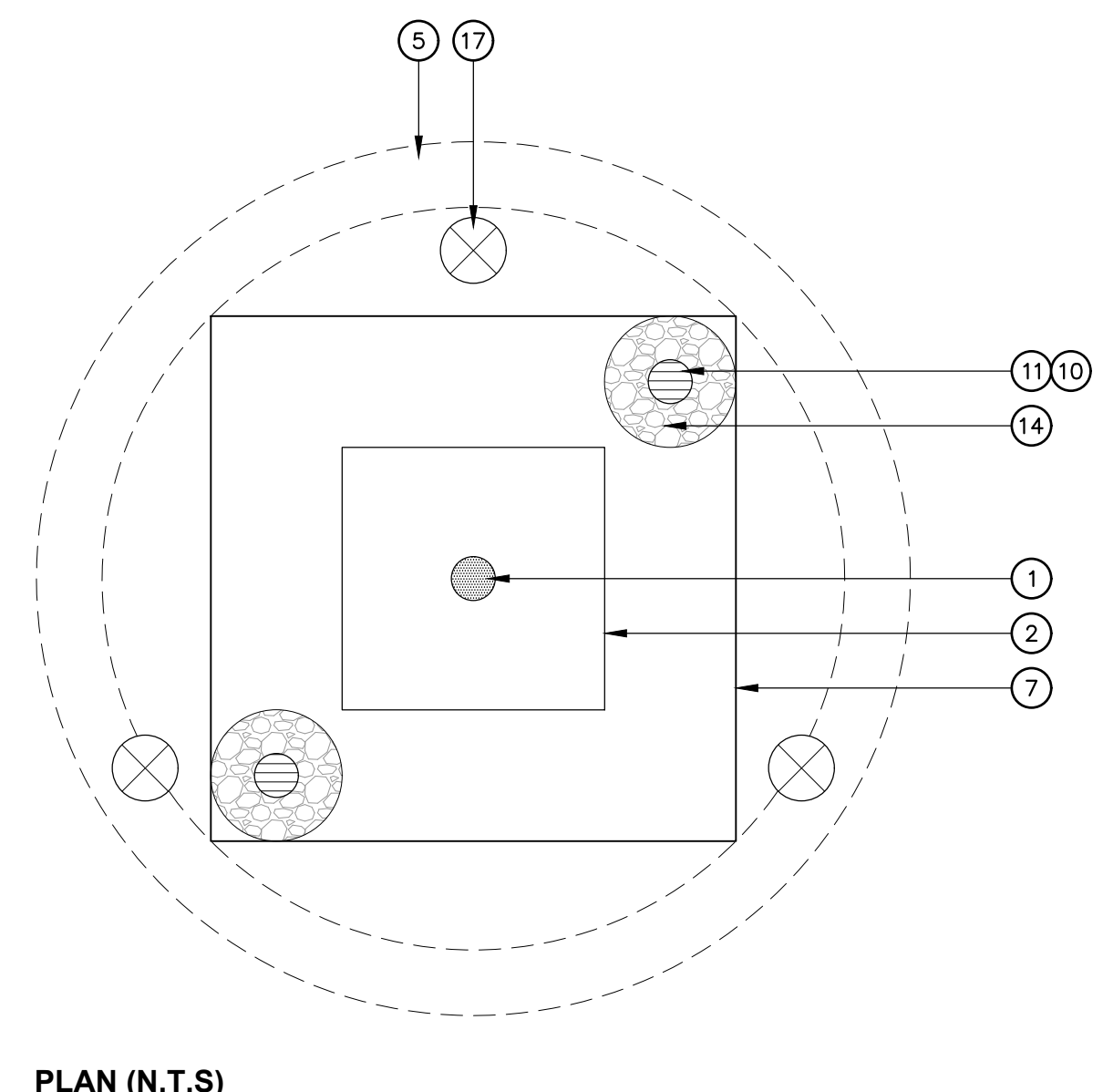
PLAN

1 TREE STAKING

SCALE: NTS



| SUMP SCHEDULE |               |            |
|---------------|---------------|------------|
| TREE SIZE     | SUMP QUANTITY | SUMP DEPTH |
| 15 GAL.       | 1             | 3'-0"      |
| 24" BOX       | 1             | 4'-0"      |
| ≥36" BOX      | 2             | 4'-0"      |



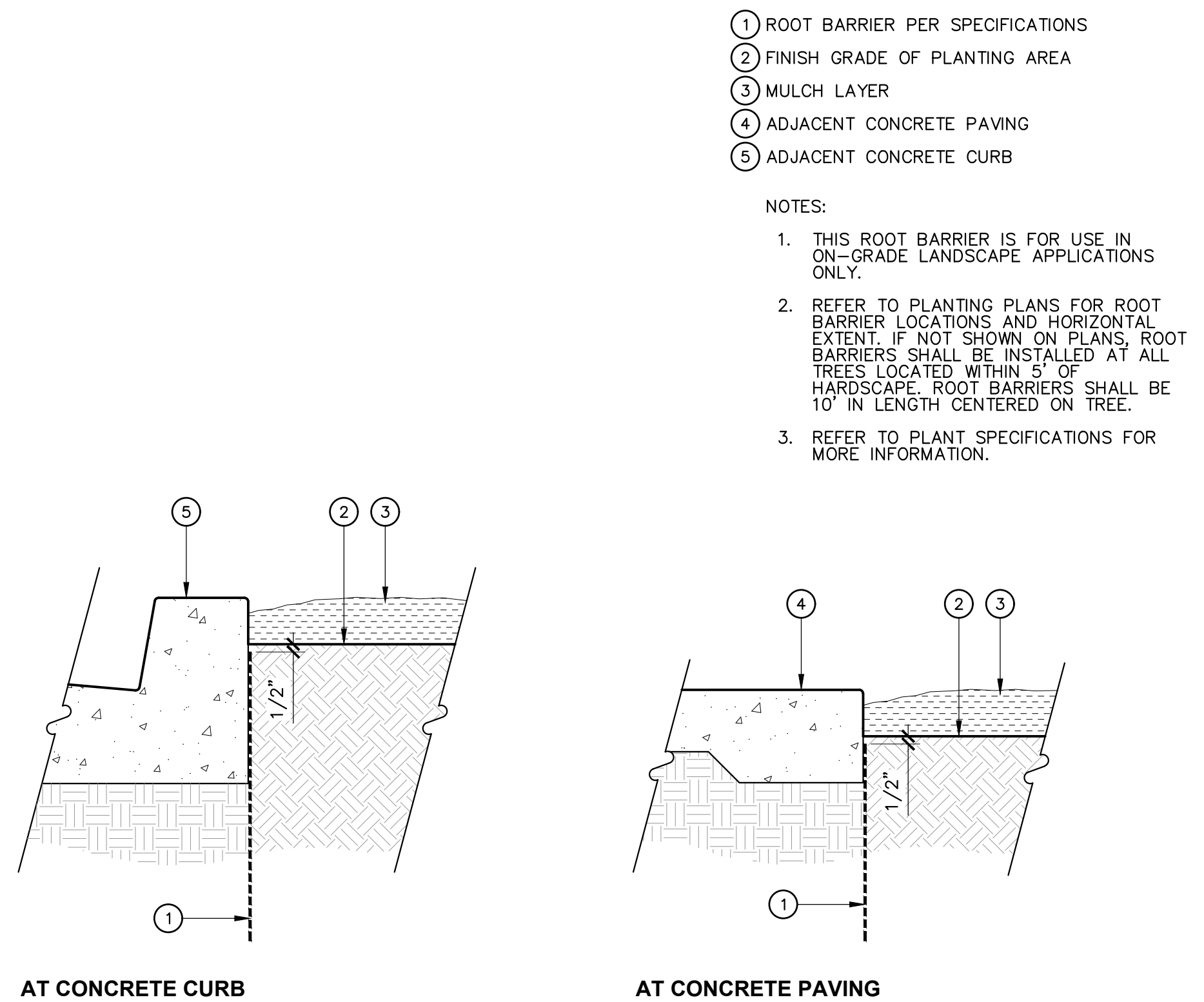
SECTION

PLAN (N.T.S)

- 1 TREE PER PLANTING PLAN AND LEGEND
  - 2 ROOTBALL; SET CROWN 2" ABOVE FINISH GRADE
  - 3 FINISH GRADE OF PLANTING AREA
  - 4 MULCH PER PLAN AND SPECIFICATIONS; KEEP 4"-6" FROM TRUNK, AND TAPER AT ROOTBALL
  - 5 4" HIGH EARTH BERM AROUND EDGE OF PLANT PIT, FIRMLY COMPACTED
  - 6 AMENDED PLANTING SOIL PER SPECIFICATIONS
  - 7 PLANT PIT; SCARIFY ALL SIDES
  - 8 AMENDED BACKFILL MIX PER SPECIFICATIONS
  - 9 PLANT TABLETS PER SPECIFICATIONS
  - 10 DRAIN GRATE PER SPECIFICATIONS
  - 11 PERFORATED DRAIN PIPE PER SPECIFICATIONS; QUANTITY PER SUMP SCHEDULE
  - 12 FILTER FABRIC "SOCK" PER SPECIFICATIONS
  - 13 GEOTEXTILE FABRIC OVER SUMP; EXTEND 6" BEYOND EDGE OF SUMP AND UP SIDE OF TREE PIT
  - 14 3/4" CRUSHED ROCK SUMP BACKFILL (NO ROCK IN PIPE)
  - 15 TIE OFF "SOCK" TO CLOSE END
  - 16 NATIVE SOIL; 95% COMPACTION AT TREE PIT
  - 17 TREE STAKE PER DETAIL (1/49)
- NOTES:
- REFER TO PLANT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - FOR TREES REQUIRING TWO SUMPS, INSTALL AT OPPOSITE CORNERS OF TREE PIT.

2 TREE - LEVEL

SCALE: NTS



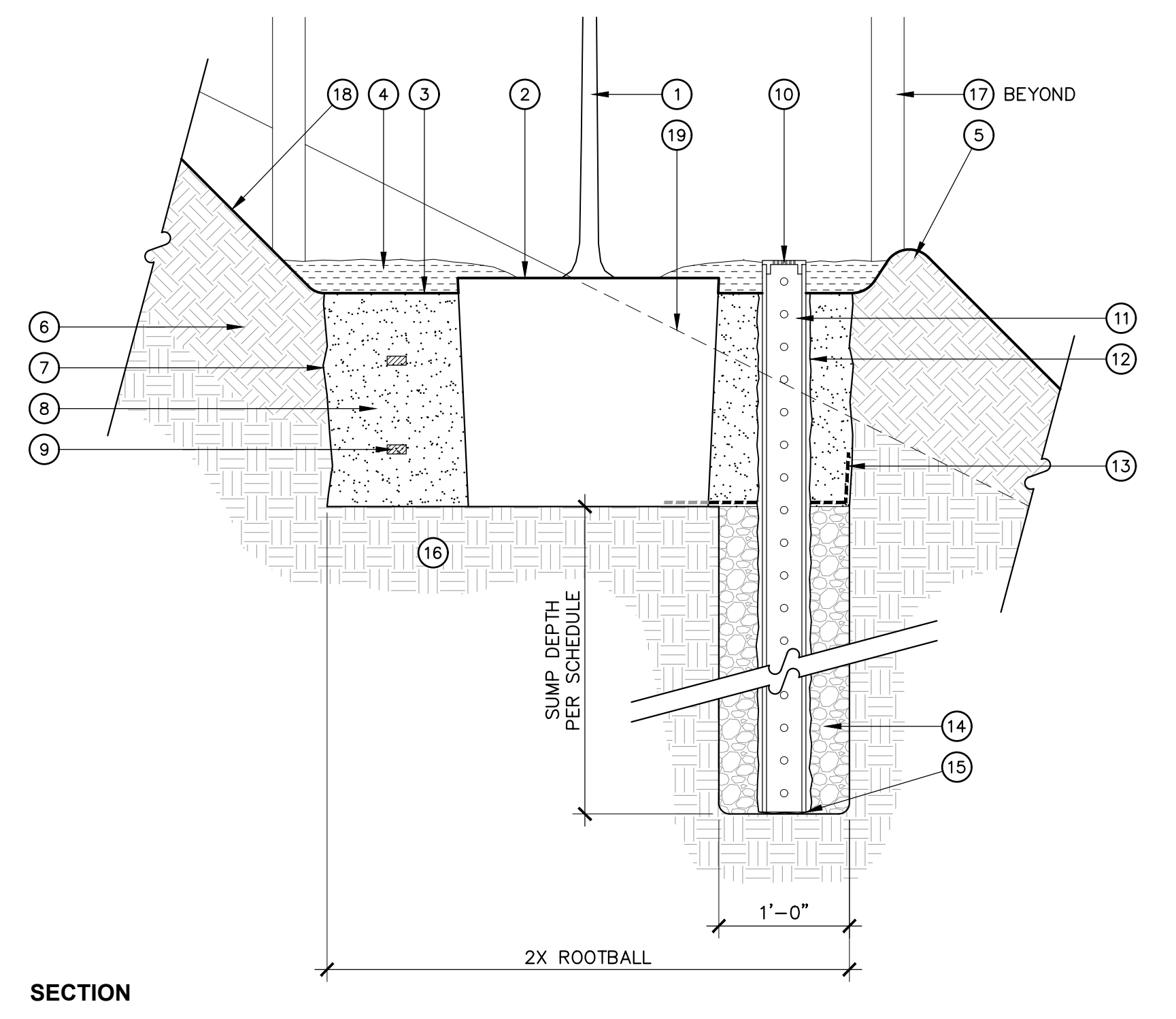
- 1 ROOT BARRIER PER SPECIFICATIONS
  - 2 FINISH GRADE OF PLANTING AREA
  - 3 MULCH LAYER
  - 4 ADJACENT CONCRETE PAVING
  - 5 ADJACENT CONCRETE CURB
- NOTES:
- THIS ROOT BARRIER IS FOR USE IN ON-GRADE LANDSCAPE APPLICATIONS ONLY.
  - REFER TO PLANTING PLANS FOR ROOT BARRIER LOCATIONS AND HORIZONTAL EXTENT. IF NOT SHOWN ON PLANS, ROOT BARRIERS SHALL BE INSTALLED AT ALL TREES LOCATED WITHIN 5' OF HARDSCAPE. ROOT BARRIERS SHALL BE 10' IN LENGTH CENTERED ON TREE.
  - REFER TO PLANT SPECIFICATIONS FOR MORE INFORMATION.

AT CONCRETE CURB

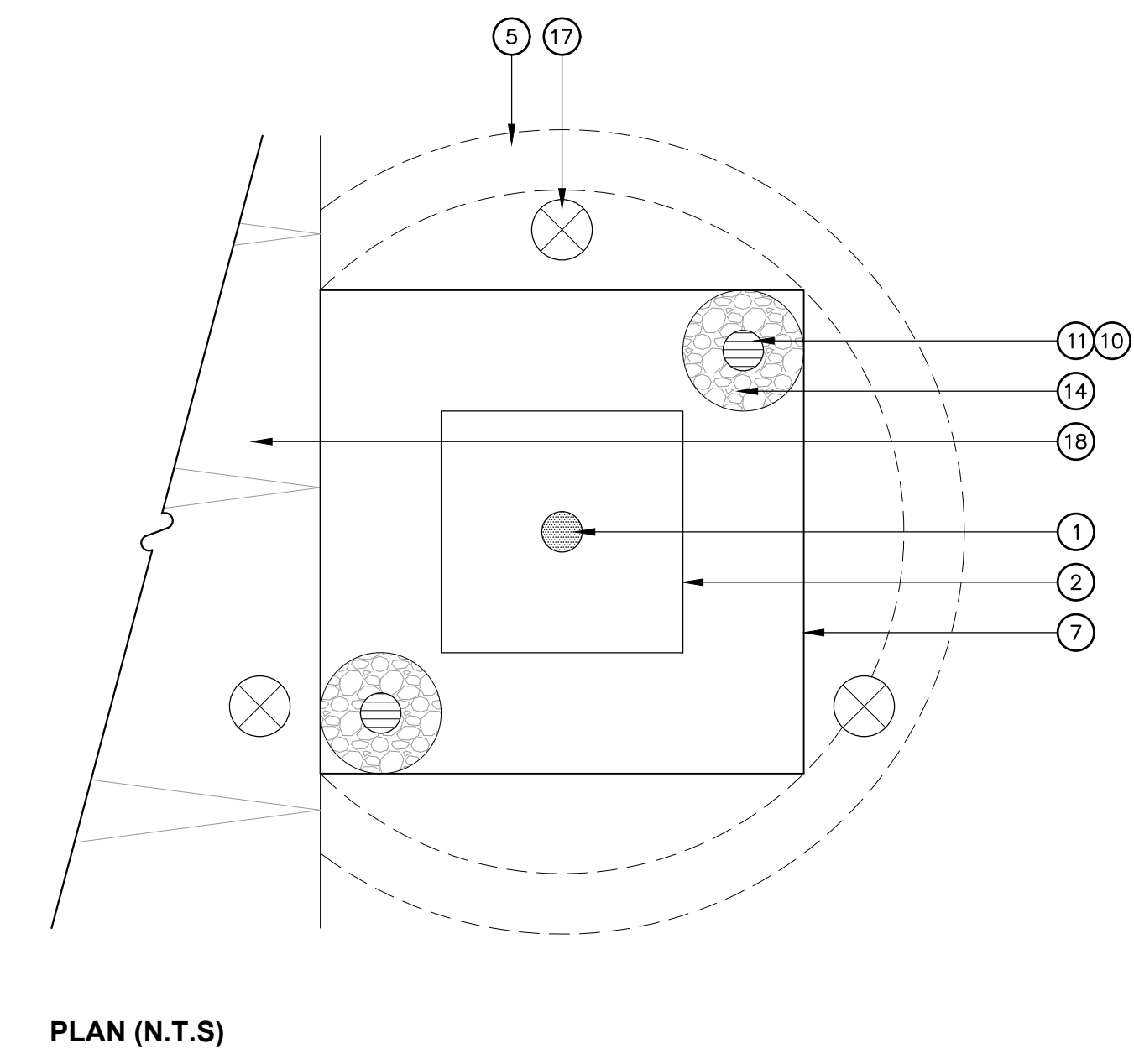
AT CONCRETE PAVING

3 ROOT BARRIER

SCALE: 1 1/2" = 1'-0"



| SUMP SCHEDULE |               |            |
|---------------|---------------|------------|
| TREE SIZE     | SUMP QUANTITY | SUMP DEPTH |
| 15 GAL.       | 1             | 3'-0"      |
| 24" BOX       | 1             | 4'-0"      |
| ≥36" BOX      | 2             | 4'-0"      |



SECTION

PLAN (N.T.S)

- 1 TREE PER PLANTING PLAN AND LEGEND
  - 2 ROOTBALL; SET CROWN 2" ABOVE FINISH GRADE
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  - 5 4" HIGH EARTH BERM AROUND EDGE OF PLANT PIT ON DOWNHILL SIDE, FIRMLY COMPACTED
  - 6 AMENDED PLANTING SOIL PER SPECIFICATIONS
  - 7 PLANT PIT; SCARIFY ALL SIDES
  - 8 AMENDED BACKFILL MIX PER SPECIFICATIONS
  - 9 PLANT TABLETS PER SPECIFICATIONS
  - 10 DRAIN GRATE PER SPECIFICATIONS
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  - 14 3/4" CRUSHED ROCK SUMP BACKFILL (NO ROCK IN PIPE)
  - 15 TIE OFF "SOCK" TO CLOSE END
  - 16 NATIVE SOIL; 95% COMPACTION AT TREE PIT
  - 17 TREE STAKE PER DETAIL (1/49)
  - 18 LAYBACK SLOPE UPHILL OF PLANT PIT (2:1 MAX SLOPE)
  - 19 EXISTING SLOPE BEYOND
- NOTES:
- REFER TO PLANT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - FOR TREES REQUIRING TWO SUMPS, INSTALL AT OPPOSITE CORNERS OF TREE PIT.

4 TREE - SLOPE

SCALE: NTS

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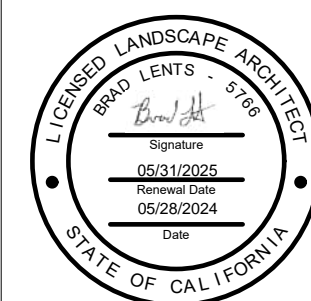
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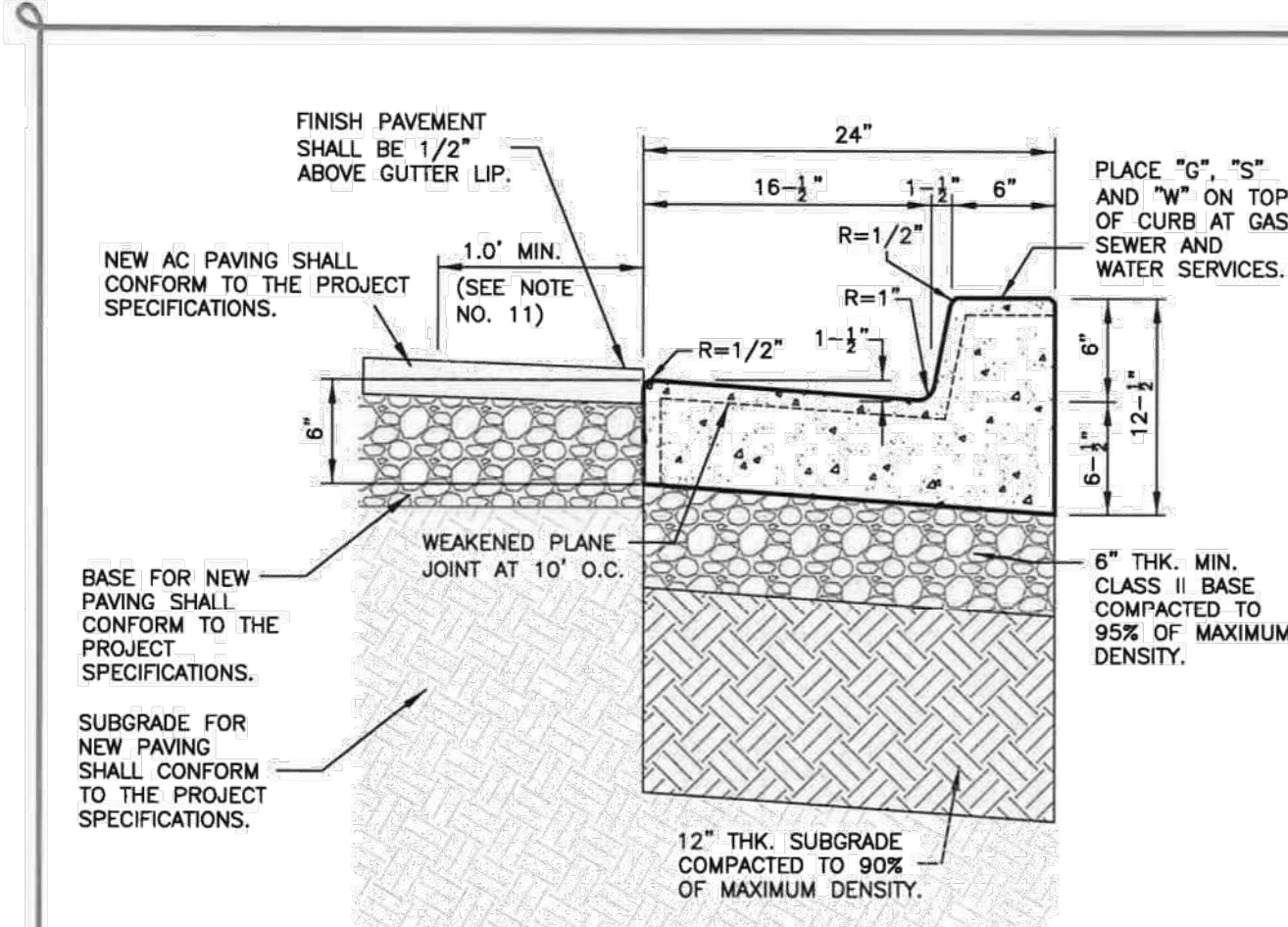


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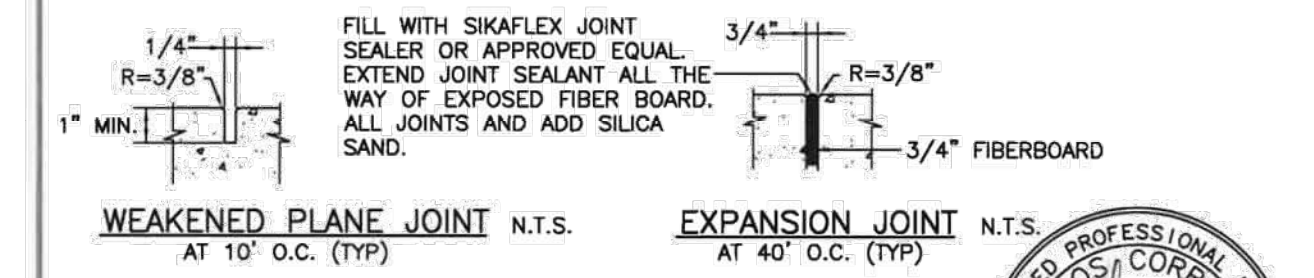
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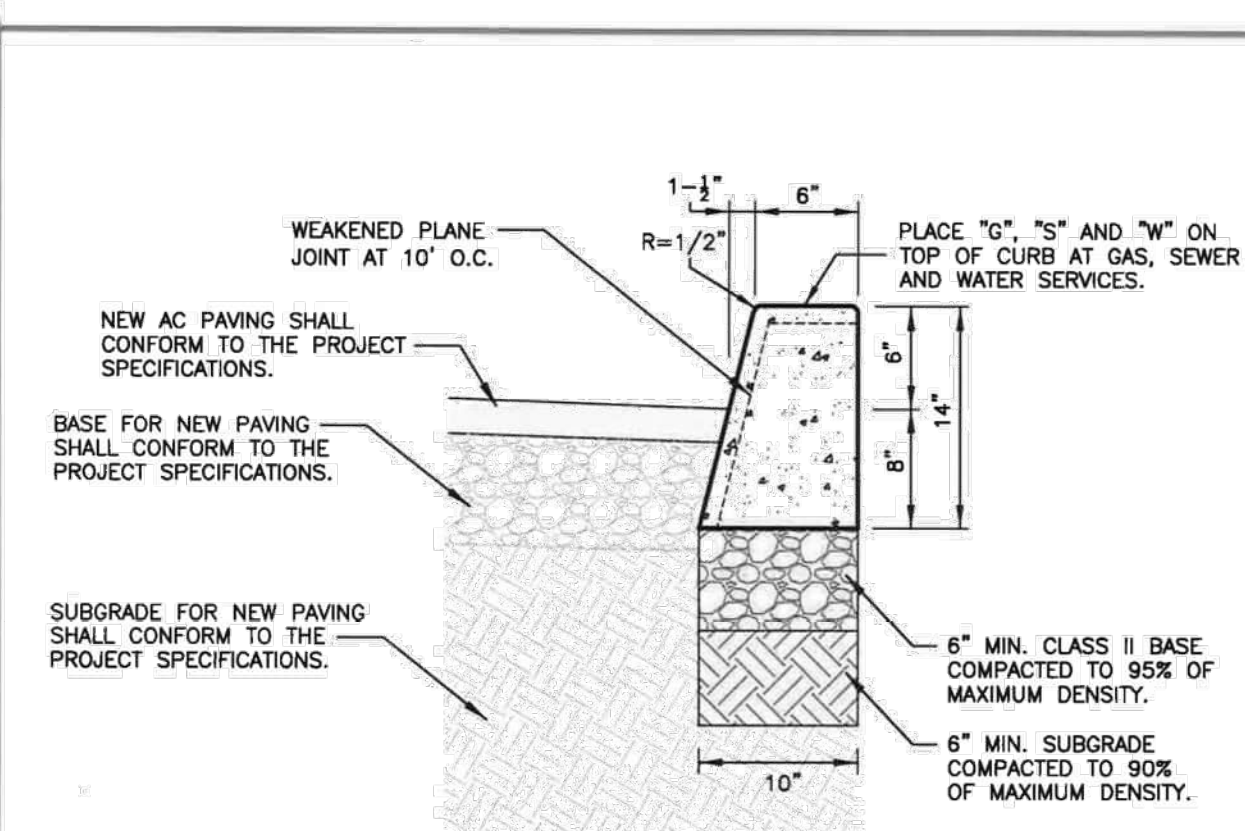
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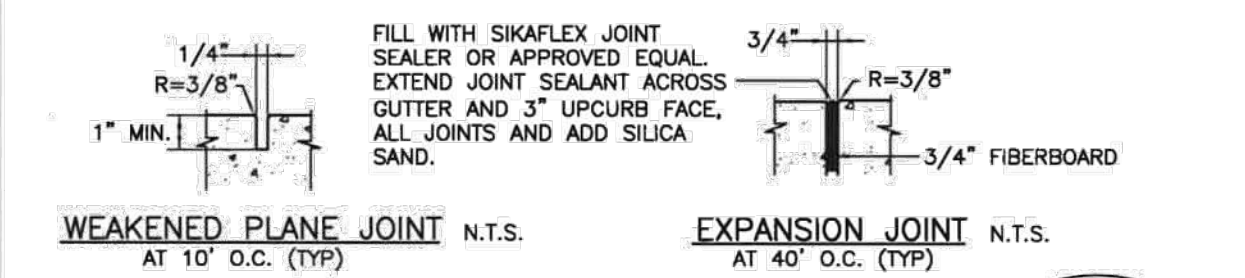
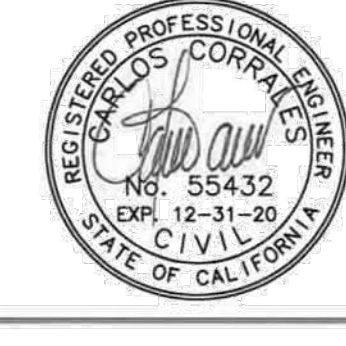
**NOTES:**  
 1- EXPANSION JOINTS TO BE INSTALLED AT ALL B.C.'S, E.C.'S, CURB RETURNS AND STRUCTURES IN ADDITION TO 40' O.C.  
 2- WEAKENED PLANE JOINTS EVERY 10 LINEAR FEET ALONG THE CURB.  
 3- PLACE EXPANSION JOINTS EVERY 40 FEET. EXPANSION JOINT MATERIAL TO BE COMPOSED OF 3/4" (MIN.) FIBER BOARD INSTALLED ACROSS SECTION OF CURB. THE CURB FACE AND TOP OF CURB SHALL RECEIVE A DOUBLE TROWEL FINISH.  
 4- THE CURB EDGES SHALL BE PLACED TRUE TO LINE AND GRADE. VERTICAL ELEVATIONS SHALL NOT VARY MORE THAN ±0.01' WITH A MAXIMUM VARIANCE OF 0.02' FROM DESIGN GRADE OCCURRING IN ANY GIVEN 100 FOOT SECTION. THE HORIZONTAL CURB EDGES SHALL NOT VARY MORE THAN 1/4 INCH IN ANY GIVEN 100 FOOT SECTION.  
 5- CURB AND GUTTER SHALL BE CLASS 3 CONCRETE WHICH SHALL ATTAIN A COMPRESSIVE STRENGTH OF 4500 PSI AFTER 28 DAYS OF CURING IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD. POLYPROPYLENE FIBER BY FIBERMESH CO., FORTA MONO, OR APPROVED EQUAL.  
 6- CURING COMPOUND SHALL BE SPRAYED UNIFORMLY ON EXPOSED SURFACES. HYDRO-CURE CLEAR CC-309-1W, OR APPROVED EQUAL.  
 7- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING USE, TO ADEQUATELY INSURE PUBLIC SAFETY.  
 8- ALL EXPOSED SURFACES TO HAVE A SMOOTH TROWEL FINISH. DRY SACK FINISH WILL NOT BE ALLOWED.  
 9- WHEN CURB AND GUTTER IS PLACED BY AN EXTRUSION MACHINE, MINOR FINISHING SHALL BE DONE TO PROVIDE AN ACCEPTABLE FINISH AND THE WEAKENED PLANE JOINT MAY BE SAWCUT.  
 10- WIDTH OF STANDARD STREET SECTIONS SHOWN ON PLANS ARE TO CURB LINES UNLESS OTHERWISE INDICATED.  
 11- WHEN OCCURS, SAWCUT, REMOVE AND REPLACE 1.0' MIN. OF EXISTING AC PAVEMENT TO INSTALL NEW PCC CURB AND GUTTER. IF THE EXISTING AC SECTION IS SMALLER THAN 3', THEN PROVIDE 3' OF NEW AC PAVEMENT AS A MINIMUM. IF THE SECTION IS GREATER THAN 3', THEN MATCH WITH EXISTING ASPHALT. IF THE EXISTING BASE IS DISTURBED OR IS ABSENT, THEN REMOVE AND REPLACE WITH 9" OF CLASS II BASE COMPACTED TO 90% OF MAX DENSITY. AND IN THIS CASE, COMPACTION TEST WILL BE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.  
 12- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.



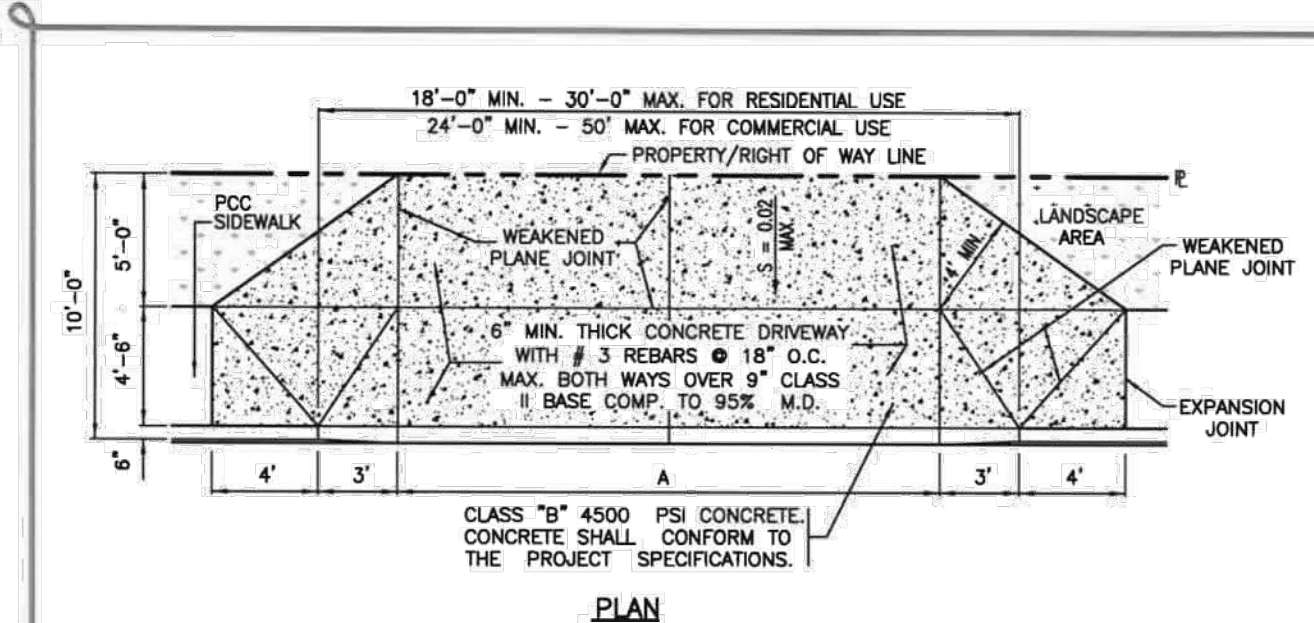
**PCC CURB AND GUTTER DETAIL** SHEET: 1 OF: 1  
 IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 10/10/19 DRAWN: A.A.  
 STD. DET. NO. 400 NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.



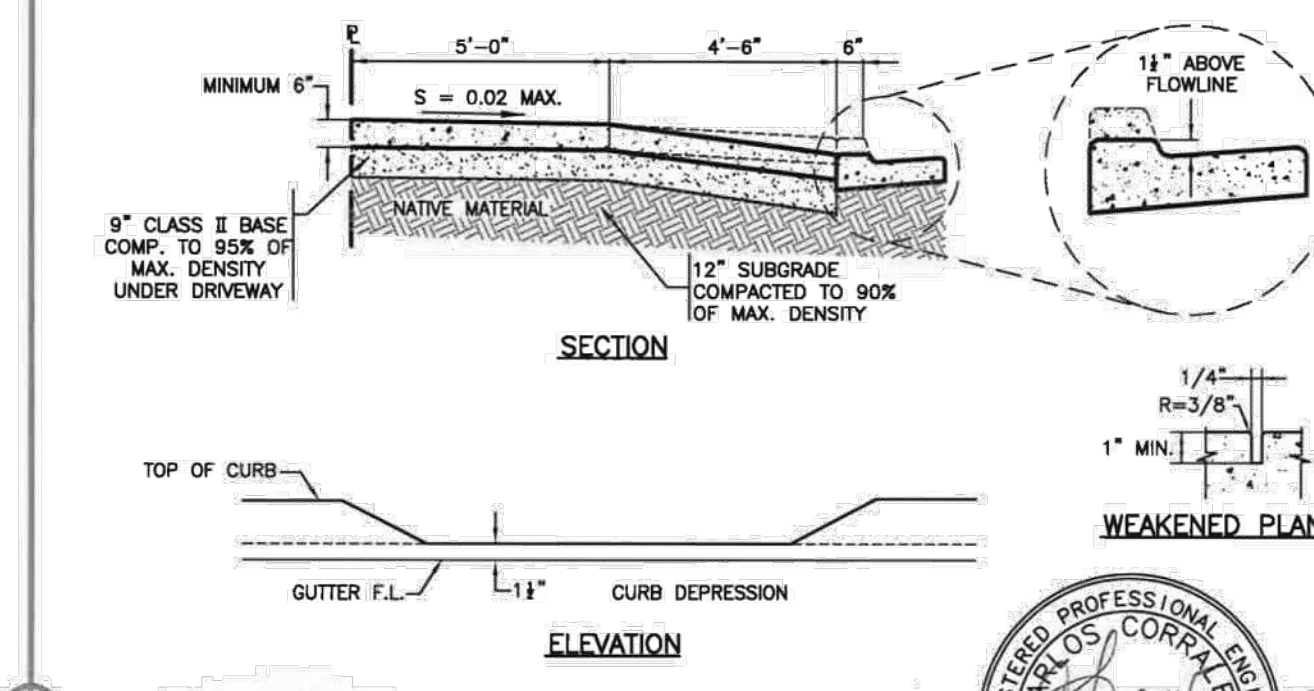
**NOTES:**  
 1- EXPANSION JOINTS TO BE INSTALLED AT ALL B.C.'S, E.C.'S, CURB RETURNS AND STRUCTURES IN ADDITION TO 40' O.C.  
 2- WEAKENED PLANE JOINTS EVERY 10 LINEAR FEET ALONG THE CURB.  
 3- PLACE EXPANSION JOINTS EVERY 40 FEET. EXPANSION JOINT MATERIAL TO BE COMPOSED OF 3/4" (MIN.) FIBER BOARD INSTALLED ACROSS SECTION OF CURB. THE CURB FACE AND TOP OF CURB SHALL RECEIVE A DOUBLE TROWEL FINISH.  
 4- THE CURB EDGES SHALL BE PLACED TRUE TO LINE AND GRADE. VERTICAL ELEVATIONS SHALL NOT VARY MORE THAN ±0.01' WITH A MAXIMUM VARIANCE OF 0.02' FROM DESIGN GRADE OCCURRING IN ANY GIVEN 100 FOOT SECTION. THE HORIZONTAL CURB EDGES SHALL NOT VARY MORE THAN 1/4 INCH IN ANY GIVEN 100 FOOT SECTION.  
 5- CURB AND GUTTER SHALL BE CLASS 3 CONCRETE WHICH SHALL ATTAIN A COMPRESSIVE STRENGTH OF 4500 PSI AFTER 28 DAYS OF CURING IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD. POLYPROPYLENE FIBER BY FIBERMESH CO., FORTA MONO, OR APPROVED EQUAL.  
 6- CURING COMPOUND SHALL BE SPRAYED UNIFORMLY ON EXPOSED SURFACES. HYDRO-CURE CLEAR CC-309-1W, OR APPROVED EQUAL.  
 7- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING USE, TO ADEQUATELY INSURE PUBLIC SAFETY.  
 8- ALL EXPOSED SURFACES TO HAVE A SMOOTH TROWEL FINISH. DRY SACK FINISH WILL NOT BE ALLOWED.  
 9- WHEN CURB IS PLACED BY AN EXTRUSION MACHINE, MINOR FINISHING SHALL BE DONE TO PROVIDE AN ACCEPTABLE FINISH AND THE WEAKENED PLANE JOINT MAY BE SAWCUT.  
 10- WHEN OCCURS, SAWCUT, REMOVE AND REPLACE 1.0' MIN. OF EXISTING AC PAVEMENT TO INSTALL NEW PCC CURB. IF THE EXIST. AC SECTION IS SMALLER THAN 3', THEN PROVIDE 3' OF NEW AC PAVEMENT AS A MINIMUM. IF THE SECTION IS GREATER THAN 3', THEN MATCH WITH EXISTING ASPHALT. IF THE EXISTING BASE IS DISTURBED, THEN REMOVE AND REPLACE WITH 9" OF CLASS II BASE COMPACTED TO 90% OF MAX. DENSITY.  
 11- COMPACTION TEST FOR CLASS II BASE AND HUMIDITY TEST FOR SUBGRADE ARE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.  
 12- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.



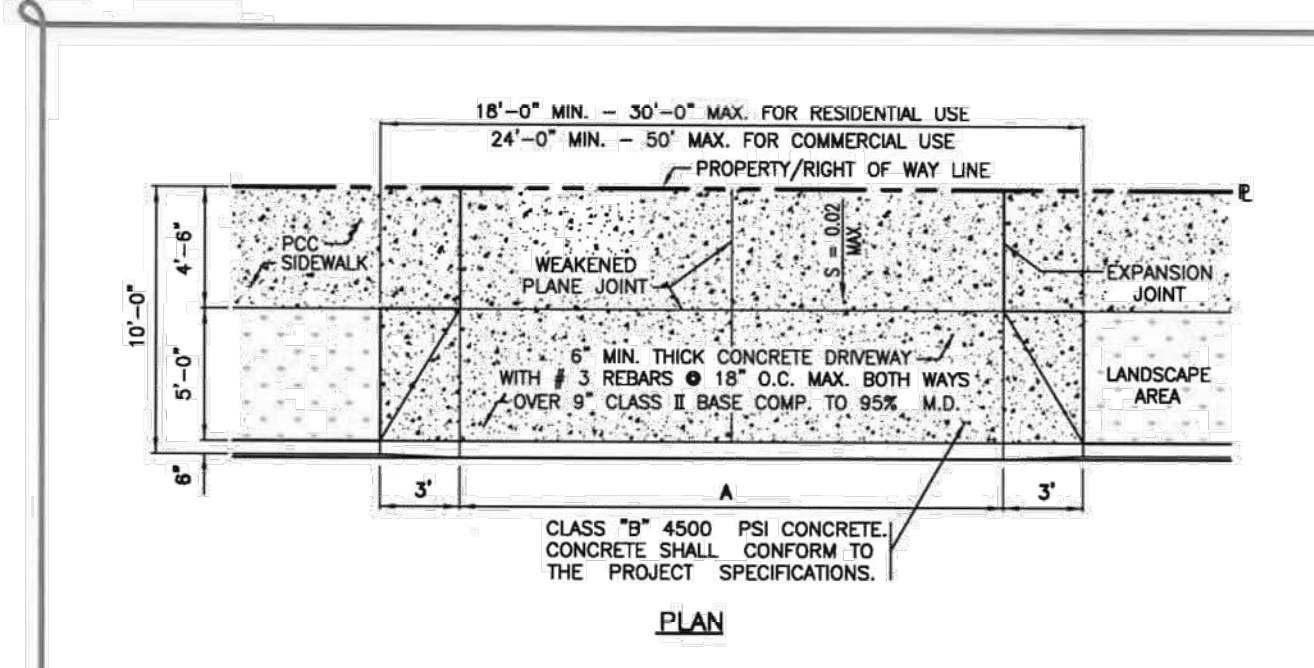
**PCC BARRIER CURB DETAIL** SHEET: 1 OF: 1  
 IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 10/10/19 DRAWN: A.A.  
 STD. DET. NO. 401 NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.



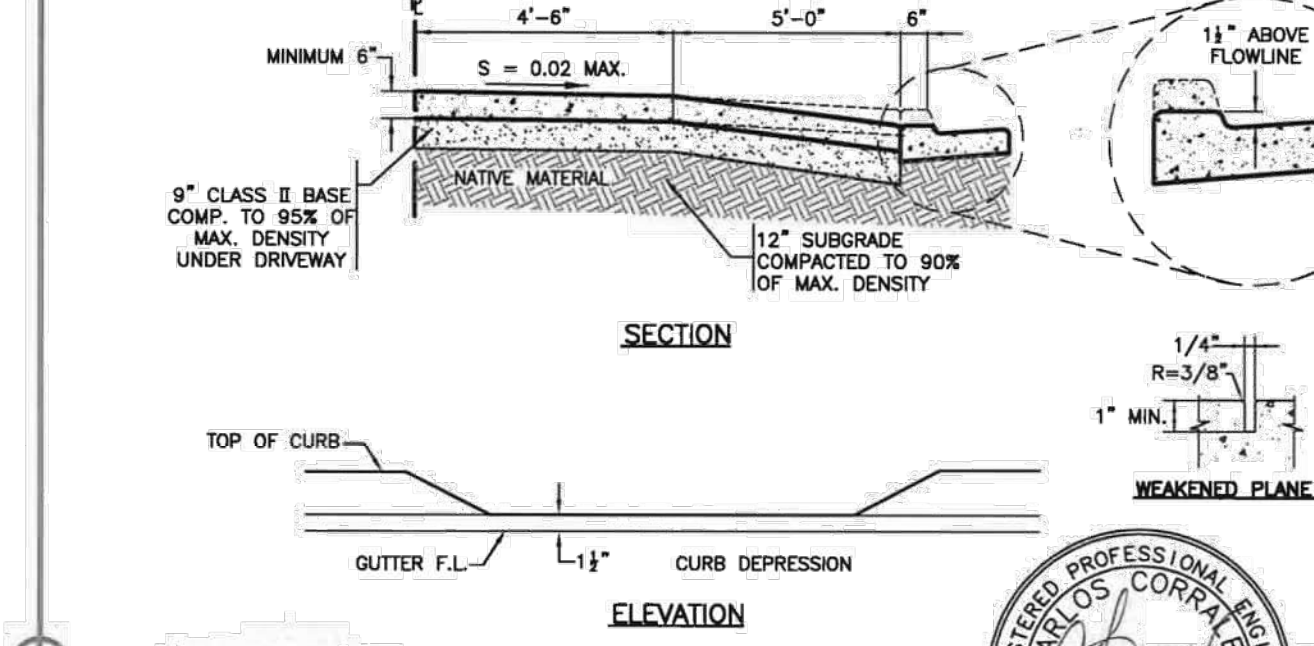
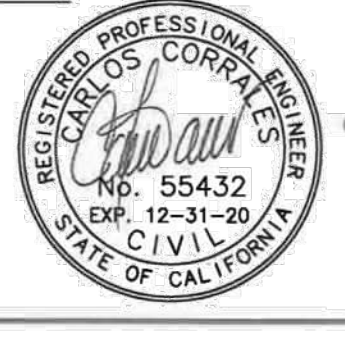
**NOTES:**  
 1- SUBGRADE TO BE 12" COMPACTED TO 90% OF MAXIMUM DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.  
 2- WEAKENED PLANE JOINTS REQUIRED ON DRIVEWAY CENTER LINE.  
 3- WIDTH AND LOCATION AS DIRECTED BY OWNER AND APPROVED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.  
 4- ENCROACHMENT PERMIT IS REQUIRED BY THE CITY OF IMPERIAL PLANNING AND DEVELOPMENT DEPT. FOR ALL NEW DRIVEWAY APPROACHES. FOR FUTURE MAINTENANCE OF DRIVEWAY APPROACH AND SIDEWALK IS THE RESPONSIBILITY OF FRONTING LANDOWNER.  
 5- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING USE, TO ADEQUATELY INSURE PUBLIC SAFETY.  
 6- 6"x8"x10/10 W.W.M. CAN BE INSTALLED INSTEAD OF #3 REBARS ON EXISTING DRIVEWAYS TO BE REPLACED. FOR RESIDENTIAL USE ONLY.  
 7- COMPACTION TEST FOR CLASS II BASE AND HUMIDITY TEST FOR SUBGRADE AT ALL NEW DRIVEWAY APPROACHES ARE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.  
 8- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.  
 SEE CITY OF IMPERIAL STANDARD DETAILS NO. 400 AND 400-A.



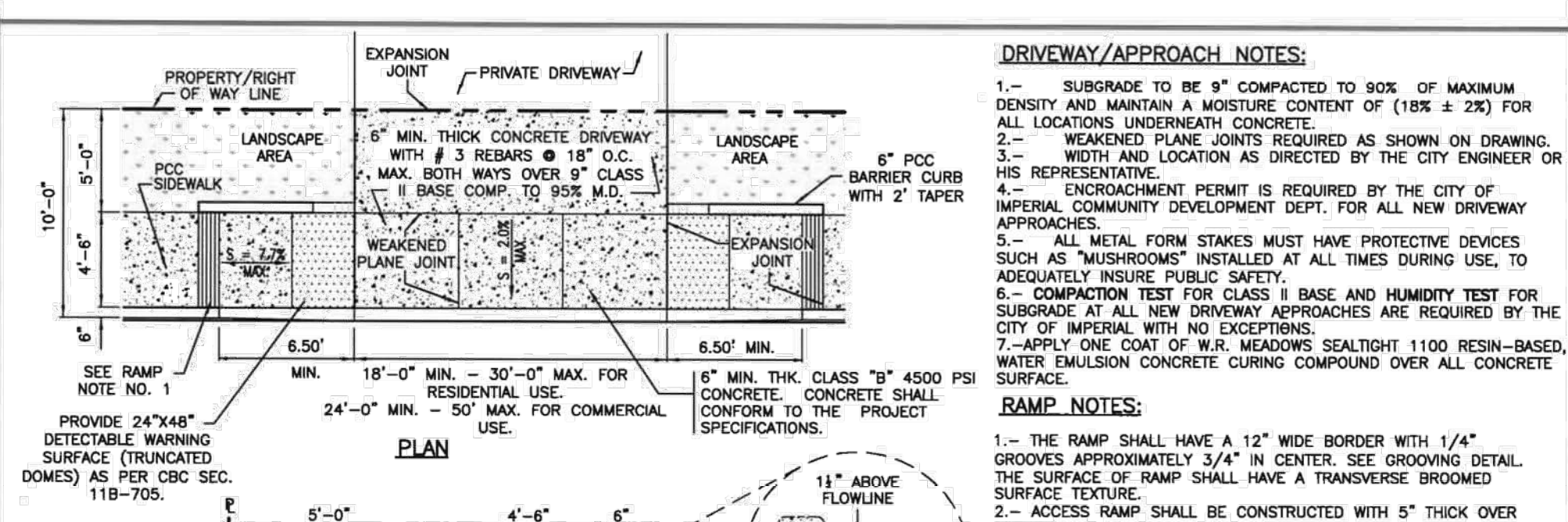
**PCC DRIVEWAY APPROACH DETAIL** SHEET: 1 OF: 1  
 IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 10/10/19 DRAWN: A.A.  
 STD. DET. NO. 403 NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.



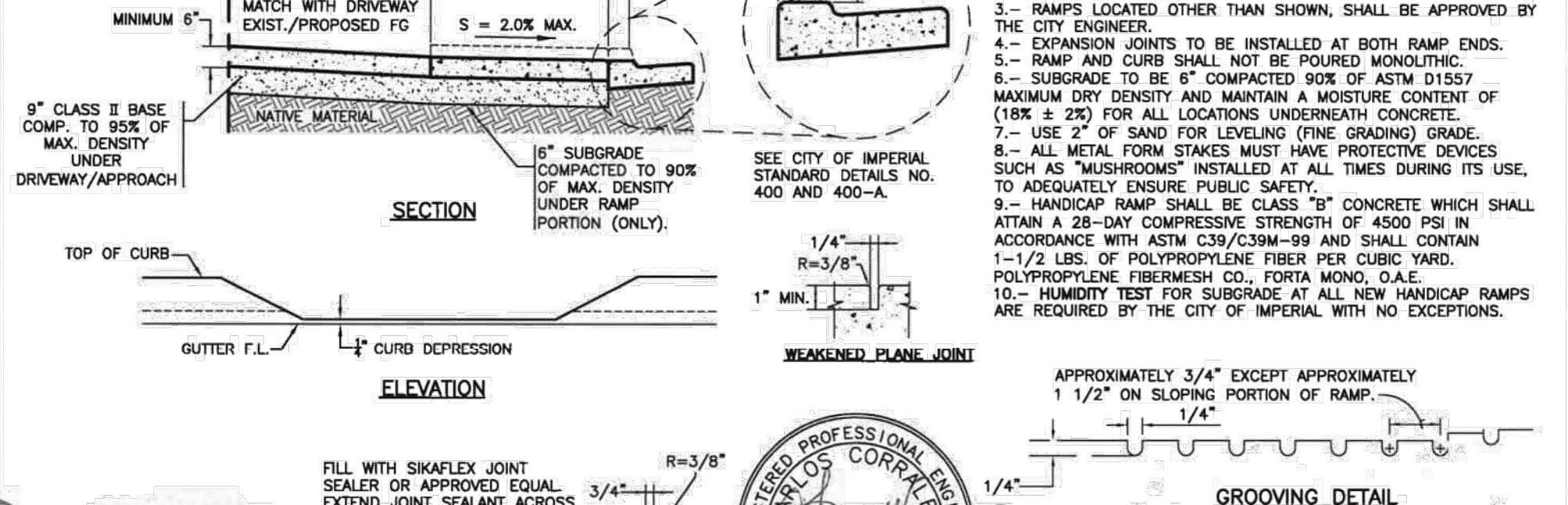
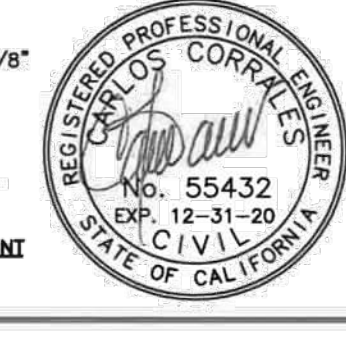
**NOTES:**  
 1- SUBGRADE TO BE 12" COMPACTED TO 90% OF MAXIMUM DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.  
 2- WEAKENED PLANE JOINTS REQUIRED ON DRIVEWAY CENTER LINE.  
 3- WIDTH AND LOCATION AS DIRECTED BY OWNER AND APPROVED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.  
 4- ENCROACHMENT PERMIT IS REQUIRED BY THE CITY OF IMPERIAL PLANNING AND DEVELOPMENT DEPT. FOR ALL NEW DRIVEWAY APPROACHES. FOR FUTURE MAINTENANCE OF DRIVEWAY APPROACH AND SIDEWALK IS THE RESPONSIBILITY OF FRONTING LANDOWNER.  
 5- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING USE, TO ADEQUATELY INSURE PUBLIC SAFETY.  
 6- 6"x6"x10/10 W.W.M. CAN BE INSTALLED INSTEAD OF #3 REBARS ON EXISTING DRIVEWAYS TO BE REPLACED. FOR RESIDENTIAL USE ONLY.  
 7- COMPACTION TEST FOR CLASS II BASE AND HUMIDITY TEST FOR SUBGRADE AT ALL NEW DRIVEWAY APPROACHES ARE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.  
 8- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.



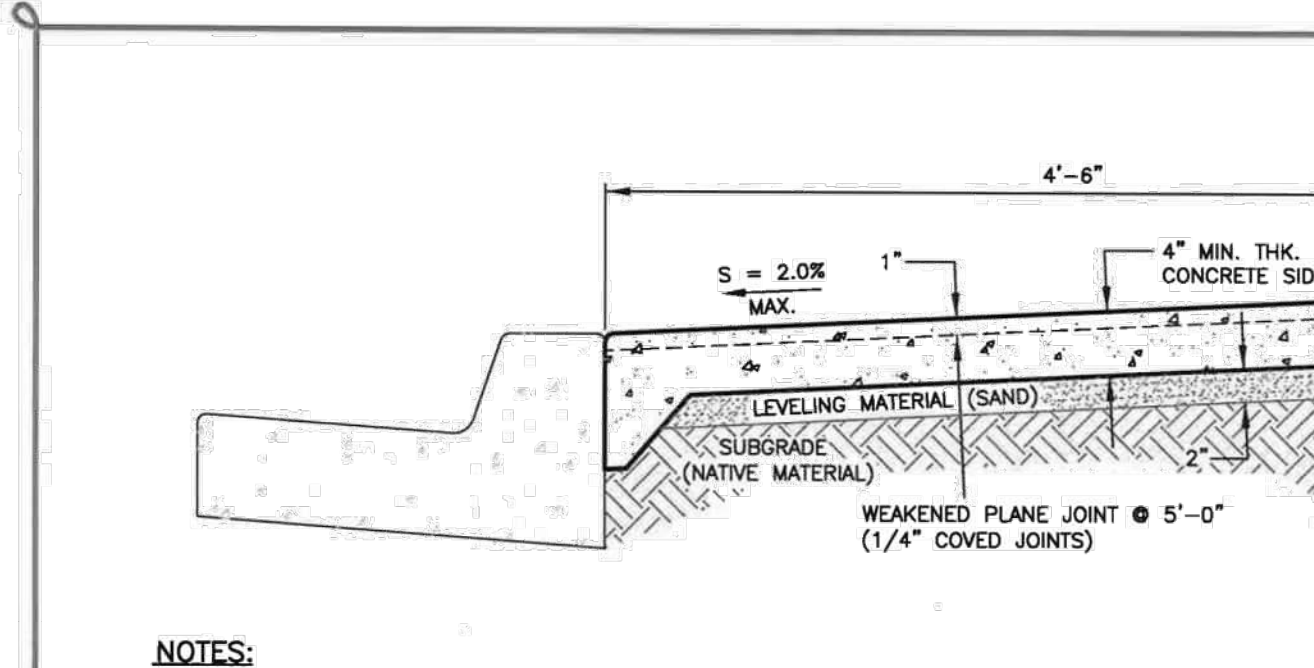
**PARKWAY PCC DRIVEWAY APPROACH DETAIL** SHEET: 1 OF: 1  
 IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 10/10/19 DRAWN: A.A.  
 STD. DET. NO. 404 NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.



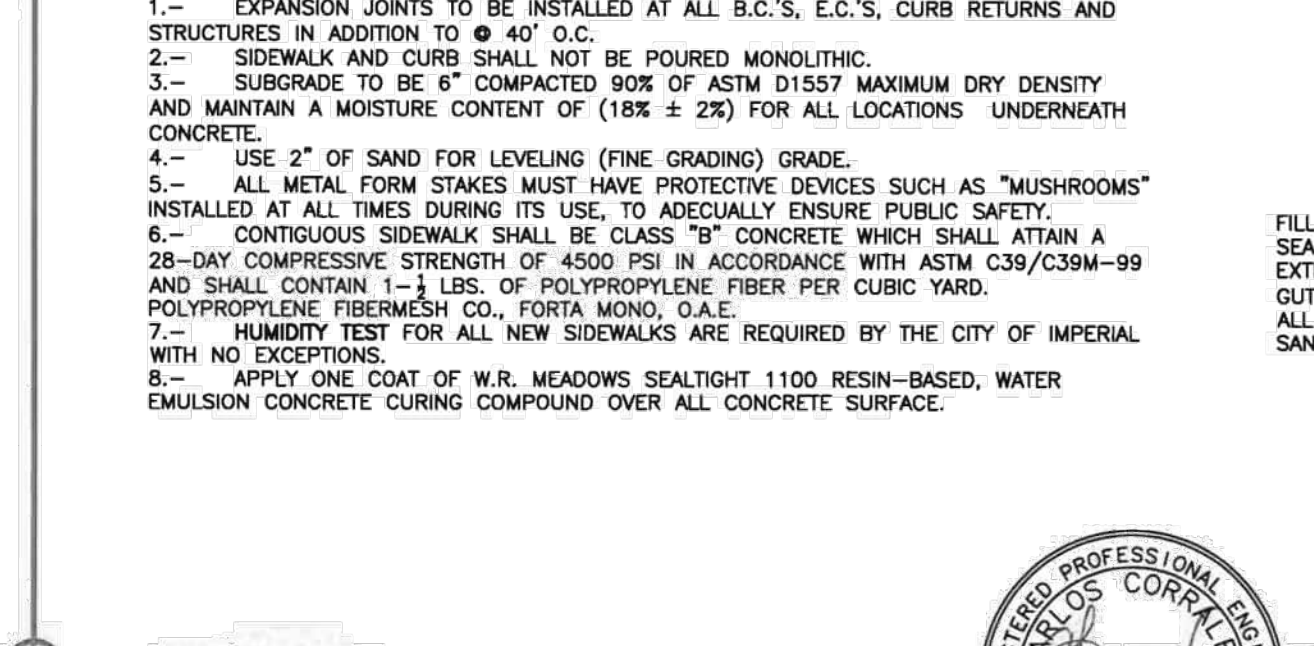
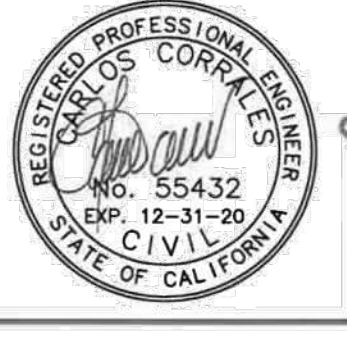
**DRIVEWAY/APPROACH NOTES:**  
 1- SUBGRADE TO BE 9" COMPACTED TO 90% OF MAXIMUM DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.  
 2- WEAKENED PLANE JOINTS REQUIRED AS SHOWN ON DRAWING.  
 3- WIDTH AND LOCATION AS DIRECTED BY THE CITY ENGINEER OR HIS REPRESENTATIVE.  
 4- ENCROACHMENT PERMIT IS REQUIRED BY THE CITY OF IMPERIAL COMMUNITY DEVELOPMENT DEPT. FOR ALL NEW DRIVEWAY APPROACHES.  
 5- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING USE, TO ADEQUATELY INSURE PUBLIC SAFETY.  
 6- COMPACTION TEST FOR CLASS II BASE AND HUMIDITY TEST FOR SUBGRADE AT ALL NEW DRIVEWAY APPROACHES ARE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.  
 7- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.  
**RAMP NOTES:**  
 1- THE RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" GROOVES APPROXIMATELY 3/4" IN CENTER. SEE GROOVING DETAIL. THE SURFACE OF RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE.  
 2- ACCESS RAMP SHALL BE CONSTRUCTED WITH 5" THICK OVER 6" OF CLASS II AGGREGATE BASE.  
 3- RAMPS LOCATED OTHER THAN SHOWN, SHALL BE APPROVED BY THE CITY ENGINEER.  
 4- EXPANSION JOINTS TO BE INSTALLED AT BOTH RAMP ENDS.  
 5- RAMP AND CURB SHALL NOT BE POURED MONOLITHIC.  
 6- SUBGRADE TO BE 6" COMPACTED 90% OF ASTM D1557 MAXIMUM DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.  
 7- USE 2" OF SAND FOR LEVELING (FINE GRADING) GRADE.  
 8- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY INSURE PUBLIC SAFETY.  
 9- HANDICAP RAMP SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.  
 10- HUMIDITY TEST FOR SUBGRADE AT ALL NEW HANDICAP RAMPS ARE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.



**PCC DRIVEWAY APPROACH / RAMP DETAIL** SHEET: 1 OF: 1  
 IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 01/17/19 DRAWN: A.A.  
 STD. DET. NO. 406 NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.



**NOTES:**  
 1- EXPANSION JOINTS TO BE INSTALLED AT ALL B.C.'S, E.C.'S, CURB RETURNS AND STRUCTURES IN ADDITION TO 40' O.C.  
 2- SIDEWALK AND CURB SHALL NOT BE POURED MONOLITHIC.  
 3- SUBGRADE TO BE 6" COMPACTED 90% OF ASTM D1557 MAXIMUM DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.  
 4- USE 2" OF SAND FOR LEVELING (FINE GRADING) GRADE.  
 5- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY INSURE PUBLIC SAFETY.  
 6- CONTIGUOUS SIDEWALK SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.  
 7- HUMIDITY TEST FOR SUBGRADE AT ALL NEW SIDEWALKS ARE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.  
 8- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.



**PCC CONTINUOUS SIDEWALK DETAIL** SHEET: 1 OF: 1  
 IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 01/17/19 DRAWN: A.A.  
 STD. DET. NO. 407 NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.

APPROVED BY DIRECTOR OF PUBLIC SERVICES  
 CITY OF IMPERIAL, CA  
 BY: DAVID DALE, P.E., P.L.S. DATE: \_\_\_\_\_

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.  
 Underground Service Alert  
 Call: TOLL FREE 1-800-422-4133  
 TWO WORKING DAYS BEFORE YOU DIG.



| NO. | REVISIONS: | APPROVED | DATE |
|-----|------------|----------|------|
|     |            |          |      |
|     |            |          |      |
|     |            |          |      |

**CITY OF IMPERIAL**  
 420 South Imperial Avenue  
 Imperial, CA 92251  
 Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
 SEE SHEET 2 FOR BENCHMARK INFORMATION

PREPARED UNDER THE DIRECT SUPERVISION OF:  
 Blanca Soto  
 R.C.E. NO. 86597  
 DATE: 06/21/2024

**PROJECT TITLE:**  
 CITY OF IMPERIAL  
 AHSC-ARPA/HWY 86 BEAUTIFICATION  
 PHASE 1

**SHEET CONTENT:**  
 CITY OF IMPERIAL STANDARD DETAILS

|                 |                 |
|-----------------|-----------------|
| SCALE: N/A      | SHEET: 50       |
| DRAWN BY: BS    | OF 52 SHEETS    |
| REVIEWED BY: RD | JOB NO. CIP#823 |
| JUNE 2024       |                 |

PROJECT NO. 1484, Proj. Design for IMPERIAL ADA Ramp Details, City of Imperial, CA, Date: 01/17/2019, 12:30 PM

**NOTES:**

- 1.- EXPANSION JOINTS TO BE INSTALLED AT ALL B.C.'S, E.C.'S, CURB RETURNS AND STRUCTURES IN ADDITION TO @ 40' O.C.
- 2.- SIDEWALK AND CURB SHALL NOT BE POURED MONOLITHIC.
- 3.- SUBGRADE TO BE 6" COMPACTED 90% OF ASTM D1557 MAXIMUM DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.
- 4.- USE 2" OF SAND FOR LEVELING (FINE GRADING) GRADE.
- 5.- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY ENSURE PUBLIC SAFETY.
- 6.- CONTIGUOUS SIDEWALK SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.
- 7.- HUMIDITY TEST FOR ALL NEW SIDEWALKS ARE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.
- 8.- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.

**PCC CONT. SIDEWALK W/LANDSCAPE DETAIL** SHEET: 1 OF: 1  
IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 01/17/19 DRAWN: A.A. STD. DET. NO. 407-A | NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.

**NOTES:**

- 1.- THE RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" GROOVES APPROXIMATELY 3/4" IN CENTER. SEE GROOVING DETAIL. THE SURFACE OF RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK EXCEPT WHEN LOCATED IN CENTER OF CURB RETURN.
- 2.- WHEN RAMP IS LOCATED IN CENTER OF CURB RETURN, IT SHALL BE TRANSVERSE BROOMED ALIGNED PARALLEL TO CROSSWALK WITH 1/4" GROOVES APPROXIMATELY 3/4" ON CENTER. SEE GROOVING DETAIL. GROOVES SHALL BE ALIGNED PARALLEL TO CROSSWALK LINES OR PARALLEL TO THE PROLONGATION OF CURBS WHEN THERE ARE NO CROSSWALK LINES.
- 3.- ACCESS RAMP SHALL BE CONSTRUCTED WITH 5" THICK OVER 6" OF CLASS II AGGREGATE BASE.
- 4.- RAMPS LOCATED OTHER THAN SHOWN, SHALL BE APPROVED BY THE CITY ENGINEER.
- 5.- EXPANSION JOINTS TO BE INSTALLED AT BOTH RAMP ENDS.
- 6.- HANDICAP RAMP AND CURB SHALL NOT BE POURED MONOLITHIC.
- 7.- SUBGRADE TO BE 6" COMPACTED 90% OF ASTM D1557 MAXIMUM DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.
- 8.- USE 2" OF SAND FOR LEVELING (FINE GRADING) GRADE.
- 9.- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY ENSURE PUBLIC SAFETY.
- 10.- HANDICAP RAMP SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.
- 11.- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.

**TYPICAL CORNER ONE ADA RAMP DETAIL** SHEET: 1 OF: 1  
IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 01/17/19 DRAWN: A.A. STD. DET. NO. 409 | NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.

**NOTES:**

- 1.- THE RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" GROOVES APPROXIMATELY 3/4" IN CENTER. SEE GROOVING DETAIL. THE SURFACE OF RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK EXCEPT WHEN LOCATED IN CENTER OF CURB RETURN.
- 2.- WHEN RAMP IS LOCATED IN CENTER OF CURB RETURN, IT SHALL BE TRANSVERSE BROOMED ALIGNED PARALLEL TO CROSSWALK WITH 1/4" GROOVES APPROXIMATELY 3/4" ON CENTER. SEE GROOVING DETAIL. GROOVES SHALL BE ALIGNED PARALLEL TO CROSSWALK LINES OR PARALLEL TO THE PROLONGATION OF CURBS WHEN THERE ARE NO CROSSWALK LINES.
- 3.- ACCESS RAMP SHALL BE CONSTRUCTED WITH 5" THICK OVER 6" OF CLASS II AGGREGATE BASE.
- 4.- RAMPS LOCATED OTHER THAN SHOWN, SHALL BE APPROVED BY THE CITY ENGINEER.
- 5.- EXPANSION JOINTS TO BE INSTALLED AT BOTH RAMP ENDS.
- 6.- HANDICAP RAMP AND CURB SHALL NOT BE POURED MONOLITHIC.
- 7.- SUBGRADE TO BE 6" COMPACTED 90% OF ASTM D1557 MAXIMUM DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.
- 8.- USE 2" OF SAND FOR LEVELING (FINE GRADING) GRADE.
- 9.- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY ENSURE PUBLIC SAFETY.
- 10.- HANDICAP RAMP SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.
- 11.- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.

**FULL CORNER ADA RAMP DETAIL** SHEET: 1 OF: 1  
IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 01/17/19 DRAWN: A.A. STD. DET. NO. 409-A | NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.

**NOTES:**

- 1.- THE RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" GROOVES APPROXIMATELY 3/4" IN CENTER. SEE GROOVING DETAIL. THE SURFACE OF RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK EXCEPT WHEN LOCATED IN CENTER OF CURB RETURN.
- 2.- WHEN RAMP IS LOCATED IN CENTER OF CURB RETURN, IT SHALL BE TRANSVERSE BROOMED ALIGNED PARALLEL TO CROSSWALK WITH 1/4" GROOVES APPROXIMATELY 3/4" ON CENTER. SEE GROOVING DETAIL. GROOVES SHALL BE ALIGNED PARALLEL TO CROSSWALK LINES OR PARALLEL TO THE PROLONGATION OF CURBS WHEN THERE ARE NO CROSSWALK LINES.
- 3.- ACCESS RAMP SHALL BE CONSTRUCTED WITH 5" THICK OVER 6" OF CLASS II AGGREGATE BASE.
- 4.- RAMPS LOCATED OTHER THAN SHOWN, SHALL BE APPROVED BY THE CITY ENGINEER.
- 5.- EXPANSION JOINTS TO BE INSTALLED AT BOTH RAMP ENDS.
- 6.- HANDICAP RAMP AND CURB SHALL NOT BE POURED MONOLITHIC.
- 7.- SUBGRADE TO BE 6" COMPACTED 90% OF ASTM D1557 MAXIMUM DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.
- 8.- USE 2" OF SAND FOR LEVELING (FINE GRADING) GRADE.
- 9.- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY ENSURE PUBLIC SAFETY.
- 10.- HANDICAP RAMP SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.
- 11.- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.

**ADA RAMP DETAIL** SHEET: 1 OF: 1  
IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 10/10/19 DRAWN: A.A. STD. DET. NO. 409-B | NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.

**NOTES:**

- 1.- THE RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" GROOVES APPROXIMATELY 3/4" IN CENTER. SEE GROOVING DETAIL. THE SURFACE OF RAMP SHALL HAVE A TRANSVERSE BROOMED SURFACE TEXTURE ROUGHER THAN THE SURROUNDING SIDEWALK EXCEPT WHEN LOCATED IN CENTER OF CURB RETURN.
- 2.- WHEN RAMP IS LOCATED IN CENTER OF CURB RETURN, IT SHALL BE TRANSVERSE BROOMED ALIGNED PARALLEL TO CROSSWALK WITH 1/4" GROOVES APPROXIMATELY 3/4" ON CENTER. SEE GROOVING DETAIL. GROOVES SHALL BE ALIGNED PARALLEL TO CROSSWALK LINES OR PARALLEL TO THE PROLONGATION OF CURBS WHEN THERE ARE NO CROSSWALK LINES.
- 3.- ACCESS RAMP SHALL BE CONSTRUCTED WITH 5" THICK OVER 6" OF CLASS II AGGREGATE BASE.
- 4.- RAMPS LOCATED OTHER THAN SHOWN, SHALL BE APPROVED BY THE CITY ENGINEER.
- 5.- EXPANSION JOINTS TO BE INSTALLED AT BOTH RAMP ENDS.
- 6.- HANDICAP RAMP AND CURB SHALL NOT BE POURED MONOLITHIC.
- 7.- SUBGRADE TO BE 6" COMPACTED 90% OF ASTM D1557 MAXIMUM DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.
- 8.- USE 2" OF SAND FOR LEVELING (FINE GRADING) GRADE.
- 9.- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY ENSURE PUBLIC SAFETY.
- 10.- HANDICAP RAMP SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.
- 11.- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.

**OBSTRUCTED CENTER PATH ADA RAMP DETAIL** SHEET: 1 OF: 1  
IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 10/10/19 DRAWN: A.A. STD. DET. NO. 409-B | NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.

**NOTES:**

- 1.- CURB RETURN SHALL BE FORMED AND POURED TOGETHER WITH PCC SPANDREL (MONOLITHIC).
- 2.- PCC SPANDREL SHALL BE CONSTRUCTED WITH 6" THICK OVER 9" OF CLASS II AGGREGATE BASE.
- 3.- PCC SPANDRELS LOCATED/COMPARED OTHER THAN SHOWN SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE CITY OF IMPERIAL ENGINEERING DIVISION STAFF.
- 4.- EXPANSION JOINTS TO BE INSTALLED AT BOTH SPANDREL ENDS AS SHOWN.
- 5.- SUBGRADE TO BE 12" COMPACTED 90% OF ASTM D1557 MAXIMUM DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (18% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.
- 6.- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY ENSURE PUBLIC SAFETY.
- 7.- PCC SPANDRELS SHALL BE DOWELED ONLY TO EXISTING CURB AND GUTTER WITH 2 (TWO) #4 REBARS CENTERED VERTICALLY AND HORIZONTALLY AT GUTTER PORTION ONLY AND KEEP A DISTANCE OF 12" BETWEEN DOWELS, EMBEDDED 6" MIN. EACH SIDE. EPOXY COAT REQUIRED FOR DOWELS.
- 8.- PCC SPANDREL SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.
- 9.- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY ENSURE PUBLIC SAFETY.
- 10.- HANDICAP RAMP SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1-1/2 LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD.
- 11.- WHEN OCCURS, SAWCUT, REMOVE AND REPLACE 1.0' MIN. OF EXISTING AC PAVEMENT TO INSTALL NEW PCC SPANDREL IF THE EXIST. AC SECTION IS SMALLER THAN 3", THEN PROVIDE 3" OF NEW AC PAVEMENT AS A MINIMUM. IF THE SECTION IS GREATER THAN 3", THEN MATCH WITH EXISTING ASPHALT. IF EXISTING BASE IS DISTURBED, THEN REMOVE AND REPLACE WITH 4" OF CLASS II BASE COMPACTED TO 95% OF MAX. DENSITY, AND IN THIS CASE, COMPACTION TEST WILL BE REQUIRED BY THE CITY OF IMPERIAL WITH NO EXCEPTIONS.
- 12.- APPLY ONE COAT OF W.R. MEADOWS SEALTIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.

**PCC SPANDREL DETAIL** SHEET: 1 OF: 1  
IN THE CITY OF IMPERIAL, CALIFORNIA DATE: 10/10/19 DRAWN: A.A. STD. DET. NO. 410 | NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.

APPROVED BY DIRECTOR OF PUBLIC SERVICES CITY OF IMPERIAL, CA  
DAVID DALE, P.E., P.L.S. DATE

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.  
Underground Service Alert  
Call: TOLL FREE 1-800-422-4133  
TWO WORKING DAYS BEFORE YOU DIG.



| NO. | REVISIONS: | APPROVED | DATE |
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|     |            |          |      |



**CITY OF IMPERIAL**  
420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

**BENCHMARK:**  
SEE SHEET 2 FOR BENCHMARK INFORMATION



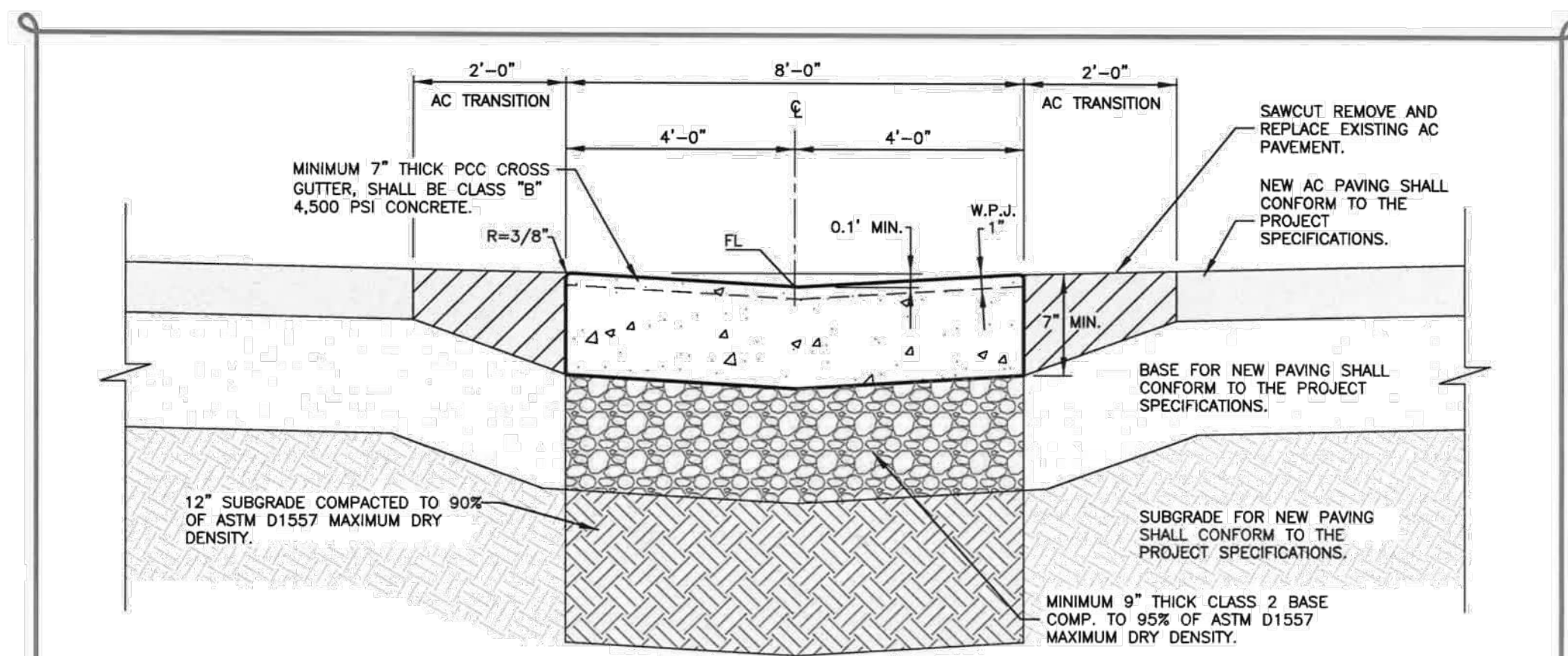
PREPARED UNDER THE DIRECT SUPERVISION OF:  
*Blanca Soto* 86597  
BLANCA H. SOTO R.C.E. NO. 86597  
06/21/2024 DATE 03/31/2025 REG. EXP.

PROJECT TITLE: CITY OF IMPERIAL AHSC-ARPA/HWY 86 BEAUTIFICATION PHASE 1  
SHEET CONTENT: CITY OF IMPERIAL STANDARD DETAILS

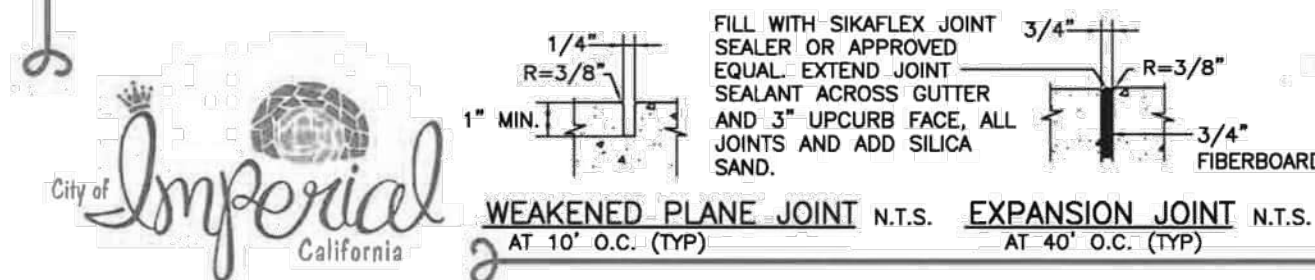
SCALE: N/A  
DRAWN BY: BS  
REVIEWED BY: RD  
JUNE 2024  
SHEET 51 OF 52 SHEETS  
JOB NO. CIP#823

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.

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- NOTES:**
- 1.- EXPANSION JOINTS TO BE INSTALLED @ 40' O.C.
  - 2.- WEAKENED PLANE JOINTS TO BE PROVIDED @ 10' O.C.
  - 3.- SUBGRADE TO BE 6" THK COMPACTED 90% OF ASTM D1557 MAX. DRY DENSITY AND MAINTAIN A MOISTURE CONTENT OF (16% ± 2%) FOR ALL LOCATIONS UNDERNEATH CONCRETE.
  - 4.- ALL METAL FORM STAKES MUST HAVE PROTECTIVE DEVICES SUCH AS "MUSHROOMS" INSTALLED AT ALL TIMES DURING ITS USE, TO ADEQUATELY ENSURE PUBLIC SAFETY.
  - 5.- VALLEY GUTTER SHALL BE CLASS "B" CONCRETE WHICH SHALL ATTAIN A 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI IN ACCORDANCE WITH ASTM C39/C39M-99 AND SHALL CONTAIN 1- LBS. OF POLYPROPYLENE FIBER PER CUBIC YARD. POLYPROPYLENE FIBERESH CO., FORTA MOND, O.A.E.
  - 6.- APPLY ONE COAT OF W.R. MEADOWS SEALIGHT 1100 RESIN-BASED, WATER EMULSION CONCRETE CURING COMPOUND OVER ALL CONCRETE SURFACE.
  - 7.- COMPACTION TEST FOR CLASS II BASE AND HUMIDITY TEST FOR SUBGRADE ARE REQUIRED BY THE CITY OF IMPERIAL.

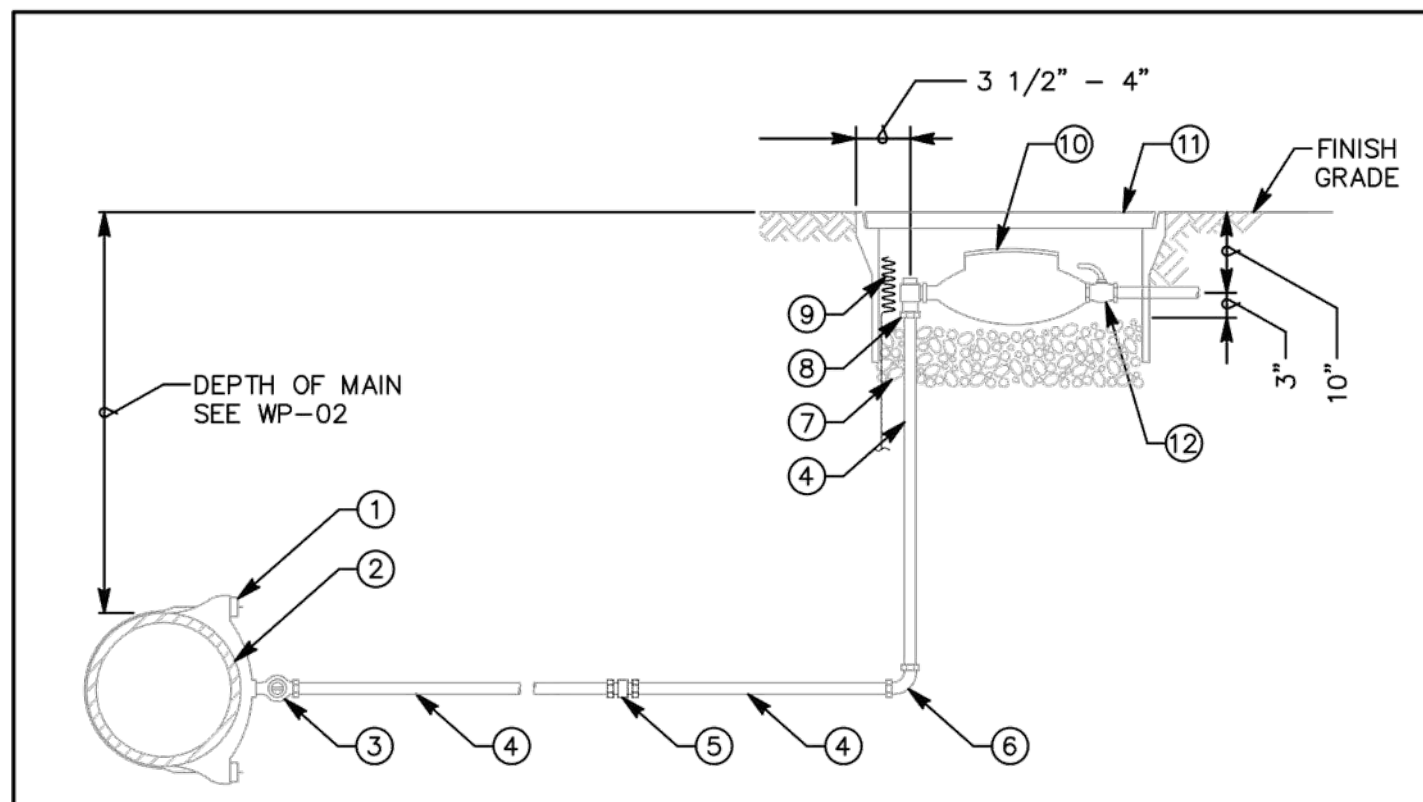


**PCC CROSS GUTTER DETAIL**

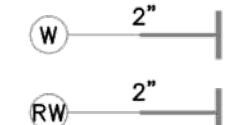
SHEET OF: 1

IN THE CITY OF IMPERIAL, CALIFORNIA (DATE: 10/10/19) DRAWN: A.A.

STD. DET. NO. 411 NOT TO SCALE REVIEWED: J.V. APPROVED: O.M.

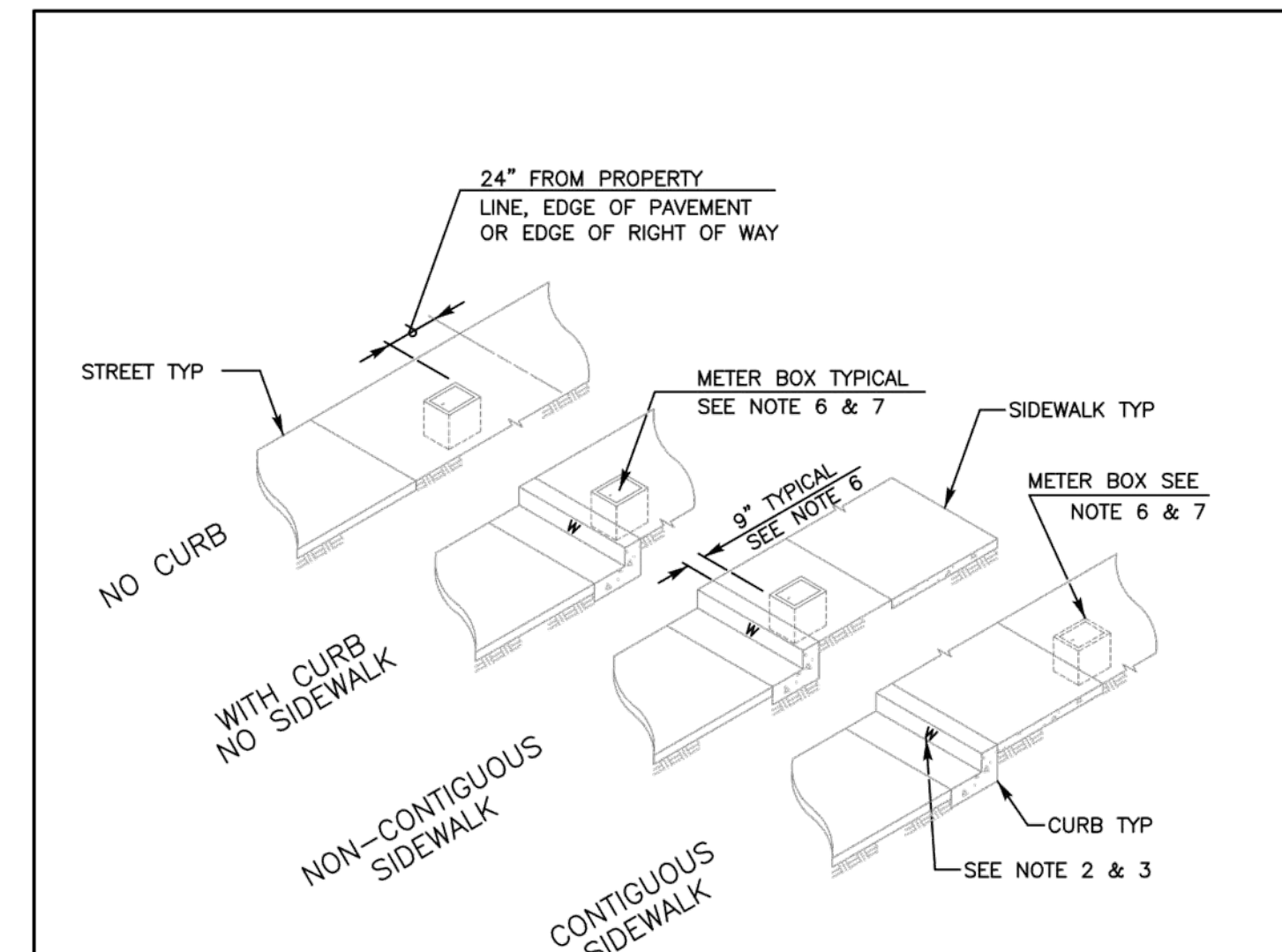


- NOTES:**
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
  - 2) INSTALL CORPORATION STOP WITH KEY IN THE SIDE POSITION
  - 3) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB, OR FINISH GRADE
  - 4) LOCATE METER BOX AS SHOWN ON WS-03
  - 5) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
  - 6) WATER LATERALS INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY SPECIFICATIONS
  - 7) SILVER SOLDER JOINTS SHALL NOT BE USED
  - 8) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
  - 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



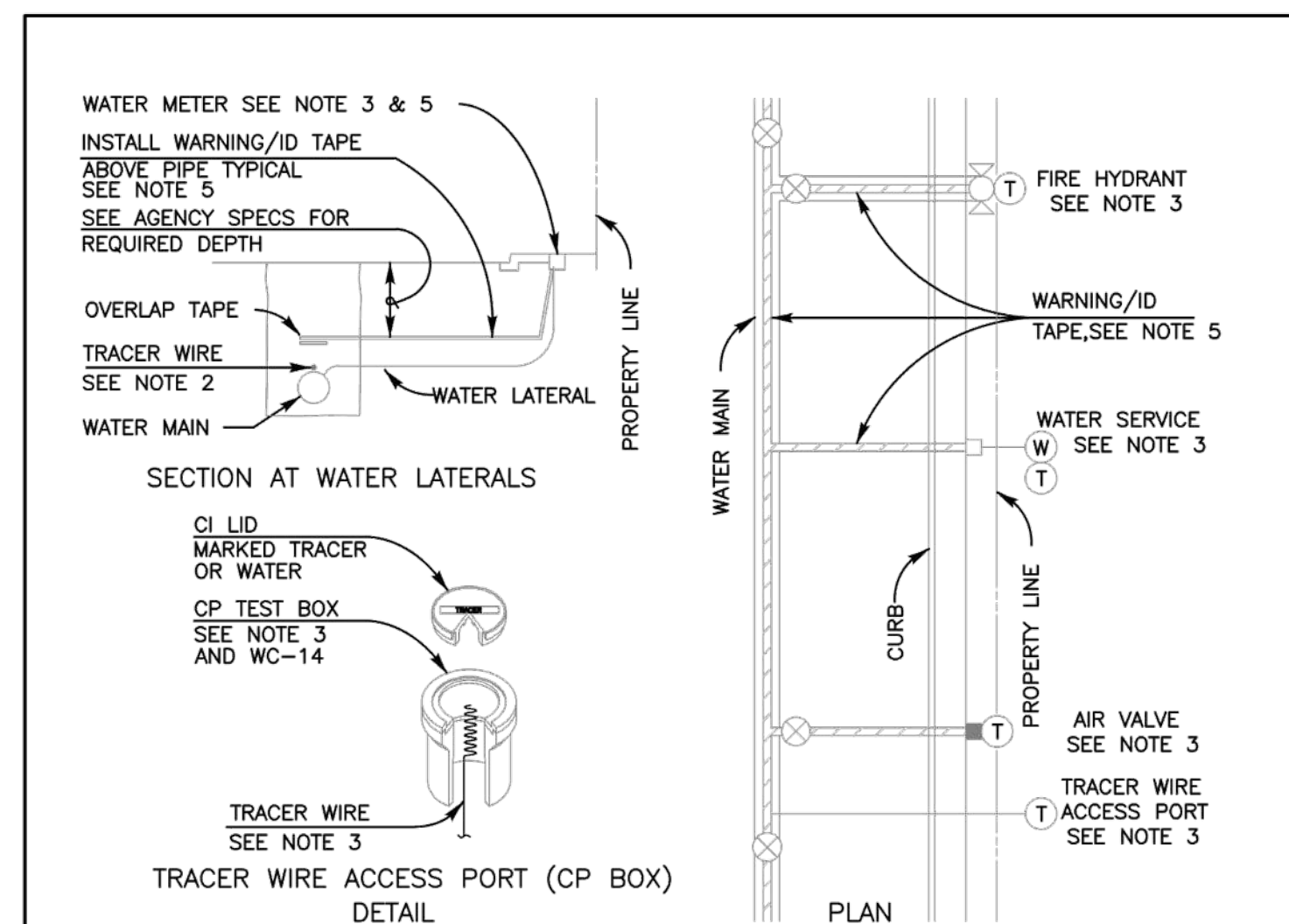
| ITEM NO | SIZE AND DESCRIPTION   | ITEM NO | SIZE AND DESCRIPTION  |
|---------|--|---------|---|
| 1       | SIZE x 2" SERVICE SADDLE   | 7       | 3/8" ROCK, 4" TO 6" DEEP  |
| 2       | WATER MAIN   | 8       | 2" BRONZE ANGLE METER STOP WITH LOCKWING                                |
| 3       | 2" BRONZE CORPORATION STOP   | 9       | TRACER WIRE (AS REQUIRED), SEE WP-01                                    |
| 4       | 2" x REQUIRED LENGTH COPPER PIPE TYPE "K" SOFT/RIGID OR UNLESS OTHERWISE SPECIFIED BY AGENCY OF JURISDICTION | 10      | WATER METER FURNISHED AND INSTALLED BY THE WATER AGENCY OF JURISDICTION |
| 5       | 2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)  | 11      | METER BOX WITH LID, 17"x 30"  |
| 6       | 2" BRONZE COMPRESSION ELL  | 12      | CUSTOMER SHUT-OFF VALVE (LOCKABLE)                                      |

I 1.5" WATER SERVICE INSTALLATION



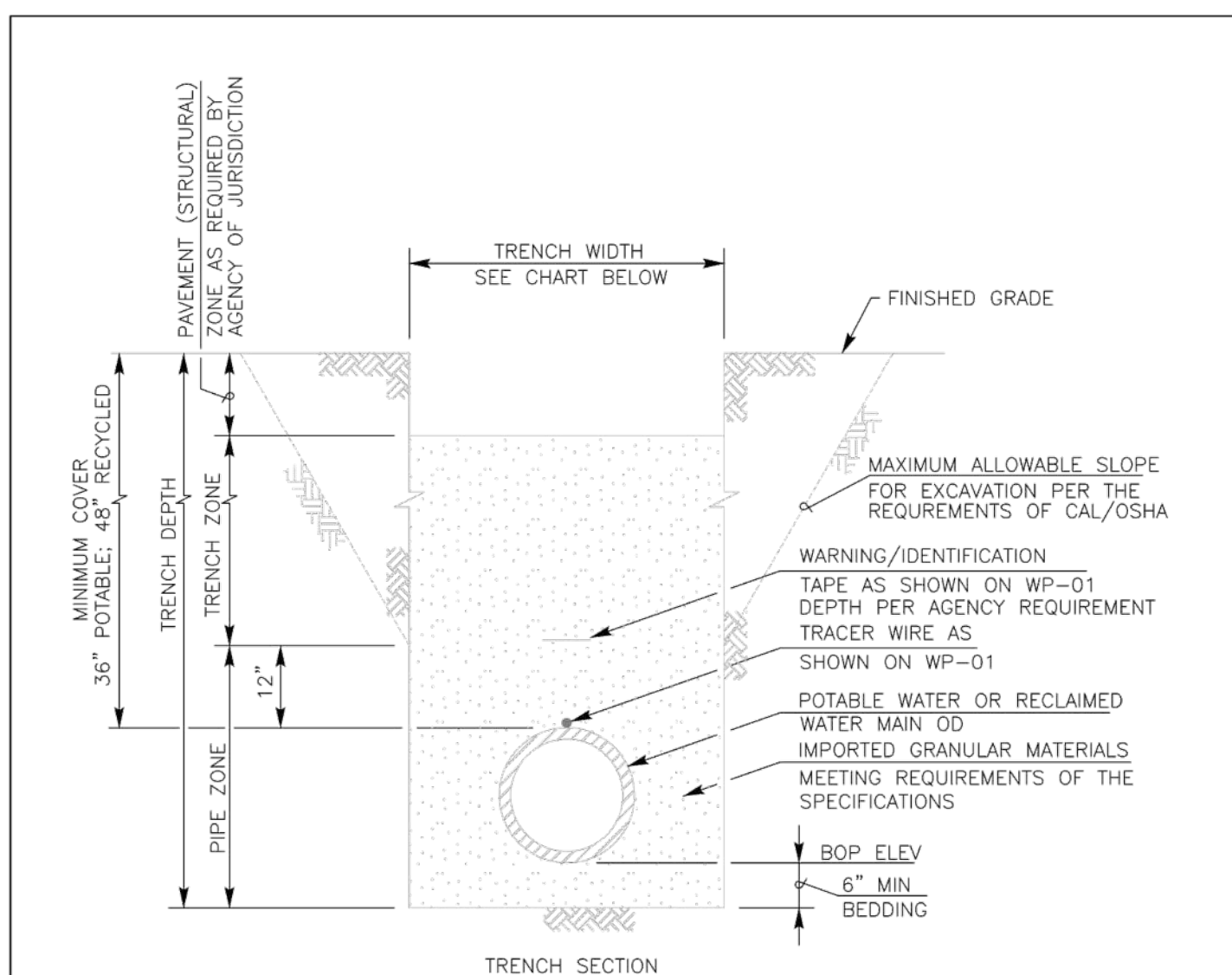
- NOTES:**
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
  - 2) STAMP OR CHISEL A 2" HIGH "W" IN CURB FACE TO IDENTIFY POTABLE WATER SERVICE LOCATION
  - 3) STAMP OR CHISEL A 2" HIGH "RW" IN CURB FACE TO IDENTIFY RECYCLED WATER SERVICE LOCATION
  - 4) METER BOXES ARE NOT TO BE INSTALLED IN DRIVEWAYS, SIDEWALKS OR WITHIN PAVED ROADWAYS
  - 5) MULTIPLE METER BOXES SHALL BE INSTALLED WITH A MINIMUM OF 9" BETWEEN BOXES
  - 6) METER BOX SHALL BE INSTALLED 9" FROM THE BACK OF BERM, CURB, OR SIDEWALK (TYP)
  - 7) AN EASEMENT MAY BE NEEDED DEPENDING ON LOCATION OF METER BOX
  - 8) METER BOXES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
  - 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

J WATER METER BOX LOCATION FOR WATER SERVICE



- NOTES:**
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
  - 2) WHERE SPECIFIED, TRACER WIRE AND OR WARNING ID TAPE, TO RUN CONTINUOUSLY ALONG THE ENTIRE LENGTH OF WATER MAINS. WIRE SHALL BE SECURED TO THE PIPE AND MAINTAINED ON PIPE CENTERLINE DURING TRENCH BACKFILL
  - 3) TRACER WIRE ACCESS PORTS SHALL BE INSTALLED WITHIN THE CONCRETE SPLASH PAD OF ALL FIRE HYDRANTS IN ACCORDANCE WITH THE STANDARD DRAWINGS. TRACER WIRE MAY TERMINATE WITHIN METER BOX, BLOWOFF BOX OR AIR VALVE PER AGENCY'S SPECIFICATIONS. TRACER WIRE MAY TERMINATE IN A CP TEST BOX ONLY IF NO OTHER APPURTENANCE EXISTS WITHIN THE REQUIRED 1,000' INTERVAL. ALL BURIED WIRES THAT REQUIRE TRENCHING TO A TEST BOX LOCATION SHALL BE INSTALLED, WITHOUT SPLICE, IN A CONDUIT IN THE TRENCH AT A MINIMUM DEPTH OF 24"
  - 4) WIRE SPLICE CONNECTORS SHALL BE SILICONE FILLED TYPE
  - 5) WARNING/IDENTIFICATION TAPE SHALL BE INSTALLED ABOVE THE PIPE AS SPECIFIED AND RUN CONTINUOUSLY ALONG THE ENTIRE LENGTH OF THE PIPE AND ALL RELATED APPURTENANCES FOR PIPE BEDDING AND TRENCH BACKFILL SEE WP-02
  - 6) FOR PIPE BEDDING AND TRENCH BACKFILL SEE WP-02
  - 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

K WARNING/IDENTIFICATION TAPE AND TRACER WIRE INSTALLATIONS



- NOTES:**
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
  - 2) PAVING OR PAVEMENT REPAIR TO BE DONE IN ACCORDANCE TO CITY OR COUNTY STANDARDS
  - 3) EXCAVATE BELL HOLES AT EACH PIPE JOINT TO PERMIT PROPER ASSEMBLY AND INSPECTION OF THE ENTIRE JOINT
  - 4) ALL PIPELINE TRENCHES SHALL BE EXCAVATED SO THAT THE DISTANCE BETWEEN TRENCH WALLS AT THE TOP OF PIPE SHALL BE AS SHOWN BELOW:

| NOMINAL PIPE INSIDE DIAMETER | MINIMUM DISTANCE | MAXIMUM DISTANCE |
|------------------------------|------------------|------------------|
| 4" & SMALLER                 | 18"              | 28"              |
| 6" & 8"                      | 24"              | 32"              |
| 10" & 12"                    | 28"              | 36"              |
| 16" THRU 36"                 | OD PLUS 24"      | OD PLUS 36"      |

L PIPE BEDDING AND TRENCH BACKFILL

APPROVED BY DIRECTOR OF PUBLIC SERVICES  
CITY OF IMPERIAL, CA

BY: DAVID DALE, P.E., P.L.S.

DATE

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.

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|     |            |          |      |



**CITY OF IMPERIAL**

420 South Imperial Avenue  
Imperial, CA 92251  
Ph: (760) 355-4371 Fax: (760) 355-4718

BENCHMARK:

SEE SHEET 2 FOR BENCHMARK INFORMATION



PREPARED UNDER THE DIRECT SUPERVISION OF:

Blanca Soto

86597  
R.C.E. NO.

06/21/2024  
DATE

03/31/2025  
REG. EXP.

PROJECT TITLE: CITY OF IMPERIAL  
AHSC-ARPA/HWY 86 BEAUTIFICATION  
PHASE 1

SHEET CONTENT:  
CITY OF IMPERIAL STANDARD DETAILS

SCALE: N/A

DRAWN BY: BS

REVIEWED BY: RD

JUNE 2024

SHEET

52

OF 52 SHEETS

JOB NO.  
CIP#823

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