

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION**

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Clean Water Act Section 401 Water Quality Certification
and Waste Discharge Requirements
for Discharge of Dredged and/or Fill Materials

**PROJECT: Elvira to Morena Double Track
Certification Number R9-2015-0053
WDID: 9000002823**

Reg. Meas. ID: 400231
Place ID: 813867
Party ID: 39834
Person ID: 524620

**APPLICANT: San Diego Association of Governments
401 B Street
Suite 800
San Diego, CA 92101**

ACTION:

<input type="checkbox"/> Order for Low Impact Certification	<input type="checkbox"/> Order for Denial of Certification
<input checked="" type="checkbox"/> Order for Technically-conditioned Certification	<input type="checkbox"/> Enrollment in Isolated Waters Order No. 2004-004-DWQ
<input checked="" type="checkbox"/> Enrollment in SWRCB GWDR Order No. 2003-017-DWQ	

PROJECT DESCRIPTION

An application dated March 13, 2015 was submitted by San Diego Association of Governments (hereinafter Applicant), for Water Quality Certification pursuant to section 401 of the Clean Water Act (United States Code (USC) Title 33, section 1341) for the proposed Elvira to Morena Double Track Project (Project). The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) deemed the application to be complete on July 21, 2015. The Applicant proposes to discharge dredged or fill material to waters of the United States and/or State associated with construction activity at the Project site. The Applicant has also applied for a Clean Water Act section 404 permit from the United States Army Corps of Engineers for the Project (USACE File No. SPL-2014-00803-MBS).

The Project is located within the City of San Diego, San Diego County, California between Morena Boulevard and Santa Fe Street, and in Rose Canyon west of Interstate 805. The Project center reading is located at latitude 32.8230556° and longitude -117.2302778°. The Applicant has paid all required application fees for this Certification in the amount of \$33,960.00. On an annual basis, the Applicant shall also pay all active discharge fees and post discharge monitoring fees, as appropriate¹. On July 21, 2015, the San Diego Water

¹ The Applicant shall pay an annual active discharge fee each fiscal year or portion of a fiscal year during which discharges occur until the Regional Board or the State Board issues a Notice of Completion of Discharges Letter to the discharger. Dischargers shall pay an annual post-discharge monitoring fee each fiscal year or portion of a fiscal year commencing with the
(footnote continued on next page)

Board provided public notice of the Project application pursuant to California Code of Regulations, title 23, section 3858 by posting information describing the Project on the San Diego Water Board's web site and providing a period of twenty-one days for public review and comment. No comments were received.

The Applicant proposes to add a 2.6 mile second main rail road track between State Route 52 to just south of Balboa Avenue in the City of San Diego. This new track will connect to the existing double tracks at each end, resulting in a 10.3-mile continuous double track segment between Control Point (CP) Tecolote and CP Cumbres. The existing railroad track will also be realigned to straighten several curves in the north end of the project. In addition to track construction, the project includes upgrading four bridges, signal improvements, and ancillary utility and drainage improvements along this segment of the corridor. The project will not add impervious areas and therefore will not be required to implement post-construction Best Management Practices.

The Project application includes a description of the design objective, operation, and degree of treatment expected to be attained from equipment, facilities, or activities (including construction and post-construction BMPs) to treat waste and reduce runoff or other effluents which may be discharged. Compliance with the Certification conditions will help ensure that construction and post-construction discharges from the Project will not cause on-site or off-site downstream erosion, damage to downstream properties, or otherwise damage stream habitats in violation of water quality standards in the *Water Quality Control Plan for the San Diego Basin (9)* (Basin Plan).

Project construction will permanently impact 0.146 acre (511 linear feet) of stream channel and wetlands waters of the United States and/or State. The Applicant reports that the Project purpose cannot be practically accomplished in a manner which would avoid or result in less adverse impacts to aquatic resources considering all potential practicable alternatives, such as the potential for alternate available locations, designs, reductions in size, configuration or density.

The Applicant reports that compensatory mitigation for the permanent loss of 0.146 acre of jurisdictional waters will be achieved through the onsite and offsite re-establishment and establishment of 0.235 acres of waters of the United States and/or State. All waters of the United States and/or State receiving temporary discharges of fill material will be restored upon removal of the fill. Offsite mitigation for discharges of fill material to waters of the United States and/or State will be completed by the Applicant in-watershed (Miramar hydrologic sub-area (HSA 906.40)) at the existing Deer Canyon Mitigation Site at compensation ratios of 2.5:1 to 1:1 (area mitigated:area impacted). Offsite mitigation will be the mathematical withdrawal of 0.105 acres of wetland and streambed credits. The Deer Canyon Mitigation Site is fully constructed, planted, and in its third year of monitoring and maintenance, and exceeding planned success criteria. Onsite mitigation will be the replacement of two existing bridges with

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first fiscal year following the fiscal year in which the Regional Board or State Board issued a Notice of Completion of Discharges Letter to the discharger, but continued water quality monitoring or compensatory mitigation monitoring is required. Dischargers shall pay the annual post-discharge monitoring fee each fiscal year until the regional board or the State Board issues a Notice of Project Complete Letter to the discharger. Additional information regarding fees can be found electronically at the following location: http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/dredgefillcalculator.xlsx

bridges that have fewer piers, bents, and longer spans – thereby increasing the size of the active channel, floodplain, and associated wetlands of Rose Creek by 0.130 acre and 315 linear feet.

Detailed written specifications and work descriptions for the compensatory mitigation project including, but not limited to, the geographic boundaries of the project, timing, sequence, monitoring, maintenance, ecological success performance standards and provisions for long-term management and protection of the mitigation areas are described in the *Compensatory Wetland/Upland Mitigation Plan for Deer Canyon* (Mitigation Plan), dated January 18, 2011 and the *Elvira to Morena Double Track Project On-site Wetland Expansion Plan*, dated July, 2015. San Diego Water Board acceptance of the Mitigation Plan applies only to the Project described in this Certification and must not be construed as approval for other current or future projects that are planning to use additional acreage at the site for mitigation. The Mitigation Plan is incorporated in this Certification by reference as if set forth herein. The Mitigation Plan provides for implementation of compensatory mitigation which offsets adverse water quality impacts attributed to the Project in a manner that protects and restores the abundance, types and conditions of aquatic resources and supports their beneficial uses. Implementation of the Mitigation Plan will reduce significant environmental impacts to resources within the San Diego Water Board's purview to a less than significant level. Based on all of these considerations, the Mitigation Plan will adequately compensate for the loss of beneficial uses and habitat within waters of the United States and/or State attributable to the Project.

Additional Project details are provided in Attachments 2 through 4 of this Certification.

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Attachments:

1. Definitions
2. Project Location Maps
3. Project Site Plans
4. Mitigation Figures

I. STANDARD CONDITIONS

Pursuant to section 3860 of title 23 of the California Code of Regulations, the following three standard conditions apply to all water quality certification actions:

- A. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to section 13330 of the Water Code and chapter 28, article 6 (commencing with title 23, section 3867), of the California Code of Regulations.
- B. This Certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility and requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent Certification application was filed pursuant to California Code of Regulations title 23, section 3855 subdivision (b), and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
- C. This Certification action is conditioned upon total payment of any fee required under title 23, chapter 28 (commencing with section 3830) of California Code of Regulations and owed by the applicant.

II. GENERAL CONDITIONS

- A. **Term of Certification.** Water Quality Certification No. R9-2015-0053 (Certification) shall expire upon a) the expiration or retraction of the Clean Water Act section 404 (33 USC Title 33, section 1344) permit issued by the U.S. Army Corps of Engineers for this Project, or b) five (5) years from the date of issuance of this Certification, whichever occurs first.
- B. **Duty to Comply.** The Applicant must comply with all conditions and requirements of this Certification. Any Certification noncompliance constitutes a violation of the Water Code and is grounds for enforcement action or Certification termination, revocation and reissuance, or modification.
- C. **General Waste Discharge Requirements.** The requirements of this Certification are enforceable through Water Quality Order No. 2003-0017-DWQ, *Statewide General Waste Discharge Requirements for Discharges of Dredged or Fill Material that have Received State Water Quality Certification* (Water Quality Order No. 2003-0017-DWQ). This provision shall apply irrespective of whether a) the federal permit for which the Certification was obtained is subsequently retracted or is expired, or b) the Certification is expired. Water Quality Order No. 2003-0017-DWQ is accessible at:

http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/generalorders/go_wdr401regulated_projects.pdf.

- D. **Project Conformance with Application.** All water quality protection measures and BMPs described in the application and supplemental information for water quality

certification are incorporated by reference into this Certification as if fully stated herein. Notwithstanding any more specific conditions in this Certification, the Applicant shall construct, implement and comply with all water quality protection measures and BMPs described in the application and supplemental information. The conditions within this Certification shall supersede conflicting provisions within the application and supplemental information submitted as part of this Certification action.

- E. **Project Conformance with Water Quality Control Plans or Policies.** Notwithstanding any more specific conditions in this Certification, the Project shall be constructed in a manner consistent with the Basin Plan and any other applicable water quality control plans or policies adopted or approved pursuant to the Porter Cologne Water Quality Act (Division 7, commencing with Water Code Section 13000) or section 303 of the Clean Water Act (33 USC section 1313). The Basin Plan is accessible at:

http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

- F. **Project Modification.** The Applicant must submit any changes to the Project, including Project operation, which would have a significant or material effect on the findings, conclusions, or conditions of this Certification, to the San Diego Water Board for prior review and written approval. If the San Diego Water Board is not notified of a significant change to the Project, it will be considered a violation of this Certification.
- G. **Certification Distribution Posting.** During Project construction, the Applicant must maintain a copy of this Certification at the Project site. This Certification must be available at all times to site personnel and agencies. A copy of this Certification shall also be provided to any contractor or subcontractor performing construction work, and the copy shall remain in their possession at the Project site.
- H. **Inspection and Entry.** The Applicant must allow the San Diego Water Board or the State Water Resources Control Board, and/or their authorized representative(s) (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents as may be required under law, to:
1. Enter upon the Project or Compensatory Mitigation site(s) premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Certification;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Certification;
 3. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Certification; and
 4. Sample or monitor, at reasonable times, for the purposes of assuring Certification compliance, or as otherwise authorized by the Clean Water Act or Water Code, any substances or parameters at any location.

- I. **Enforcement Notification.** In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under State law. For purposes of section 401(d) of the Clean Water Act, the applicability of any State law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.
- J. **Certification Actions.** This Certification may be modified, revoked and reissued, or terminated for cause including but not limited to the following:
1. Violation of any term or condition of this Certification;
 2. Monitoring results indicate that continued Project activities could violate water quality objectives or impair the beneficial uses of Rose Creek or its tributaries;
 3. Obtaining this Certification by misrepresentation or failure to disclose fully all relevant facts;
 4. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
 5. Incorporation of any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.

The filing of a request by the Applicant for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Certification condition.

- K. **Duty to Provide Information.** The Applicant shall furnish to the San Diego Water Board, within a reasonable time, any information which the San Diego Water Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Certification or to determine compliance with this Certification.
- L. **Property Rights.** This Certification does not convey any property rights of any sort, or any exclusive privilege.
- M. **Petitions.** Any person aggrieved by this action of the San Diego Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with the California Code of Regulations, title 23, sections 3867 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Certification. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:
http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

III. CONSTRUCTION BEST MANAGEMENT PRACTICES

- A. **Approvals to Commence Construction.** The Applicant shall not commence Project construction until all necessary federal, State, and local approvals are obtained.
- B. **Personnel Education.** Prior to the start of the Project, and annually thereafter, the Applicant must educate all personnel on the requirements in this Certification, pollution prevention measures, spill response measures, and BMP implementation and maintenance measures.
- C. **Spill Containment Materials.** The Applicant must, at all times, maintain appropriate types and sufficient quantities of materials on-site to contain any spill or inadvertent release of materials that may cause a condition of pollution or nuisance if the materials reach waters of the United States and/or State.
- D. **General Construction Storm Water Permit.** Prior to start of Project construction, the Applicant must, as applicable, obtain coverage under, and comply with, the requirements of State Water Resources Control Board Water Quality Order No. 2009-0009-DWQ, the *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activity*, (General Construction Storm Water Permit) and any reissuance. If Project construction activities do not require coverage under the General Construction Storm Water Permit, the Applicant must develop and implement a runoff management plan (or equivalent construction BMP plan) to prevent the discharge of sediment and other pollutants during construction activities.
- E. **Waste Management.** The Applicant must properly manage, store, treat, and dispose of wastes in accordance with applicable federal, state, and local laws and regulations. Waste management shall be implemented to avoid or minimize exposure of wastes to precipitation or storm water runoff. The storage, handling, treatment, or disposal of waste shall not create conditions of pollution, contamination or nuisance as defined in Water Code section 13050. Upon Project completion, all Project generated debris, building materials, excess material, waste, and trash shall be removed from the Project site(s) for disposal at an authorized landfill or other disposal site in compliance with federal, state and local laws and regulations.
- F. **Waste Management.** Except for a discharge permitted under this Certification, the dumping, deposition, or discharge of trash, rubbish, unset cement or asphalt, concrete, grout, damaged concrete or asphalt, concrete or asphalt spoils, wash water, organic or earthen material, steel, sawdust or other construction debris waste from Project activities directly into waters of the United States and or State, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited.
- G. **Downstream Erosion.** Discharges of concentrated flow during construction or after Project completion must not cause downstream erosion or damage to properties or stream habitat.

- H. **Construction Equipment.** All equipment must be washed prior to transport to the Project site and must be free of sediment, debris, and foreign matter. All equipment used in direct contact with surface water shall be steam cleaned prior to use. All equipment using gas, oil, hydraulic fluid, or other petroleum products shall be inspected for leaks prior to use and shall be monitored for leakage. Stationary equipment (e.g., motors, pumps, generator, etc.) shall be positioned over drip pans or other types of containment.
- I. **Process Water.** Water containing mud, silt, or other pollutants from equipment washing or other activities, must not be discharged to waters of the United States and/or State or placed in locations that may be subjected to storm water runoff flows. Pollutants discharged to areas within a stream diversion must be removed at the end of each work day or sooner if rain is predicted.
- J. **Surface Water Diversion.** All surface waters, including ponded waters, must be diverted away from areas of active grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of the receiving water quality objectives. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.
- K. **Re-vegetation and Stabilization.** All areas that have 14 or more days of inactivity must be stabilized within 14 days of the last activity. The Applicant shall implement and maintain BMPs to prevent erosion of the rough graded areas. After completion of grading, all areas must be re-vegetated with native species appropriate for the area. The re-vegetation palette must not contain any plants listed on the California Invasive Plant Council Invasive Plant Inventory, which can be accessed at <http://www.cal-ipc.org/ip/inventory/>.
- L. **Hazardous Materials.** Except as authorized by this Certification, substances hazardous to aquatic life including, but not limited to, petroleum products, unused cement/concrete, asphalt, and coating materials, must be prevented from contaminating the soil and/or entering waters of the United States and/or State. BMPs must be implemented to prevent such discharges during each Project activity involving hazardous materials.
- M. **Vegetation Removal.** Removal of vegetation must occur by hand, mechanically, or through application of United States Environmental Protection Agency (USEPA) approved herbicides deployed using applicable BMPs to minimize adverse effects to beneficial uses of waters of the United States and/or State. Discharges related to the application of aquatic pesticides within waters of the United States must be done in compliance with State Water Resources Control Board Water Quality Order No. 2004-0009-DWQ, the *Statewide General National Pollution Discharge Elimination System Permit for the Discharge of Aquatic Weed Control in Waters of the United States*, and any subsequent reissuance as applicable.

- N. **Limits of Disturbance.** The Applicant shall clearly define the limits of Project disturbance to waters of the United States and/or State using highly visible markers such as flag markers, construction fencing, or silt barriers prior to commencement of Project construction activities within those areas.
- O. **On-site Qualified Biologist.** The Applicant shall designate an on-site qualified biologist to monitor Project construction activities within or adjacent to waters of the United States and/or State to ensure compliance with the Certification requirements. The biologist shall be given the authority to stop all work on-site if a violation of this Certification occurs or has the potential to occur. Records and field notes of the biologist's activities shall be kept on-site and made available for review upon request by the San Diego Water Board.
- P. **Beneficial Use Protection.** The Applicant must take all necessary measures to protect the beneficial uses of waters of Rose Creek. This Certification requires compliance with all applicable requirements of the Basin Plan. If at any time, an unauthorized discharge to surface waters (including rivers or streams) occurs or monitoring indicates that the Project is violating, or threatens to violate, water quality objectives, the associated Project activities shall cease immediately and the San Diego Water Board shall be notified in accordance with Notification Requirement VII.A of this Certification. Associated Project activities may not resume without approval from the San Diego Water Board.

IV. POST-CONSTRUCTION BEST MANAGEMENT PRACTICES

- A. **Post-Construction Discharges.** The Applicant shall not allow post-construction discharges from the Project site to cause or contribute to on-site or off-site erosion or damage to properties or stream habitats.
- B. **Storm Drain Inlets.** All storm drain inlet structures within the Project boundaries must be stamped or stenciled (or equivalent) with appropriate language prohibiting non-storm water discharges.

V. PROJECT IMPACTS AND COMPENSATORY MITIGATION

- A. **Project Impact Avoidance and Minimization.** The Project must avoid and minimize adverse impacts to waters of the United States and/or State to the maximum extent practicable.
- B. **Project Impacts and Compensatory Mitigation.** Unavoidable Project impacts to Rose Canyon Creek and its unnamed tributaries within the Penasquitos Watershed must not exceed the type and magnitude of impacts described in the table below. At a minimum, compensatory mitigation required to offset unavoidable temporary and permanent Project impacts to waters of the United States and/or State must be achieved as described in the table below:

	Impacts (acres)	Impacts (linear ft.)	Mitigation for Impacts (acres)	Mitigation Ratio (area mitigated :area impacted)	Mitigation for Impacts (linear ft.)	Mitigation Ratio (linear feet mitigated :linear feet impacted)
Permanent Impacts						
Stream Channel	0.079	341	0.079 Re-establishment and establishment ¹	1:1	341 Re-establishment and establishment	1:1
Wetland	0.059	100	0.148 Re-establishment and establishment ²	2.5:1	130 Res-establishment and establishment.	1.3:1
Riparian	0.008	55	0.008 Establishment ³ Deer Canyon	1:1	55 Establishment Deer Canyon	1:1
Temporary Impacts⁴						
Stream Channel	0.597	1,695	N/A	N/A	N/A	N/A
Wetland	0.204	203	N/A	N/A	N/A	N/A
Riparian Zone	0.031	151	N/A	N/A	N/A	N/A

1. Streambed re-establishment onsite in Rose Creek and offsite establishment at Deer Canyon Mitigation site.
2. Wetland re-establishment onsite in Rose Creek and offsite establishment at Deer Canyon Mitigation Site.
3. Riparian establishment at Deer Canyon Mitigation Site.
4. All areas of temporary impacts must be restored to pre-project contours and re-vegetated with native species.

C. Mitigation Use Ledger. The Applicant shall establish and maintain a mitigation use ledger for the Deer Canyon Mitigation Site. The mitigation use ledger shall show all mitigation use transactions from each mitigation site and shall show the beginning and current balance of available mitigation for each type, all additions and subtractions of mitigation, and any other changes in mitigation availability, such as additional mitigation released or suspended mitigation transfers. The mitigation use ledger shall include at a minimum:

1. Mitigation site(s) name;
2. Mitigation site(s) water quality certification number;
3. Total amount (acres) of each type of mitigation;
4. Project name to expend mitigation;
5. Project contact name and phone number;
6. Date of mitigation expenditure;

7. Type(s) of mitigation expended;
 8. Amount of mitigation expended for the Project; and
 9. Balance (acres) of each type of mitigation remaining.
- D. **Mitigation Use Ledger Submittal.** The Applicant shall submit an updated mitigation use ledger for the Deer Canyon Mitigation Site to the San Diego Water Board within 30 days of the issuance of this Certification. Additionally, the Applicant shall submit an updated mitigation use ledger with each water quality certification application submitted by the Applicant that proposes to use compensatory mitigation for project impacts from the Deer Canyon Mitigation Site.
- E. **Compensatory Mitigation Plan Implementation.** The Applicant must fully and completely implement the Mitigation Plan; any deviations from, or revisions to, the Mitigation Plan must be pre-approved by the San Diego Water Board
- F. **Performance Standards.** Compensatory mitigation required under this Certification shall be considered achieved once it has met the ecological success performance standards contained in the Mitigation Plan to the satisfaction of the San Diego Water Board.
- G. **Compensatory Mitigation Site Design.** The compensatory mitigation site(s) shall be designed to be self-sustaining once performance standards have been achieved. This includes minimization of active engineering features (e.g., pumps) and appropriate siting to ensure that natural hydrology and landscape context support long-term sustainability in conformance with the following conditions:
1. Most of the channels through the mitigation sites shall be characterized by equilibrium conditions, with no evidence of severe aggradation or degradation;
 2. As viewed along cross-sections, the channel and buffer area(s) shall have a variety of slopes, or elevations, that are characterized by different moisture gradients. Each sub-slope shall contain physical patch types or features that contribute to irregularity in height, edges, or surface and to complex topography overall; and
 3. The mitigation sites shall have a well-developed plant community characterized by a high degree of horizontal and vertical interspersation among plant zones and layers.
- H. **Temporary Project Impact Areas.** The Applicant must restore all areas of temporary impacts and all other areas of temporary disturbance which could result in a discharge or a threatened discharge of pollutants to waters of the United States and/or State. Restoration must include grading of disturbed areas to pre-project contours and re-vegetation with native species. The Applicant must implement all necessary BMPs to control erosion and runoff from areas associated with the Project.

- I. **Long Term Management and Maintenance.** The compensatory mitigation site(s), must be managed, protected, and maintained, in perpetuity, in conformance with the long term management plan and the final ecological success performance standards identified in the Mitigation Plan(s). The aquatic habitats, riparian areas, buffers and uplands that comprise the mitigation site(s) must be protected in perpetuity from land-use and maintenance activities that may threaten water quality or beneficial uses within the mitigation area(s) in a manner consistent with the following requirements:
1. Any maintenance activities on the mitigation site(s) that do not contribute to the success of the mitigation site(s) and enhancement of beneficial uses and ecological functions and services are prohibited;
 2. Maintenance activities must be limited to the removal of trash and debris, removal of exotic plant species, replacement of dead native plant species, and remedial measures deemed necessary for the success of the compensatory mitigation project;
 3. The mitigation site(s) must be maintained, in perpetuity, free of perennial exotic plant species including, but not limited to, pampas grass, giant reed, tamarisk, sweet fennel, tree tobacco, castor bean, and pepper tree. Annual exotic plant species must not occupy more than 5 percent of the mitigation site(s); and
 4. If at any time a catastrophic natural event (e.g., fire, flood) causes damage(s) to the mitigation site(s) or other deficiencies in the compensatory mitigation project, the Applicant must take prompt and appropriate action to repair the damage(s) including replanting the affected area(s) and address any other deficiencies. The San Diego Water Board may require additional monitoring by the Applicant to assess how the compensatory mitigation site(s) or project is responding to a catastrophic natural event.
- J. **Timing of Mitigation Site Construction.** The construction of proposed mitigation must be concurrent with project grading and completed no later than 9 months following the start of Project construction. Delays in implementing mitigation must be compensated for by an increased mitigation implementation of 10% of the cumulative compensatory mitigation for each month of delay.
- K. **Mitigation Site(s) Preservation Mechanism.** **Within 90 days from the start of the issuance of this Certification**, the Applicant must provide the San Diego Water Board a draft preservation mechanism (e.g. deed restriction, conservation easement, etc.) that will protect all mitigation areas and their buffers in perpetuity. **Within 180 days of the start of Project construction**, the Applicant must submit proof of a completed final preservation mechanism that will protect all off-site mitigation areas and their buffers in perpetuity. The conservation easement, deed restriction, or other legal limitation on the mitigation properties must be adequate to demonstrate that the sites will be maintained without future development or encroachment on the sites which could otherwise reduce the functions and values of the sites for the variety of beneficial uses of waters of the United States and/ or State that it supports. The legal limitation must prohibit, without exception, all residential, commercial, industrial, institutional, and transportation

development, and any other infrastructure development that would not maintain or enhance the wetland and streambed functions and values of the sites. The preservation mechanism must clearly prohibit activities that would result in soil disturbance or vegetation removal, other than the removal of non-native vegetation. Other infrastructure development to be prohibited includes, but is not limited to, additional utility lines, maintenance roads, and areas of maintained landscaping for recreation.

- L. If on-site mitigation areas are impacted by future projects, three times the original mitigation ratio will be required to offset the impact to the on-site mitigation area.

VI. MONITORING AND REPORTING REQUIREMENTS

- A. **Representative Monitoring.** Samples and measurements taken for the purpose of monitoring under this Certification shall be representative of the monitored activity.
- B. **Monitoring Reports.** Monitoring results shall be reported to the San Diego Water Board at the intervals specified in section VI of this Certification.
- C. **Monitoring and Reporting Revisions.** The San Diego Water Board may make revisions to the monitoring program at any time during the term of this Certification and may reduce or increase the number of parameters to be monitored, locations monitored, the frequency of monitoring, or the number and size of samples collected.
- D. **Records of Monitoring Information.** Records of monitoring information shall include:
 - 1. The date, exact place, and time of sampling or measurements;
 - 2. The individual(s) who performed the sampling or measurements;
 - 3. The date(s) analyses were performed;
 - 4. The individual(s) who performed the analyses;
 - 5. The analytical techniques or methods used; and
 - 6. The results of such analyses.
- E. **California Rapid Assessment Method.** California Rapid Assessment Method (CRAM)² monitoring must be performed to assess the current and potential ecological conditions (ecological integrity) of the impact sites and proposed compensatory mitigation site(s). These conditions reflect the overall level of ecological function of an aquatic resource. Prior to initiating Project construction, the Applicant shall develop a monitoring plan to implement California Rapid Assessment Method (CRAM) monitoring. The Applicant must conduct a quantitative function-based assessment of the health of

² The most recent versions of the California Rapid Assessment Method (CRAM) for Wetlands and additional information regarding CRAM can be accessed at <http://www.cramwetlands.org/>

streambed habitat to establish pre-project baseline conditions, set CRAM success criteria, and assess the mitigation site(s) progress towards meeting the success criteria. CRAM monitoring must be conducted prior to the start of Project construction authorized under this Certification and annually following construction completion for a period of 5 years. The annual CRAM monitoring results shall be submitted with the Annual Project Progress Report. An evaluation, interpretation, and tabulation of all CRAM assessment data shall be submitted with the Final Project Completion Report.

F. **Benthic Macroinvertebrate Community Analysis.** The Applicant shall conduct bioassessment monitoring, as described in this section, to assess the success of Deer Canyon mitigation site, whenever applicable, using benthic macroinvertebrate community data. Bioassessment shall include: 1) the collection and reporting of benthic macroinvertebrate data; and 2) the collection and reporting of physical habitat data. Bioassessment using benthic macroinvertebrates shall be conducted in perennial wadeable streams during the index period. Perennial streams shall be defined as streams with surface water flow present during the appropriate index period³. Wadeable streams shall be defined as streams that can be safely waded in order to be sampled for benthic invertebrates during the appropriate index period. If the appropriate sampling period lies outside the index period, please contact the San Diego Water Board.

1. **Field Methods.** Bioassessment monitoring must be performed using the SWAMP field methods specified in *Standard Operating Procedures for Collecting Benthic Macroinvertebrate Samples and Associated Physical and Chemical Data for Ambient Bioassessments in California*⁴ (SOP, Ode 2007) or any updates of these methods. The Applicant shall conduct, concurrently with all required benthic macroinvertebrate collections, the "Full" suite of physical habitat characterization measurements as specified in Table 1 of the SOP.
2. **Laboratory Methods.** Benthic macroinvertebrates shall be identified using the SWAMP laboratory methods specified in *Standard Operating Procedures for Laboratory Processing and Identification of Benthic Macroinvertebrates in California*⁵ (Laboratory SOP, Woodard et al. 2012) or any updates of these methods. Standard Taxonomic Effort (STE) Level II of the Southwestern Association of Freshwater Invertebrate Taxonomists (SAFIT) is required. Quality control samples are required for 10% of the samples each year and Quality Assurance samples must be analyzed by the Aquatic Bioassessment Laboratory of the California Department of Fish and Wildlife.

³ The appropriate index period can be found electronically at the following location:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/cgp_biomap.pdf

⁴ The SOP can be found electronically at the following location:
http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/phab_sopr6.pdf

⁵ The Laboratory SOP can be found electronically at the following location:
http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/bmi_lab_sop_final.pdf

3. **Data Analysis.** Analysis of benthic macroinvertebrate data shall be conducted using scoring tools including but not limited to the *Southern California Index of Biotic Integrity*⁶ (Ode et. al. 2005) and the *California Stream Condition Index*⁷ (CSCI, Mazor et. al., currently in review) when the CSCI scoring tool is finalized.
4. **Data Storage.** Benthic macroinvertebrate data and physical habitat data shall be submitted to the California Environmental Data Exchange Network⁸ (CEDEN).
5. **Monitoring Sites.** All monitoring sites shall be approved by staff at the San Diego Water Board before sampling is initiated and must meet the following conditions:
 - a. **Mitigation Sites.** At a minimum, bioassessment monitoring for mitigation areas must be performed at three sites (assessment stations) in Deer Canyon before Project initiation, and then in years three and five following start of Project construction, during the established "index period" for the Penasquitos watershed. The first assessment station is the reference station, which must be located upstream of the mitigation site(s) in a reference area; the second assessment station must be located within the mitigation sites; and the third assessment station must be located downstream of the mitigation sites. The reference station upstream of the mitigation sites must be located and sampled concurrently with the second and third assessment stations. Reference stations shall be defined as stations that show minimally disturbed conditions.
 - b. **Monitoring Sites Before/After Construction.** At a minimum, bioassessment monitoring for impacts during construction must be performed during the established index period for the Penasquitos watershed, at two sites (assessment stations) in Deer Canyon before Project initiation and then 6 months after construction has ended. The first assessment must be located upstream of the construction sites, and the second assessment station must be located downstream the construction sites.
6. **Monitoring Reports.** An evaluation, interpretation and tabulation of the benthic macroinvertebrate community analysis must be submitted prior to **March 1** with the respective Annual Project Monitoring Report.

G. Discharge Commencement Notification. The Applicant must notify the San Diego Water Board in writing **at least 5 days prior to** the start of Project construction.

⁶ The *Southern California Index of Biotic Integrity* can be found electronically at the following location:
http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/reports/coastalstreams.pdf

⁷ The *California Stream Condition Index* can be found electronically at the following location:
http://www.waterboards.ca.gov/plans_policies/docs/biological_objective/2_scoring%20tool.pdf

⁸ The California Environmental Data Exchange Network can be found electronically at the following location:
<http://www.ceden.org/>

H. **Annual Project Progress Reports.** The Applicant must submit annual Project progress reports describing status of BMP implementation, compensatory mitigation, and compliance with all requirements of this Certification to the San Diego Water Board prior to **March 1** of each year following the issuance of this Certification, until the Project has reached completion. The Annual Project Progress Reports must contain compensatory mitigation monitoring information sufficient to demonstrate how the compensatory mitigation project is progressing towards accomplishing its objectives and meeting its performance standards. Annual Project Progress Reports must be submitted even if Project construction has not begun. The monitoring period for each Annual Project Progress Report shall be January 1st through December 31st of each year. Annual Project Progress Reports must include, at a minimum, the following:

1. **Project Status and Compliance Reporting.** The Annual Project Progress Report must include the following Project status and compliance information:
 - a. The names, qualifications, and affiliations of the persons contributing to the report;
 - b. The status, progress, and anticipated schedule for completion of Project construction activities including the installation and operational status of best management practices project features for erosion and storm water quality treatment;
 - c. A description of Project construction delays encountered or anticipated that may affect the schedule for construction completion; and
 - d. A description of each incident of noncompliance during the annual monitoring period and its cause, the period of the noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
2. **Compensatory Mitigation Monitoring Reporting.** Mitigation monitoring information must be submitted as part of the Annual Project Progress Report for a period of not less than five years, sufficient to demonstrate that the compensatory mitigation project has accomplished its objectives and met ecological success performance standards contained in the Mitigation Plan. Following Project implementation the San Diego Water Board may reduce or waive compensatory mitigation monitoring requirements upon a determination that performance standards have been achieved. Conversely the San Diego Water Board may extend the monitoring period beyond five years upon a determination that the performance standards have not been met or the compensatory mitigation project is not on track to meet them. The Annual Project Progress Report must include the following compensatory mitigation monitoring information:
 - a. Names, qualifications, and affiliations of the persons contributing to the report;

- b. An evaluation, interpretation, and tabulation of the parameters being monitored, including the results of the Mitigation Plan monitoring program, and all quantitative and qualitative data collected in the field;
 - c. A description of the following mitigation site(s) characteristics:
 - i. Detritus cover;
 - ii. General topographic complexity;
 - iii. General upstream and downstream habitat and hydrologic connectivity; and
 - iv. Source of hydrology
 - d. Monitoring data interpretations and conclusions as to how the compensatory mitigation project(s) is progressing towards meeting performance standards and whether the performance standards have been met;
 - e. A description of the progress toward implementing a plan to manage the compensatory mitigation project after performance standards have been achieved to ensure the long term sustainability of the resource in perpetuity, including a discussion of long term financing mechanisms, the party responsible for long term management, and a timetable for future steps;
 - f. Qualitative and quantitative comparisons of current mitigation conditions with pre-construction conditions and previous mitigation monitoring results;
 - g. Stream photo documentation, including all areas of permanent and temporary impact, prior to and after mitigation site construction. Photo documentation must be conducted in accordance with guidelines posted at http://www.waterboards.ca.gov/sandiego/water_issues/programs/401_certification/docs/StreamPhotoDocSOP.pdf. In addition, photo documentation must include Geographic Positioning System (GPS) coordinates for each of the photo points referenced;
 - h. The results of the California Rapid Assessment Method (CRAM) monitoring required under section VI.E of this Certification;
 - i. The results of the Benthic Macroinvertebrate Community Analysis monitoring required under section VI.F of this Certification;
 - j. As-built drawings of the compensatory mitigation project site(s), no bigger than 11"X17"; and
 - k. A survey report documenting boundaries of the compensatory mitigation site(s).
- l. **Final Project Completion Report.** The Applicant must submit a Final Project Completion Report to the San Diego Water Board **within 30 days of completion of the Project.** The final report must include the following information:
- 1. Date of construction initiation;

2. Date of construction completion;
 3. BMP installation and operational status for the Project;
 4. As-built drawings of the Project, no bigger than 11"X17";
 5. Photo documentation of implemented post-construction BMPs and all areas of permanent and temporary impacts, prior to and after project construction. Photo documentation must be conducted in accordance with guidelines posted at http://www.waterboards.ca.gov/sandiego/water_issues/programs/401_certification/docs/StreamPhotoDocSOP.pdf. In addition, photo documentation must include Global Positioning System (GPS) coordinates for each of the photo points referenced; and
 6. An evaluation, interpretation, and tabulation of all California Rapid Assessment Method (CRAM) and benthic macroinvertebrate community assessment data collected throughout the term of Project construction in accordance with section VI.E and VI.F of this Certification.
- J. **Reporting Authority.** The submittal of information required under this Certification, or in response to a suspected violation of any condition of this Certification, is required pursuant to Water Code section 13267 and 13383. Civil liability may be administratively imposed by the San Diego Water Board for failure to submit information pursuant to Water Code sections 13268 or 13385.
- K. **Electronic Document Submittal.** The Applicant must submit all reports and information required under this Certification in electronic format via e-mail to SanDiego@waterboards.ca.gov. Documents over 50 megabytes will not be accepted via e-mail and must be placed on a disc and delivered to:
- California Regional Water Quality Control Board
San Diego Region
Attn: 401 Certification No. R9-2015-0053: 813867:mporter
2375 Northside Drive, Suite 100
San Diego, California 92108
- Each electronic document must be submitted as a single file, in Portable Document Format (PDF) format, and converted to text searchable format using Optical Character Recognition (OCR). All electronic documents must include scanned copies of all signature pages; electronic signatures will not be accepted. Electronic documents submitted to the San Diego Water Board must include the following identification numbers in the header or subject line: Certification No. R9-2015-0053 813867:mporter.
- L. **Document Signatory Requirements.** All applications, reports, or information submitted to the San Diego Water Board must be signed as follows:

1. For a corporation, by a responsible corporate officer of at least the level of vice president.
2. For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
3. For a municipality, or a state, federal, or other public agency, by either a principal executive officer or ranking elected official.
4. A duly authorized representative may sign applications, reports, or information if:
 - a. The authorization is made in writing by a person described above.
 - b. The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
 - c. The written authorization is submitted to the San Diego Water Board Executive Officer.

If such authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the Project, a new authorization satisfying the above requirements must be submitted to the San Diego Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative.

- M. **Document Certification Requirements.** All applications, reports, or information submitted to the San Diego Water Board must be certified as follows:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

VII. NOTIFICATION REQUIREMENTS

- A. **Twenty Four Hour Non-Compliance Reporting.** The Applicant shall report any noncompliance which may endanger health or the environment. Any such information shall be provided orally to the San Diego Water Board within **24 hours** from the time the Applicant becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Applicant becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The San Diego Water Board, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

- B. Hazardous Substance Discharge.** Except for a discharge which is in compliance with this Certification, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, shall as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the County of San Diego, in accordance with California Health and Safety Code section 5411.5 and the California Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Government Code Title 2, Division 1, Chapter 7, Article 3.7 (commencing with section 8574.17), and immediately notify the State Water Board or the San Diego Water Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of section 13271 of the Water Code unless the Applicant is in violation of a Basin Plan prohibition.
- C. Oil or Petroleum Product Discharge.** Except for a discharge which is in compliance with this Certification, any person who without regard to intent or negligence, causes or permits any oil or petroleum product to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) such person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the California Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State oil spill contingency plan adopted pursuant to Government Code Title 2, Division 1, Chapter 7, Article 3.7 (commencing with section 8574.1). This requirement does not require reporting of any discharge of less than 42 gallons unless the discharge is also required to be reported pursuant to Clean Water Act section 311, or the discharge is in violation of a Basin Plan prohibition.
- D. Anticipated Noncompliance.** The Applicant shall give advance notice to the San Diego Water Board of any planned changes in the Project or the Compensatory Mitigation project which may result in noncompliance with Certification conditions or requirements.
- E. Transfers.** This Certification is not transferable in its entirety or in part to any person or organization except after notice to the San Diego Water Board in accordance with the following terms:
- 1. Transfer of Property Ownership:** The Applicant must notify the San Diego Water Board of any change in ownership of the Project area. Notification of change in ownership must include, but not be limited to, a statement that the Applicant has provided the purchaser with a copy of the Section 401 Water Quality Certification and that the purchaser understands and accepts the certification requirements and the obligation to implement them or be subject to liability for failure to do so; the seller and purchaser must sign and date the notification and provide such notification to the San Diego Water Board **within 10 days of the transfer of ownership.**

2. **Transfer of Mitigation Responsibility:** Any notification of transfer of responsibilities to satisfy the mitigation requirements set forth in this Certification must include a signed statement from an authorized representative of the new party (transferee) demonstrating acceptance and understanding of the responsibility to comply with and fully satisfy the mitigation conditions and agreement that failure to comply with the mitigation conditions and associated requirements may subject the transferee to enforcement by the San Diego Water Board under Water Code section 13385, subdivision (a). Notification of transfer of responsibilities meeting the above conditions must be provided to the San Diego Water Board **within 10 days of the transfer date**.

3. **Transfer of Post-Construction BMP Maintenance Responsibility:** The Applicant assumes responsibility for the inspection and maintenance of all post-construction structural BMPs until such responsibility is legally transferred to another entity. At the time maintenance responsibility for post-construction BMPs is legally transferred the Applicant must submit to the San Diego Water Board a copy of such documentation and must provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer specifications. The Applicant must provide such notification to the San Diego Water Board within **10 days** of the transfer of BMP maintenance responsibility.

Upon properly noticed transfers of responsibility, the transferee assumes responsibility for compliance with this Certification and references in this Certification to the Applicant will be interpreted to refer to the transferee as appropriate. Transfer of responsibility does not necessarily relieve the Applicant of this Certification in the event that a transferee fails to comply.

VIII. CALIFORNIA ENVIRONMENTAL QUALITY ACT COMPLIANCE

- A. The Rail projects related to interstate commerce fall under the jurisdiction of the federal Surface Transportation Board. The Surface Transportation Board has found that federal law preempts state and local regulation of such projects under the Interstate Commerce Clause of the U.S. Constitution. The San Diego Water Board finds this project is not subject to California Environmental Quality Act.

- B. As a Responsible Agency under CEQA, the San Diego Water Board will file a Notice of Exemption in accordance with CEQA Guidelines section 15260.

IX. SAN DIEGO WATER BOARD CONTACT PERSON

Mike Porter, Engineering Geologist
Telephone: 619-521-3967
Email: mike.porter@waterboards.ca.gov

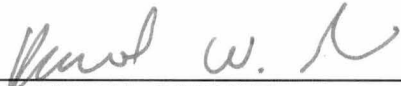
X. WATER QUALITY CERTIFICATION

I hereby certify that the proposed discharge from the **Elvira to Morena Double Track** (Certification No. R9-2015-0053) will comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water

Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Board Order No. 2003-0017-DWQ, "*Statewide General Waste Discharge Requirements for Dredged or Fill Discharges that have Received State Water Quality Certification (General WDRs)*," which requires compliance with all conditions of this Water Quality Certification. Please note that enrollment under Order No. 2003-017-DWQ is conditional and, should new information come to our attention that indicates a water quality problem, the San Diego Water Board may issue individual waste discharge requirements at that time.

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited to, and all proposed mitigation being completed in strict compliance with, the applicants' Project description and/or the description in this Certification, and (b) compliance with all applicable requirements of the Basin Plan.

I, David W. Gibson, Executive Officer, do hereby certify the forgoing is a full, true, and correct copy of Certification No. R9-2015-0053 issued on August 11, 2015.



DAVID W. GIBSON
Executive Officer
San Diego Water Board

11 Aug 2015
Date

ATTACHMENT 1

DEFINITIONS

Activity - when used in reference to a permit means any action, undertaking, or project including, but not limited to, construction, operation, maintenance, repair, modification, and restoration which may result in any discharge to waters of the state.

Buffer - means an upland, wetland, and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses.

California Rapid Assessment Method (CRAM) - is a wetland assessment method intended to provide a rapid, scientifically-defensible and repeatable assessment methodology to monitor status and trends in the conditions of wetlands for applications throughout the state. It can also be used to assess the performance of compensatory mitigation projects and restoration projects. CRAM provides an assessment of overall ecological condition in terms of four attributes: landscape context and buffer, hydrology, physical structure and biotic structure. CRAM also includes an assessment of key stressors that may be affecting wetland condition and a "field to PC" data management tool (eCRAM) to ensure consistency and quality of data produced with the method.

Compensatory Mitigation Project - means compensatory mitigation implemented by the Applicant as a requirement of this Certification (i.e., applicant -responsible mitigation), or by a mitigation bank or an in-lieu fee program.

Discharge of dredged material – means any addition of dredged material into, including redeposit of dredged material other than incidental fallback within, the waters of the United States and/or State.

Discharge of fill material – means the addition of fill material into waters of the United States and/or State.

Dredged material – means material that is excavated or dredged from waters of the United States and/or State.

Ecological Success Performance Standards – means observable or measurable physical (including hydrological), chemical, and/or biological attributes that are used to determine if a compensatory mitigation project meets its objectives.

Enhancement – means the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment – means the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist. Creation results in a gain in aquatic resource area.

Fill material – means any material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a water body.

Isolated wetland – means a wetland with no surface water connection to other aquatic resources.

Mitigation Bank – means a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing mitigation for impacts authorized by this Certification.

Preservation - means the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment - means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/ historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation - means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/ historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration - means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Start of Project Construction - For the purpose of this Certification, "start of Project construction" means to engage in a program of on-site construction, including site clearing, grading, dredging, landfilling, changing equipment, substituting equipment, or even moving the location of equipment specifically designed for a stationary source in preparation for the fabrication, erection or installation of the building components of the stationary source within waters of the United States and/or State.

Uplands - means non-wetland areas that lack any field-based indicators of wetlands or other aquatic conditions. Uplands are generally well-drained and occur above (i.e., up-slope) from nearby aquatic areas. Wetlands can, however, be entirely surrounded by uplands. For example, some natural seeps and constructed stock ponds lack aboveground hydrological connection to other aquatic areas. In the watershed context, uplands comprise the landscape matrix in which aquatic areas form. They are the primary sources of sediment, surface runoff, and associated chemicals that are deposited in aquatic areas or transported through them.

Water quality objectives and other appropriate requirements of state law – means the water quality objectives and beneficial uses as specified in the appropriate water quality control plan(s); the applicable provisions of sections 301, 302, 303, 306, and 307 of the Clean Water Act; and any other appropriate requirement of state law.

San Diego Association of Governments
Elvira to Morena Double Track
Certification No. R9-2015-0053

ATTACHMENT 2
PROJECT LOCATION MAPS and FIGURES

Figure 1 – Project Location

Figures 2a to 2f – Project Footprint

Figures 7a to 7l – Impacts to Jurisdictional Areas

Figure 1. Project Location

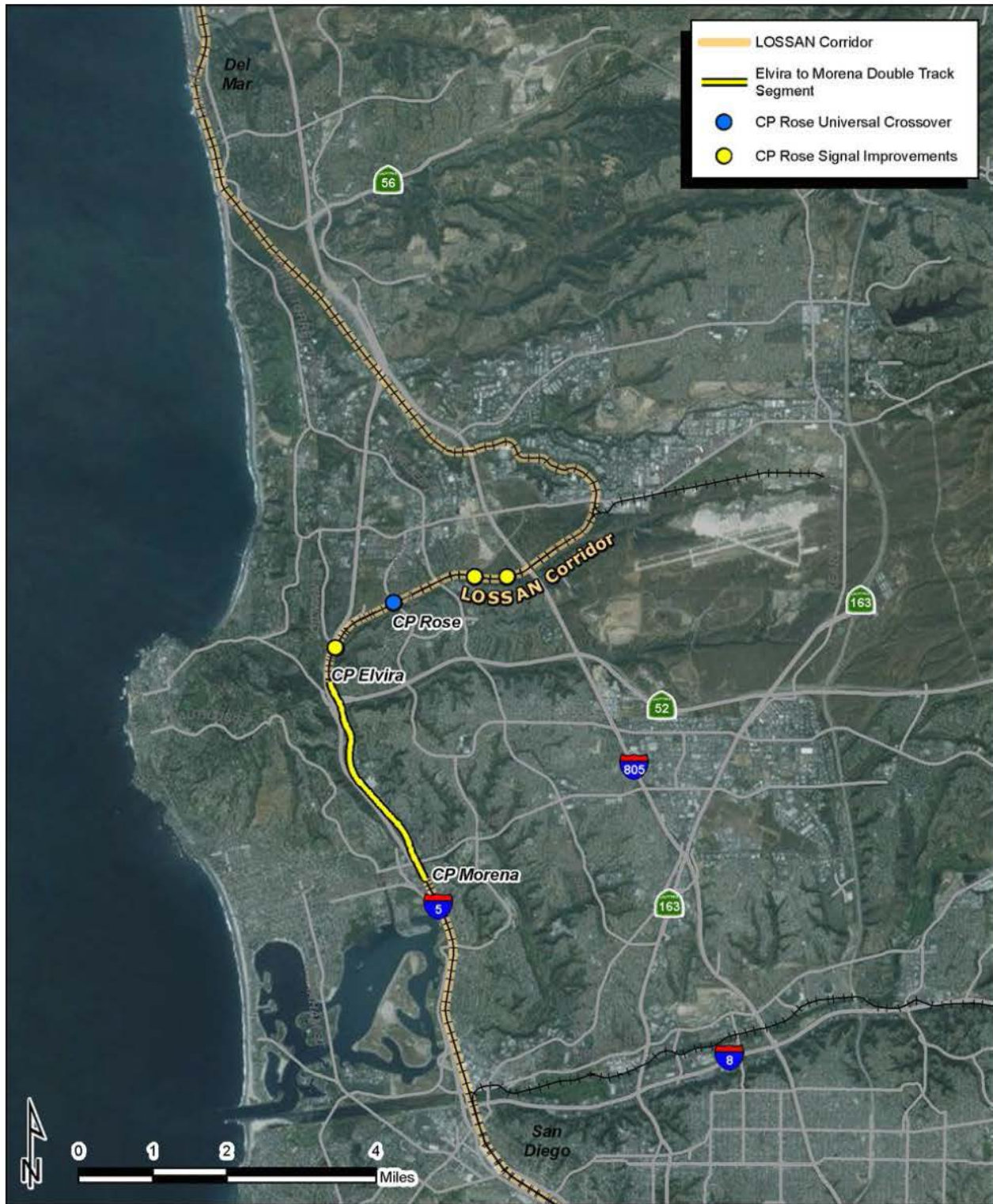


Figure 2a. Project Footprint

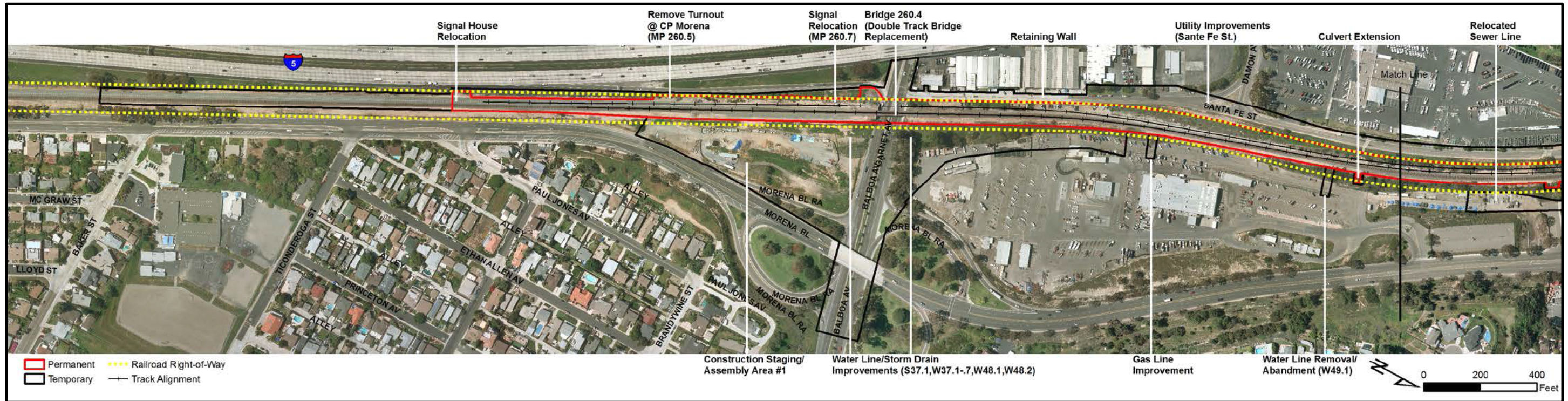


Figure 2b. Project Footprint

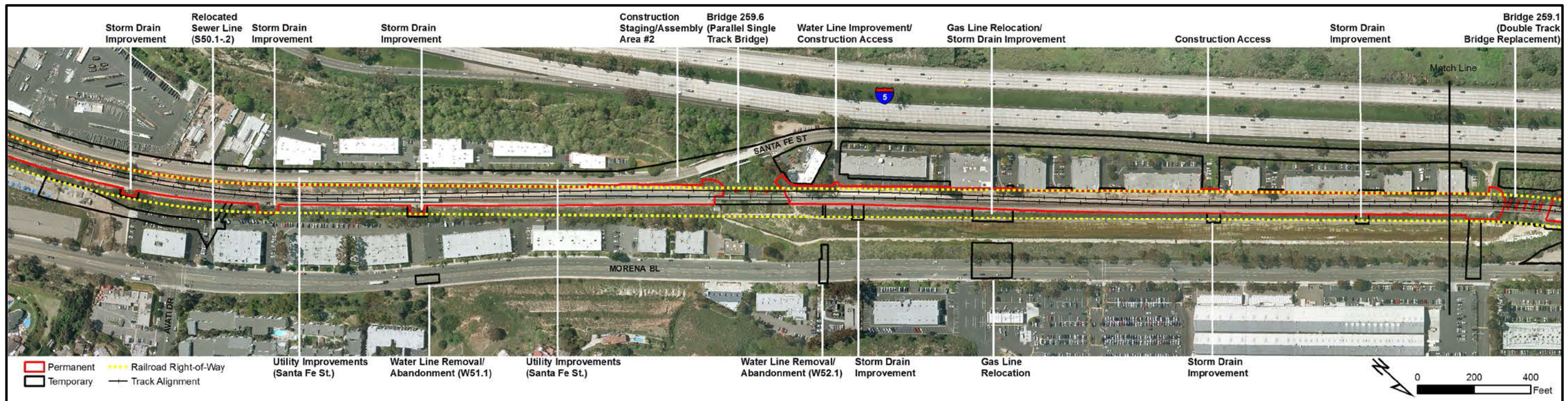


Figure 2c. Project Footprint

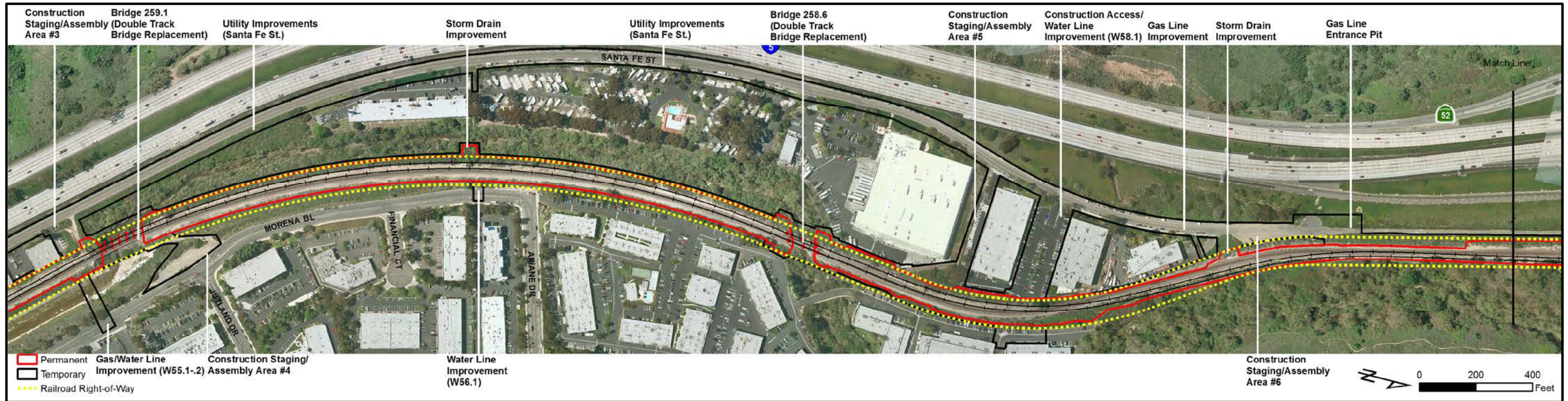


Figure 2d. Project Footprint

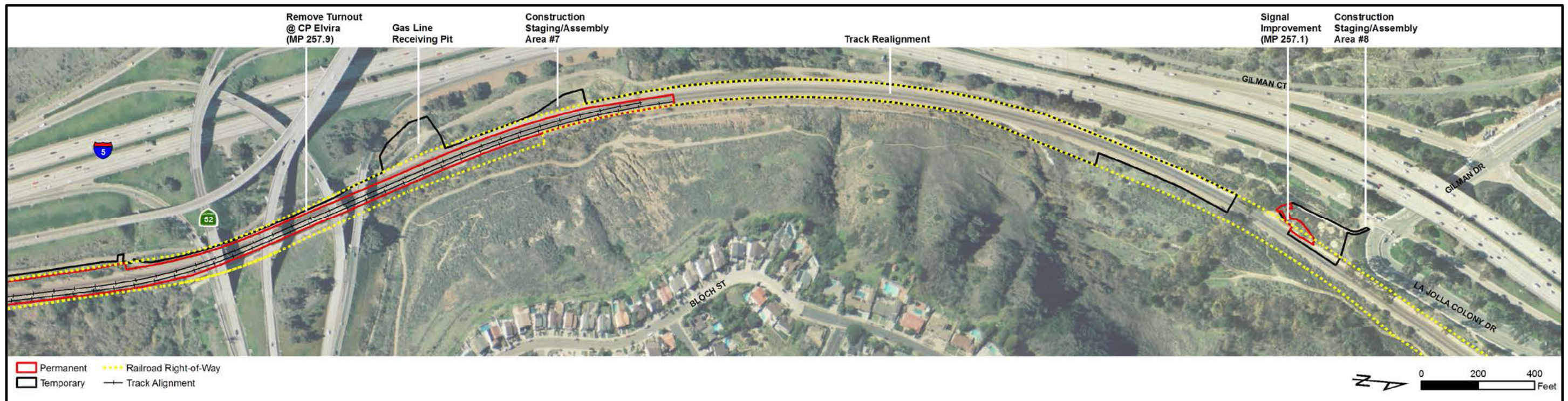


Figure 2e. Project Footprint

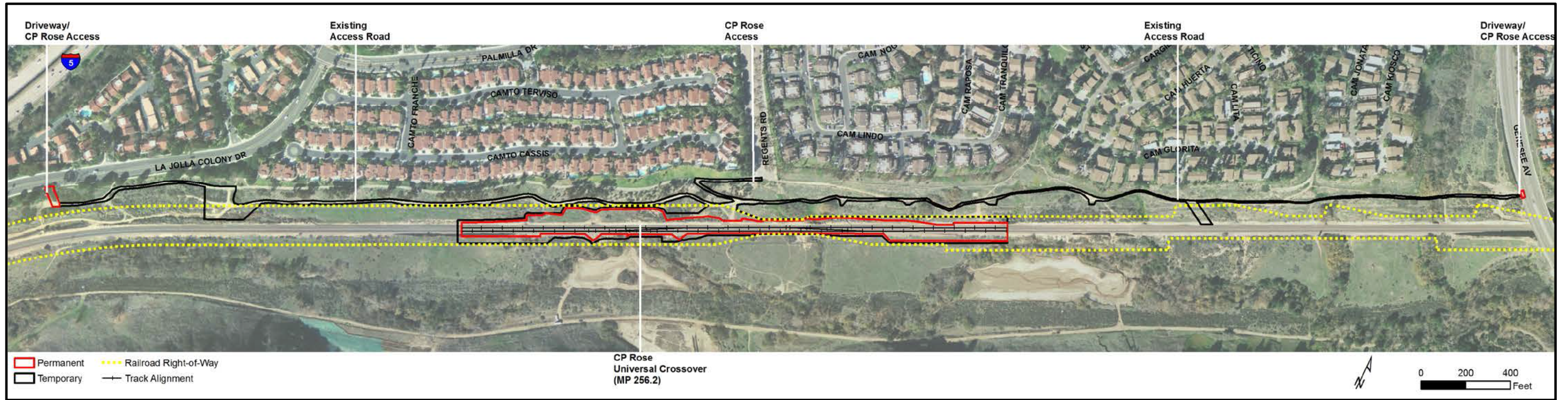


Figure 2f. Project Footprint

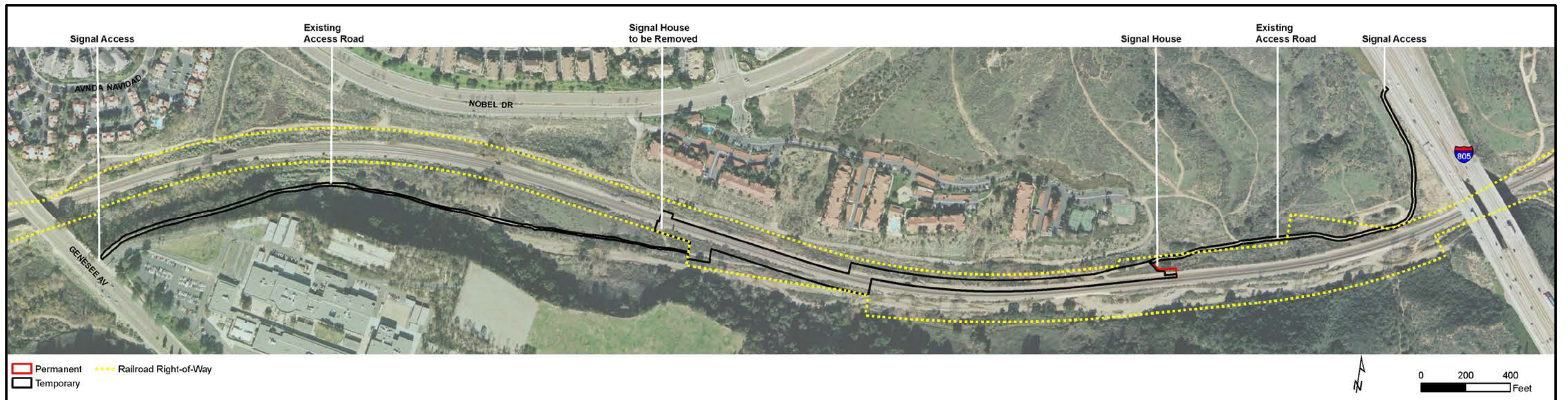
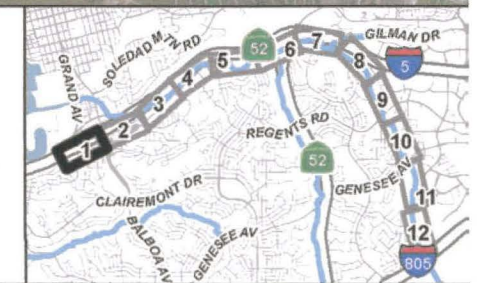
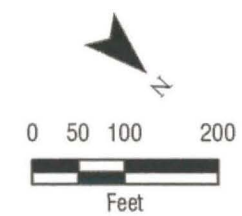


Figure 7a. Impacts to Jurisdictional Areas



- Study Area
- Railroad Right-of-Way
- USACE Non-Wetland Waters
- Track Alignment
- Culvert
- USACE Wetland Waters
- Permanent Impact
- 5 ft Contour
- Soil Pit
- Temporary Impact

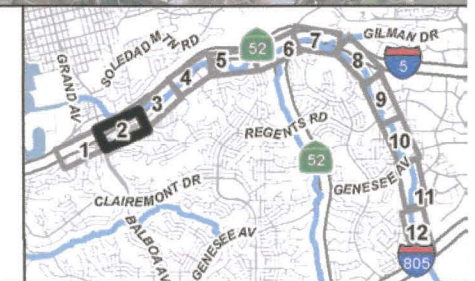
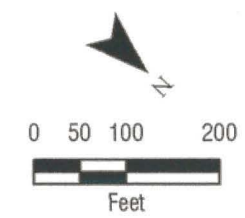


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Figure 7b. Impacts to Jurisdictional Areas

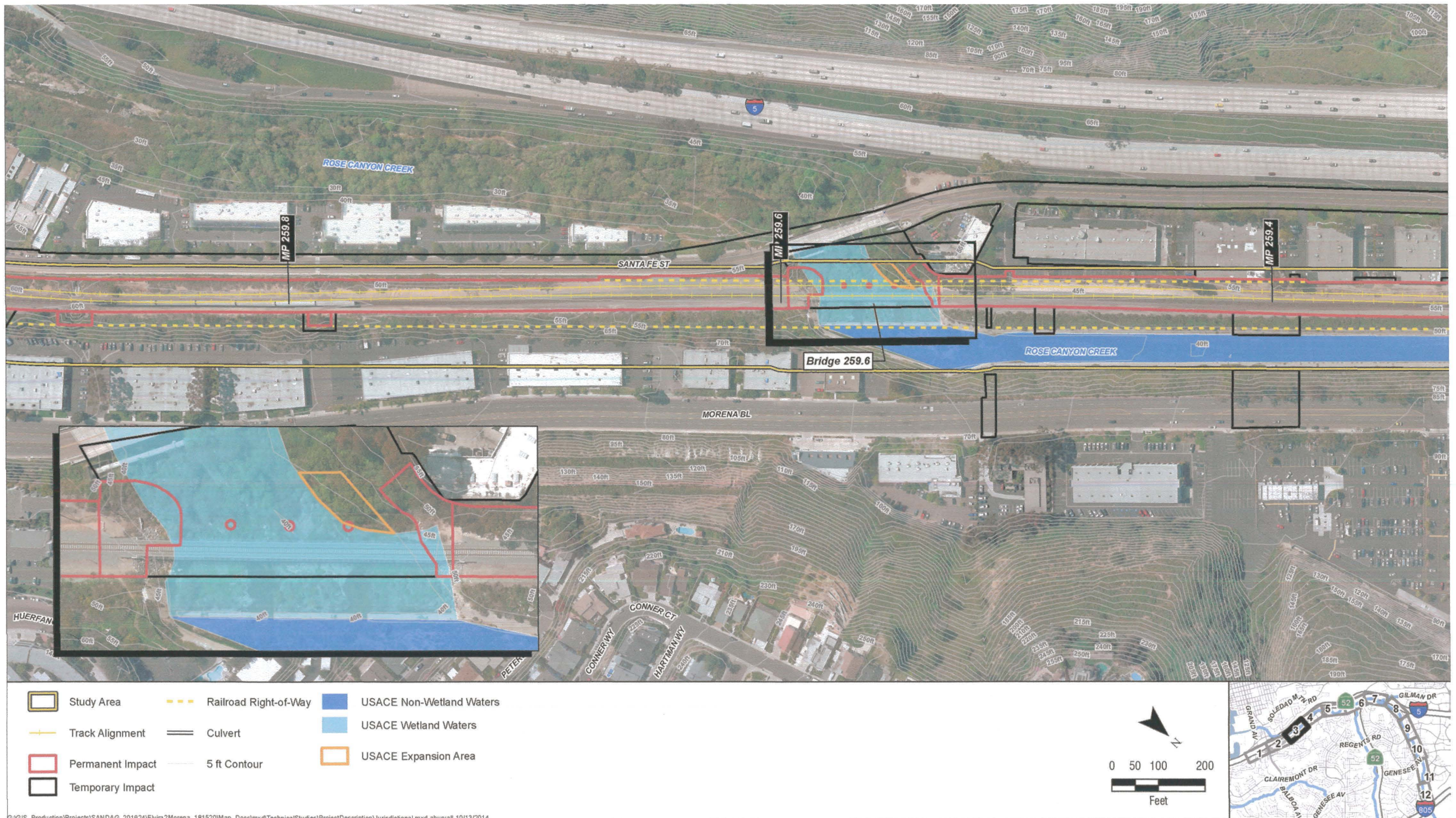


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|------------------|-----------------------|--------------------------|
| Study Area | Railroad Right-of-Way | USACE Non-Wetland Waters |
| Track Alignment | Culvert | USACE Wetland Waters |
| Permanent Impact | 5 ft Contour | Soil Pit |
| Temporary Impact | | |



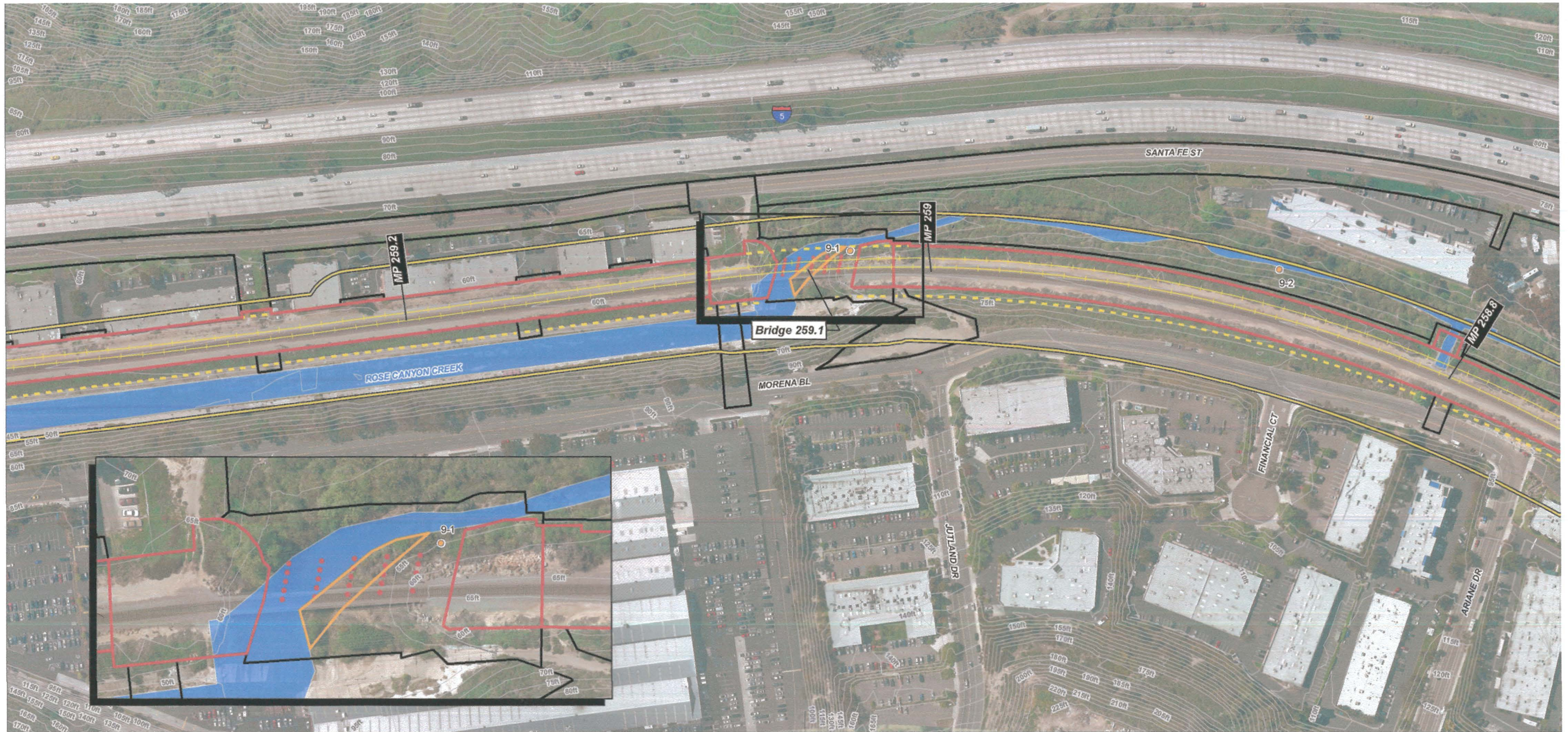
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Figure 7c. Impacts to Jurisdictional Areas

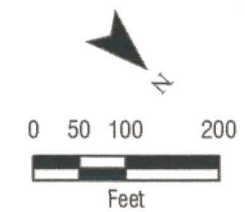


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Figure 7d. Impacts to Jurisdictional Areas

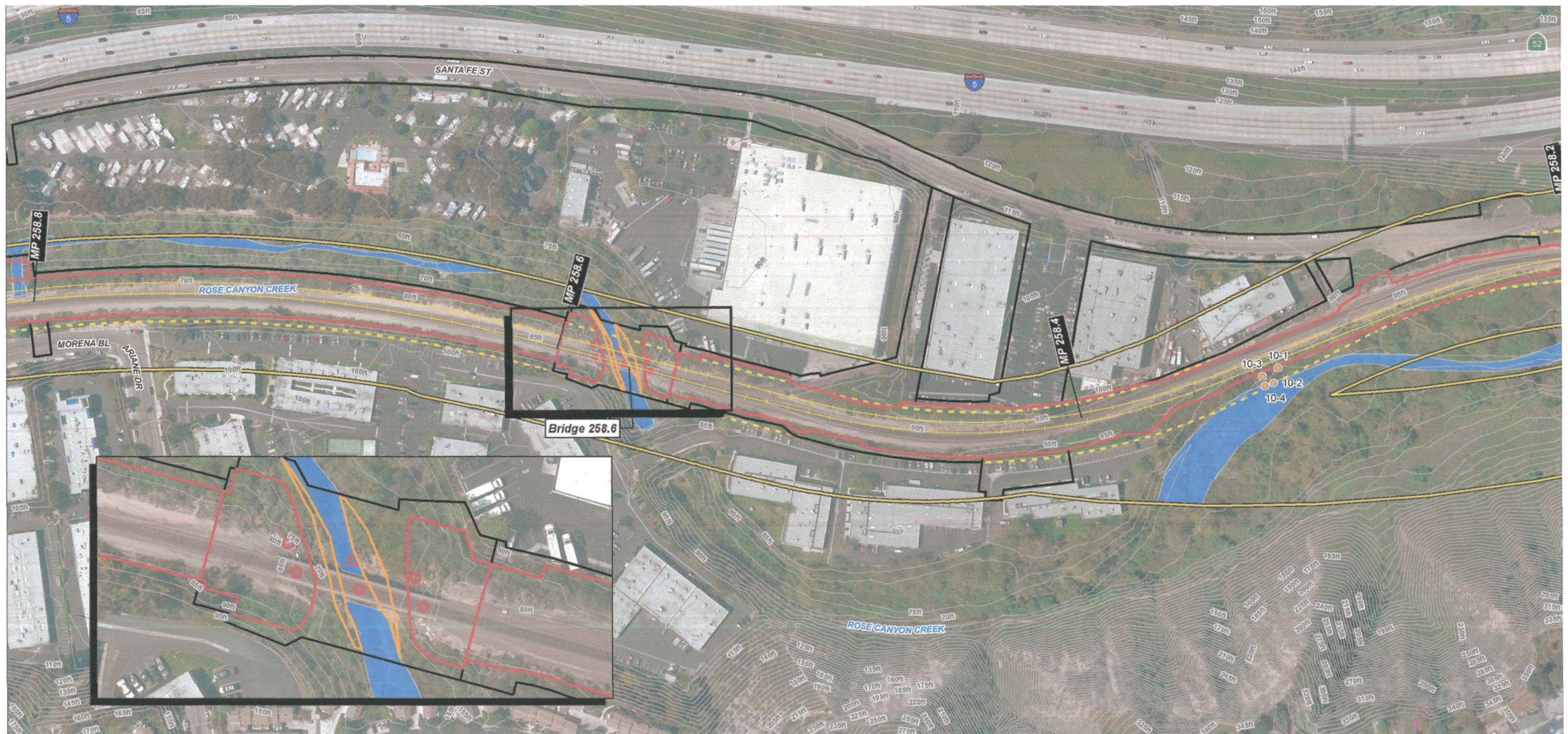


- Study Area
- Railroad Right-of-Way
- USACE Non-Wetland Waters
- Track Alignment
- Culvert
- USACE Wetland Waters
- Permanent Impact
- 5 ft Contour
- USACE Expansion Area
- Temporary Impact
- Soil Pit

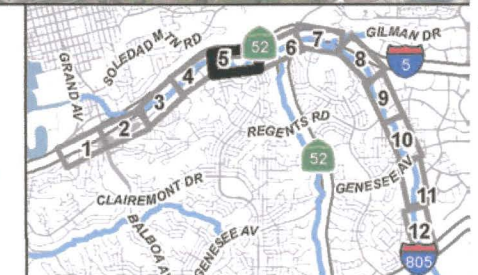
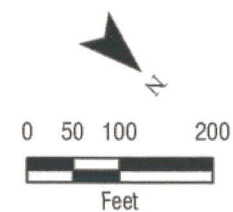


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Figure 7e. Impacts to Jurisdictional Areas

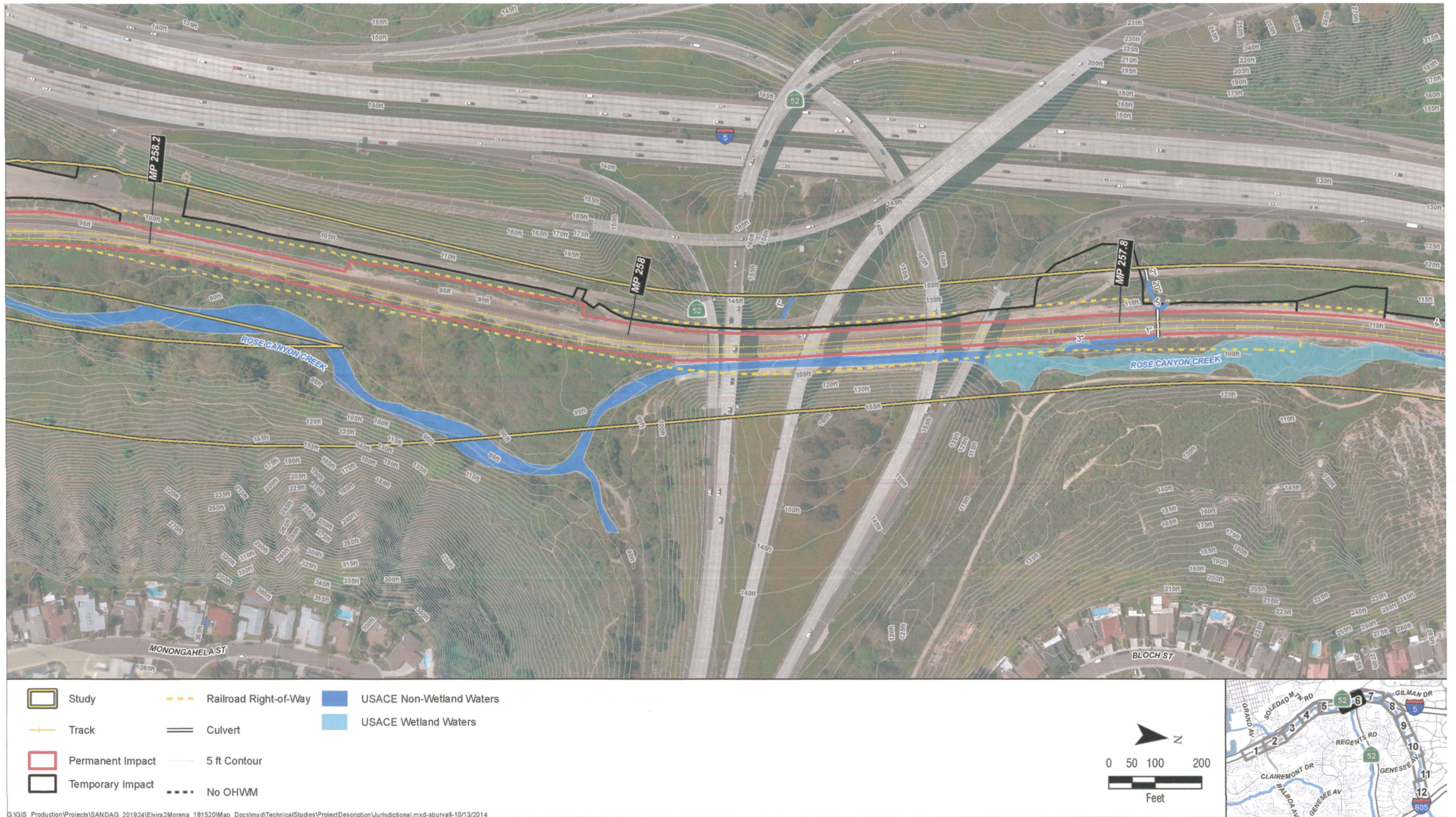


- | | | |
|------------------|-----------------------|--------------------------|
| Study Area | Railroad Right-of-Way | USACE Non-Wetland Waters |
| Track Alignment | Culvert | USACE Wetland Waters |
| Permanent Impact | 5 ft Contour | USACE Expansion Area |
| Temporary Impact | Soil Pit | |



G:\GIS Production\Projects\SANDAG 201924\Elvira2Morena_181520\Map_Docs\mxd\TechnicalStudies\ProjectDescription\Jurisdictional.mxd-aburva11-10/15/2014

Figure 7f. Impacts to Jurisdictional Areas



G:\GIS_Production\Projects\SANDAG_2019\241Elvira2Morena_181520\Map_Docs\mxd\TechnicalStudies\ProjectDescription\Jurisdictional.mxd-aburva-10/13/2014

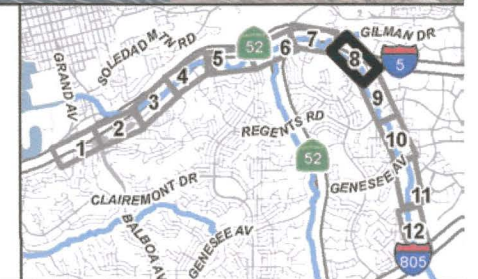
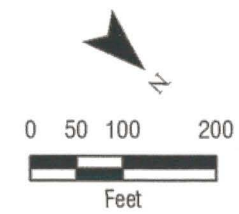
Figure 7g. Impacts to Jurisdictional Areas



Figure 7h. Impacts to Jurisdictional Areas



- | | | |
|------------------|-----------------------|--------------------------|
| Study Area | Railroad Right-of-Way | USACE Non-Wetland Waters |
| Track Alignment | Culvert | USACE Wetland Waters |
| Permanent Impact | 5 ft Contour | Soil Pit |
| Temporary Impact | | |



G:\GIS Production\Projects\SANDAG 201924\Elvira2Morena 181520\Map Docs\mxd\TechnicalStudies\ProjectDescription\Jurisdictional.mxd-aburva-10/15/2014

Figure 7i. Impacts to Jurisdictional Areas



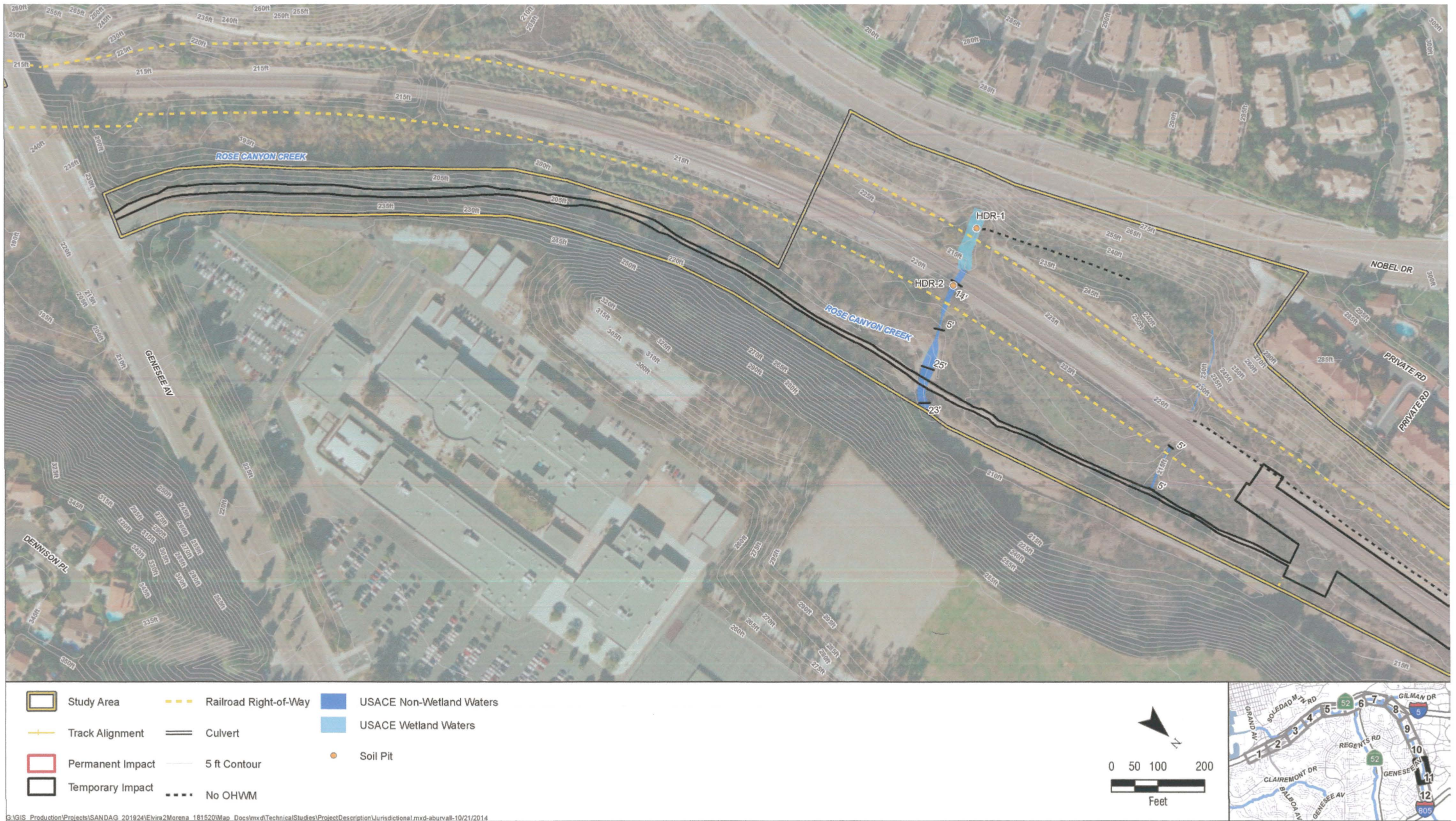
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Figure 7j. Impacts to Jurisdictional Areas



G:\GIS Production\Projects\SANDAG 2019\24\Elvira2\Morena 181520\Map Docs\mxd\TechnicalStudies\Project\Description\Jurisdictional.mxd-aburva1-10/21/2014

Figure 7k. Impacts to Jurisdictional Areas



G:\GIS Production\Projects\SANDAG_201024\Elvira2Morena_181520\Map_Docs\mxd\TechnicalStudies\ProjectDescription\Jurisdictional.mxd-aburval-10/21/2014

Figure 6I. Impacts to Biological Resources



G:\GIS Production\Projects\SANDAG 201924\Elvira2Morena 181520\Map Docs\mxd\TechnicalStudies\ProjectDescription\Jurisdictional.mxd-aburvail-10/21/2014

**ATTACHMENT 3
PROJECT SITE PLANS**

Fig. 1 - CP Rose Universal Crossover Sheet 16 of 229
Fig. 2 - CP Rose Universal Crossover Sheet 45 of 229
Fig. 3 - CP Rose Universal Crossover Sheet 46 of 229
Fig. 4 - CP Rose Universal Crossover Sheet 47 of 229
Fig. 5 - CP Rose Universal Crossover Sheet 48 of 229
Fig. 6 - CP Rose Universal Crossover Sheet 49 of 229
Fig. 7 - CP Rose Universal Crossover Sheet 51 of 229
Fig. 8 - CP Rose Universal Crossover Sheet 52 of 229

Fig. 9 - Elvira to Morena Double Track Sheet 13 of 382
Fig. 10 - Elvira to Morena Double Track Sheet 28 of 382
Fig. 11 - Elvira to Morena Double Track Sheet 30 of 382
Fig. 12 - Elvira to Morena Double Track Sheet 37 of 382
Fig. 13 - Elvira to Morena Double Track Sheet 45 of 382
Fig. 14 - Elvira to Morena Double Track Sheet 68 of 382
Fig. 15 - Elvira to Morena Double Track Sheet 69 of 382
Fig. 16 - Elvira to Morena Double Track Sheet 70 of 382
Fig. 17 - Elvira to Morena Double Track Sheet 82 of 382
Fig. 18 - Elvira to Morena Double Track Sheet 94 of 382
Fig. 19 - Elvira to Morena Double Track Sheet 139 of 382
Fig. 20 - Elvira to Morena Double Track Sheet 140 of 382
Fig. 21 - Elvira to Morena Double Track Sheet 153 of 382
Fig. 21 - Elvira to Morena Double Track Sheet 166 of 382
Fig. 22 - Elvira to Morena Double Track Sheet 201 of 382

Fig. 23 – Balboa and Rose Creek Shoofly Sheet 2 of 33
Fig. 24 – Balboa and Rose Creek Shoofly Sheet 3 of 33
Fig. 25 – Balboa and Rose Creek Shoofly Sheet 4 of 33
Fig. 23 – Balboa and Rose Creek Shoofly Sheet 5 of 33
Fig. 25 – Balboa and Rose Creek Shoofly Sheet 6 of 33
Fig. 26 – Balboa and Rose Creek Shoofly Sheet 7 of 33
Fig. 27 – Balboa and Rose Creek Shoofly Sheet 10 of 33
Fig. 28 – Balboa and Rose Creek Shoofly Sheet 11 of 33
Fig. 29 – Balboa and Rose Creek Shoofly Sheet 12 of 33
Fig. 30 – Balboa and Rose Creek Shoofly Sheet 13 of 33
Fig. 31 – Balboa and Rose Creek Shoofly Sheet 14 of 33
Fig. 32 – Balboa and Rose Creek Shoofly Sheet 15 of 33
Fig. 33 – Balboa and Rose Creek Shoofly Sheet 25 of 33
Fig. 34 – Balboa and Rose Creek Shoofly Sheet 26 of 33
Fig. 35 – Balboa and Rose Creek Shoofly Sheet 27 of 33
Fig. 36 – Balboa and Rose Creek Shoofly Sheet 28 of 33
Fig. 37 – Balboa and Rose Creek Shoofly Sheet 29 of 33

San Diego Association of Governments
Elvira to Morena Double Track
Certification No. R9-2015-0053

- Fig. 38 – Balboa and Rose Creek Shoofly Sheet 30 of 33
- Fig. 39 – Balboa and Rose Creek Shoofly Sheet 31 of 33
- Fig. 40 – Balboa and Rose Creek Shoofly Sheet 32 of 33
- Fig. 41 – Balboa and Rose Creek Shoofly Sheet 32 of 33
- Fig. 42 – Balboa and Rose Creek Shoofly Sheet 33 of 33

7/8/2015 4:02:33 PM user

IP-SHORT-PEN-TABLE

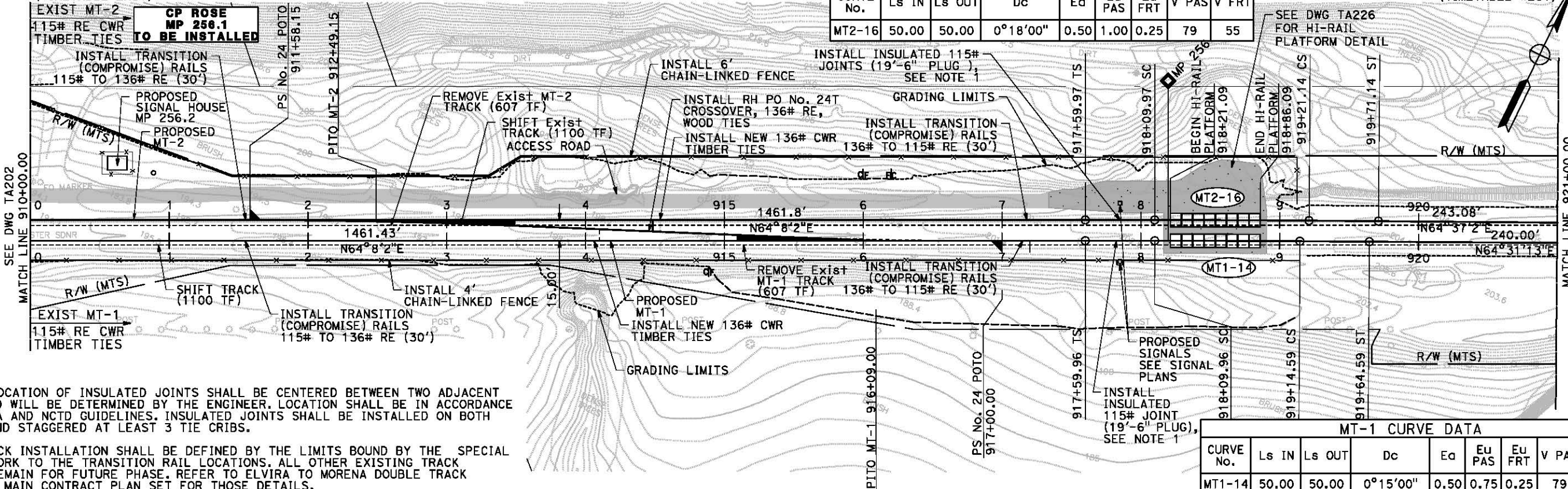
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TO CP CUDAHY
NATIONAL CITY
(TIMETABLE EAST)

TO CP CUMBRES
FULLERTON
(TIMETABLE WEST)

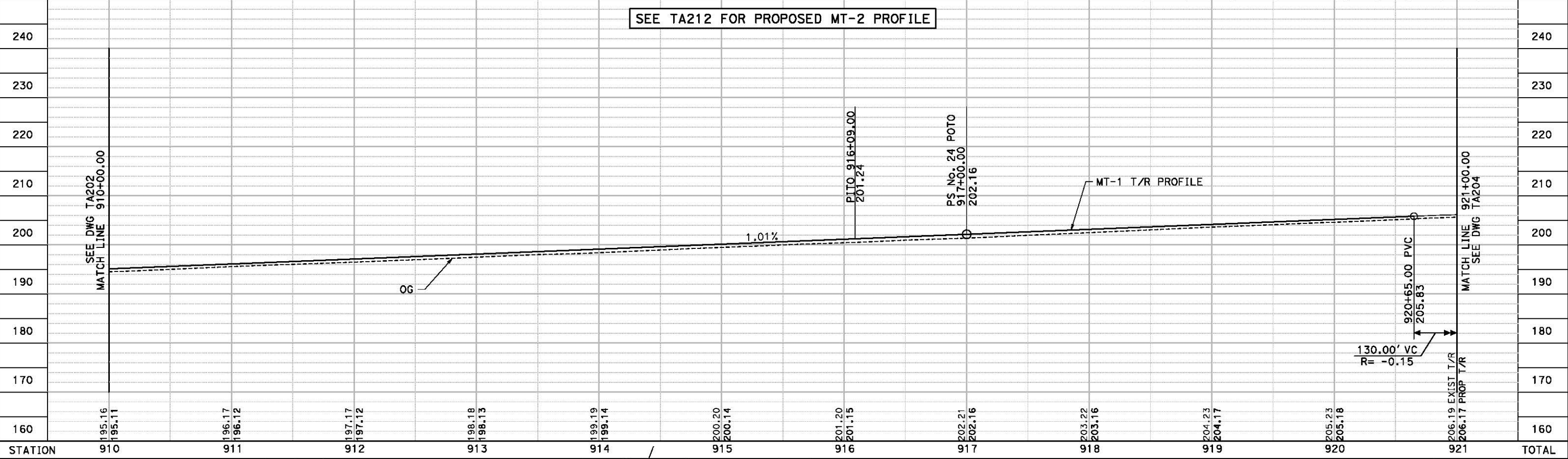
MT-2 CURVE DATA								
CURVE No.	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
MT2-16	50.00	50.00	0°18'00"	0.50	1.00	0.25	79	55

MT-1 CURVE DATA								
CURVE No.	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
MT1-14	50.00	50.00	0°15'00"	0.50	0.75	0.25	79	55



- NOTE:**
- EXACT LOCATION OF INSULATED JOINTS SHALL BE CENTERED BETWEEN TWO ADJACENT TIES AND WILL BE DETERMINED BY THE ENGINEER. LOCATION SHALL BE IN ACCORDANCE WITH FRA AND NCTD GUIDELINES. INSULATED JOINTS SHALL BE INSTALLED ON BOTH RAILS AND STAGGERED AT LEAST 3 TIE CRIBS.
 - NEW TRACK INSTALLATION SHALL BE DEFINED BY THE LIMITS BOUND BY THE SPECIAL TRACK WORK TO THE TRANSITION RAIL LOCATIONS. ALL OTHER EXISTING TRACK SHALL REMAIN FOR FUTURE PHASE. REFER TO ELVIRA TO MORENA DOUBLE TRACK PROJECT MAIN CONTRACT PLAN SET FOR THOSE DETAILS.

SEE TA212 FOR PROPOSED MT-2 PROFILE



STATION	910	911	912	913	914	915	916	917	918	919	920	921	TOTAL
DATE	7/7/15												
REVISION	ISSUED FOR CONSTRUCTION	AS	RB	SH									

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RYAN BOLEY
REGISTERED PROFESSIONAL ENGINEER
No. 64880
Exp. 6/30/2017
CIVIL
STATE OF CALIFORNIA

DESIGNED BY
A. SHAH

DRAWN BY
M.R. GRANADO

CHECKED BY
M. MIHALOVICH

SANDAG
S. HUMPHREYS

DATE
7/15

7/15

7/15

7/15

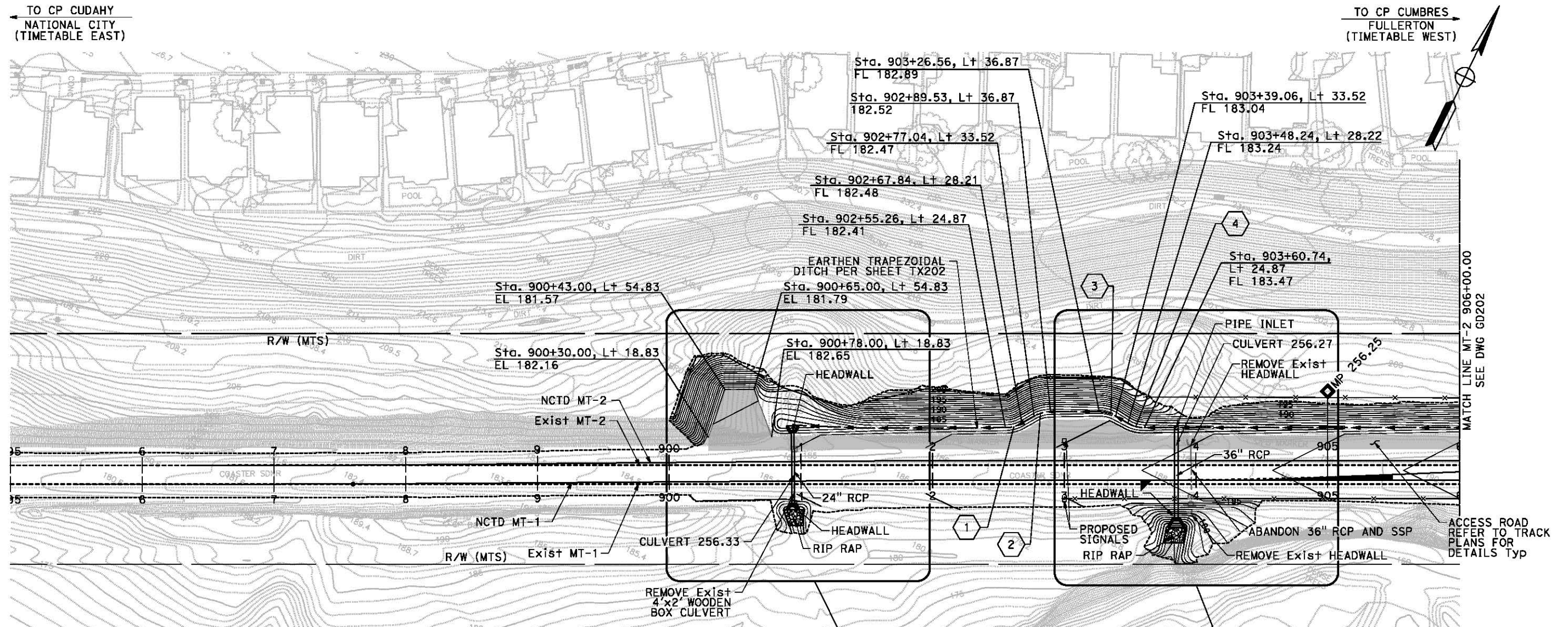
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
CP ROSE UNIVERSAL CROSSOVER
TRACK PLAN AND PROFILE
MT-1 Sta 910+00 TO Sta 921+00

SCALE
HORIZ 1"=40'
VERT 1"=10'

SANDAG CONTRACT NO.
1239811

DRAWING NO. SHEET NO.
TA203 16 OF 229



CURVE DATA				
CURVE No.	RADIUS	LENGTH	DELTA	TANGENT
1	17.00	4.55	15°19'32"	2.29
2	38.67	10.35	15°19'58"	5.21
3	15.00	11.78	45°00'00"	6.21
4	15.00	8.44	32°13'56"	4.33

- NOTES:**
1. CONTOURS SHOWN REPRESENT SUBGRADE.
 2. STATIONS/OFFSETS REFERENCE MT-2.
 3. THE LONGITUDINAL SLOPE OF THE PROPOSED DITCHES ADJACENT TO THE TRACKS SHALL MATCH THE PROFILE OF THE PROPOSED TRACKS UNLESS OTHERWISE NOTED.
 4. SEE PROJECT FOOTPRINT PLANS FOR LIMITS OF TEMPORARY ESA FENCING.

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	CS	VH	SH

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
1" = 40'

DESIGNED BY
V. HAGHDOUST
DATE
7/15

DRAWN BY
E. GRAY
7/15

CHECKED BY
B. FLORES
7/15

SANDAG
S. HUMPHREYS
7/15

San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
CP ROSE UNIVERSAL CROSSOVER
GRADING AND DRAINAGE
MT-2 Sta 895+00 TO Sta 906+00

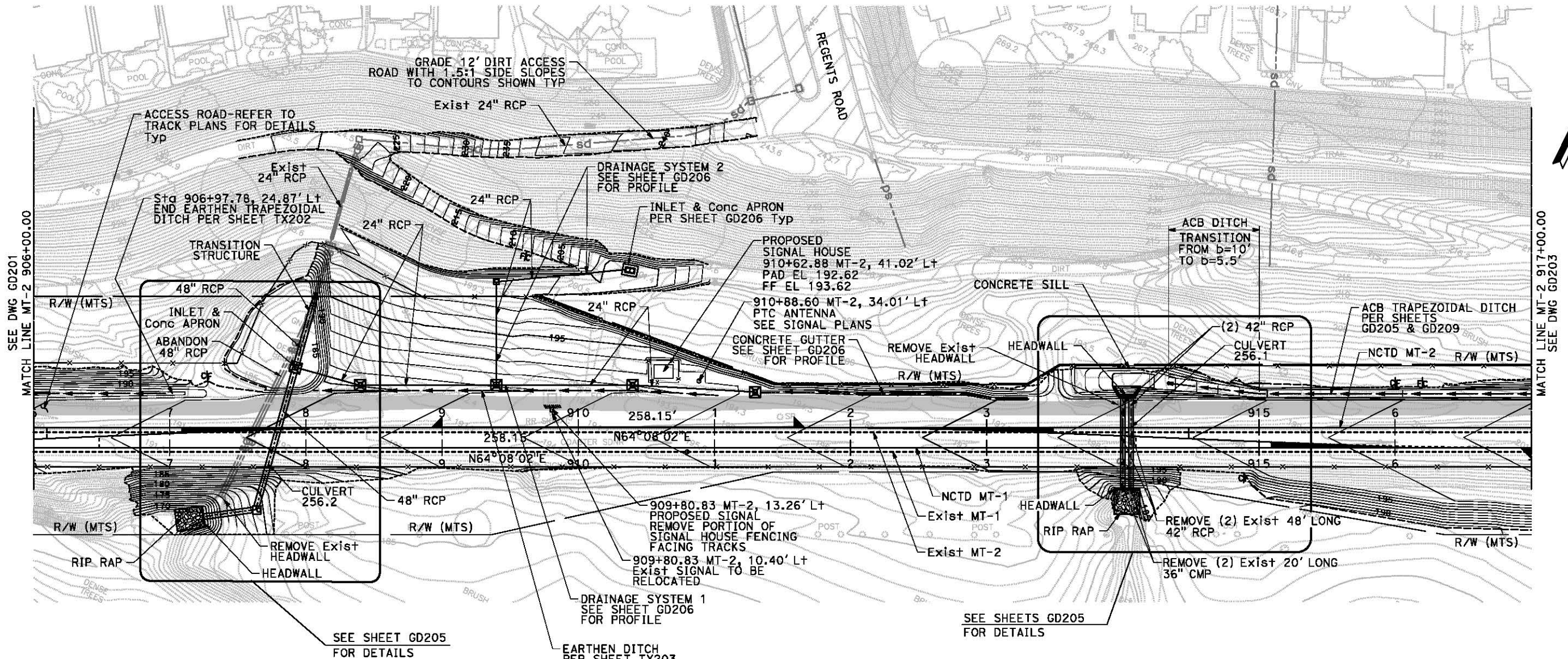
SCALE	1"=40'
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GD201
SHEET NO.	45 OF 229

TO CP CUDAHY
NATIONAL CITY
(TIMETABLE EAST)

**INTERMEDIATE SIGNAL
MP 256.2
TO BE REMOVED**

**CP ROSE
MP 256.1
TO BE INSTALLED**

TO CP CUMBRES
FULLERTON
(TIMETABLE WEST)



- NOTES:**
1. CONTOURS SHOWN REPRESENT SUBGRADE.
 2. THE LONGITUDINAL SLOPE OF THE PROPOSED DITCHES ADJACENT TO THE TRACKS SHALL MATCH THE PROFILE OF THE PROPOSED TRACKS UNLESS OTHERWISE NOTED.
 3. SEE PROJECT FOOTPRINT PLANS FOR LIMITS OF TEMPORARY ESA FENCING.

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	CS	VH	SH

HDR

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
1" = 40'

0 1 2

DESIGNED BY
V. HAGDOUST

DRAWN BY
E. GRAY

CHECKED BY
B. FLORES

SANDAG
S. HUMPHREYS

DATE
7/15

7/15

7/15

7/15

REGISTERED PROFESSIONAL ENGINEER
VAHID HAGDOUST
No. 74716
Exp. 12/31/2015
CIVIL
STATE OF CALIFORNIA

SANDAG

San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
CP ROSE UNIVERSAL CROSSOVER
GRADING AND DRAINAGE
MT-2 Sta 906+00 TO Sta 917+00

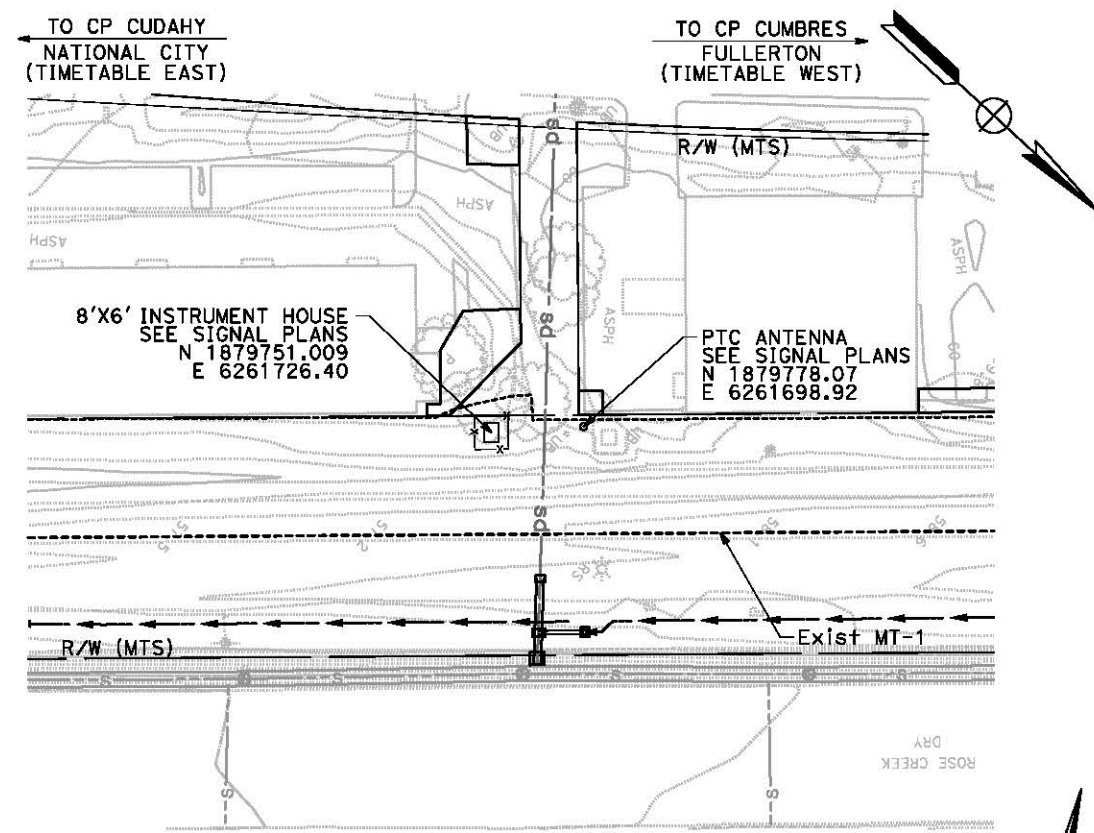
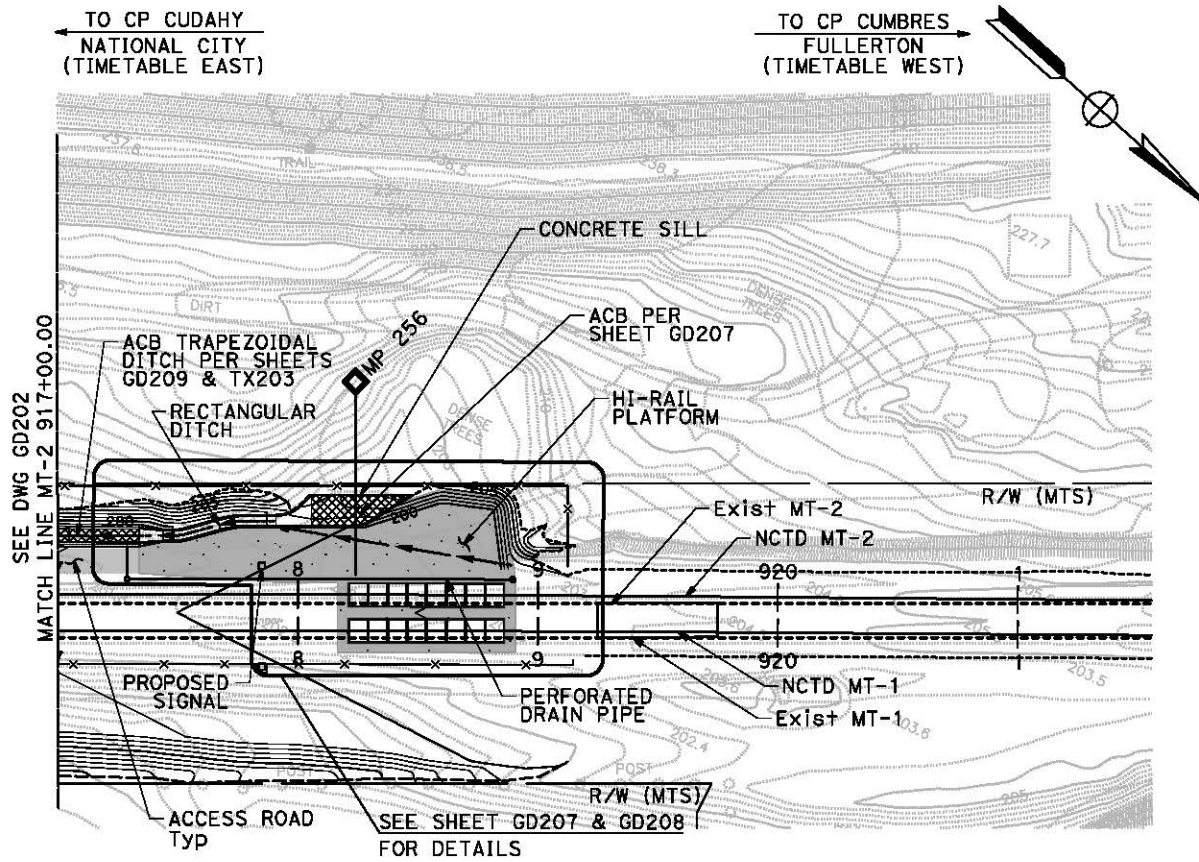
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SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. GD202 46 OF 229

7/8/2015 3:57:14 PM user

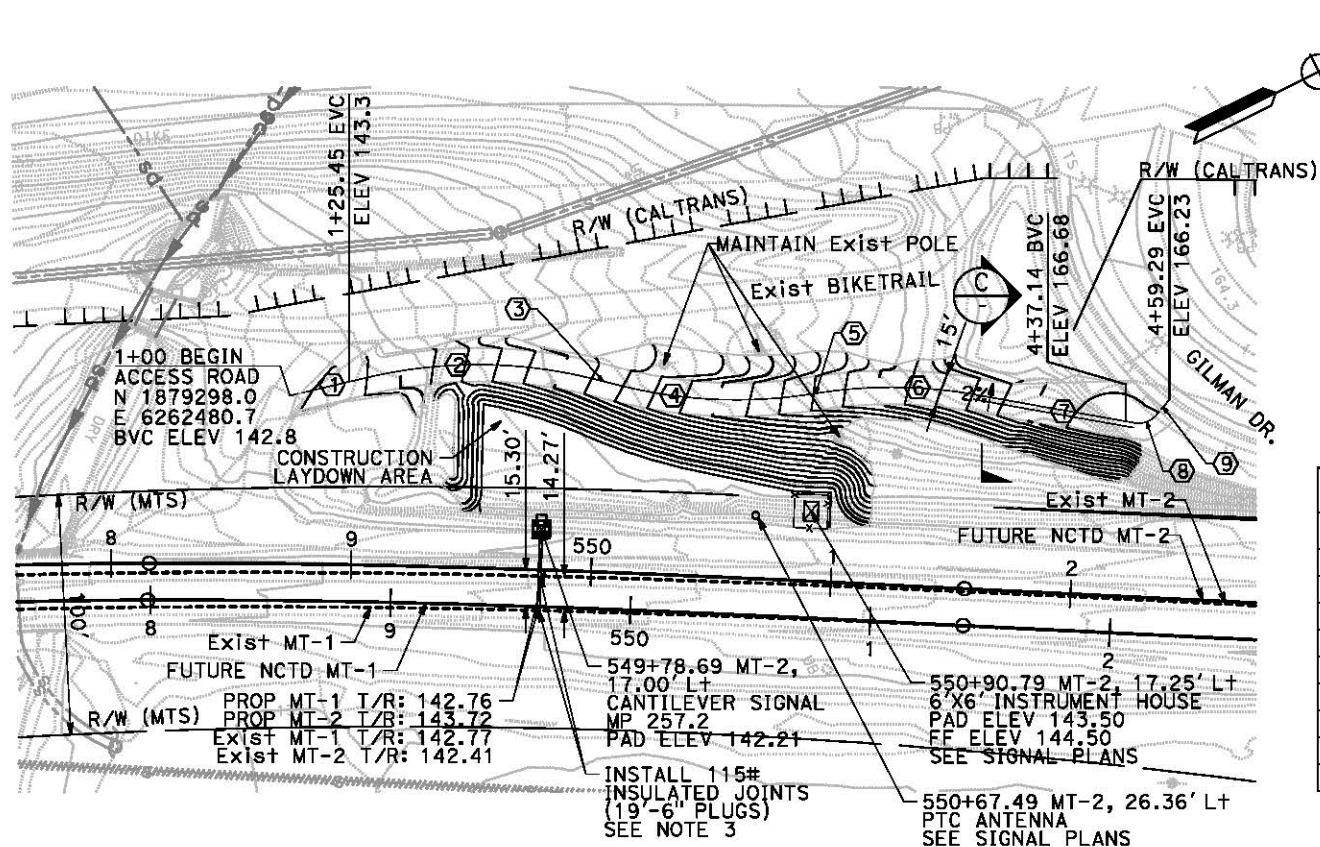
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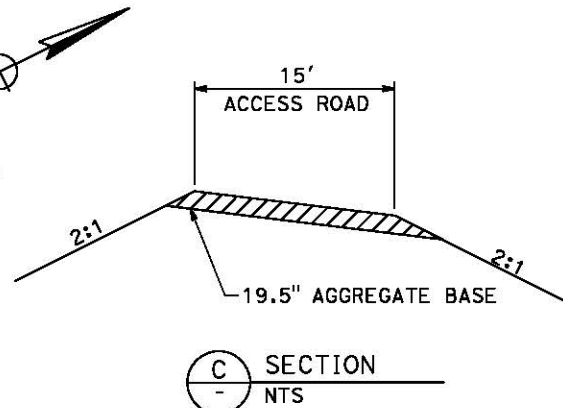
1. CONTOURS SHOWN REPRESENT SUBGRADE.
2. THE LONGITUDINAL SLOPE OF THE PROPOSED DITCHES ADJACENT TO THE TRACKS SHALL MATCH THE PROFILE OF THE PROPOSED TRACKS UNLESS OTHERWISE NOTED.
3. EXACT LOCATION OF INSULATED JOINTS SHALL BE CENTERED BETWEEN TWO ADJACENT TIES AND WILL BE DETERMINED BY ENGINEER. INSULATED JOINTS SHALL BE INSTALLED ON BOTH RAILS AND STAGGERED AT LEAST 3 TIE CRIBS.



RELOCATED SIGNAL 259.2

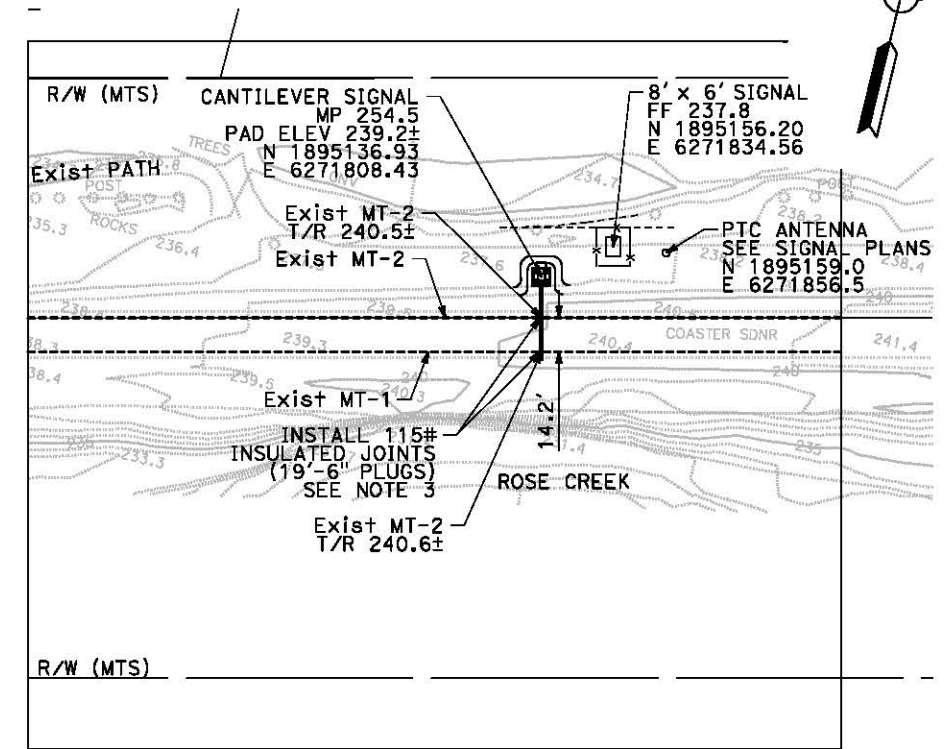


PROPOSED SIGNAL 257.2



CENTERLINE DATA

NO.	BEARING	RADIUS	DELTA	LENGTH
1	N13°00'39"E			33.67'
2		200'	27°11'43"	94.93'
3	N40°12'23"E			11.20'
4		200'	22°31'29"	78.62'
5	N17°40'54"E			5.40'
6		200'	18°32'02"	64.70'
7	N36°12'57"E			67.53'
8		20'	59°53'38"	10.45'
9	N23°40'42"W			8.16'



PROPOSED SIGNAL 254.5

EMDT-SW-B18CD203.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	CS	VH	SH

HDR
HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
1" = 40'

DESIGNED BY V. HAGDOUST
DRAWN BY E. GRAY
CHECKED BY B. FLORES
SANDAG S. HUMPHREYS

DATE 7/15
7/15
7/15
7/15

PROFESSIONAL ENGINEER
VAHID HAGDOUST
No. 74716
Exp. 12/31/2015
CIVIL ENGINEER
STATE OF CALIFORNIA

SANDAG
San Diego's Regional Planning Agency

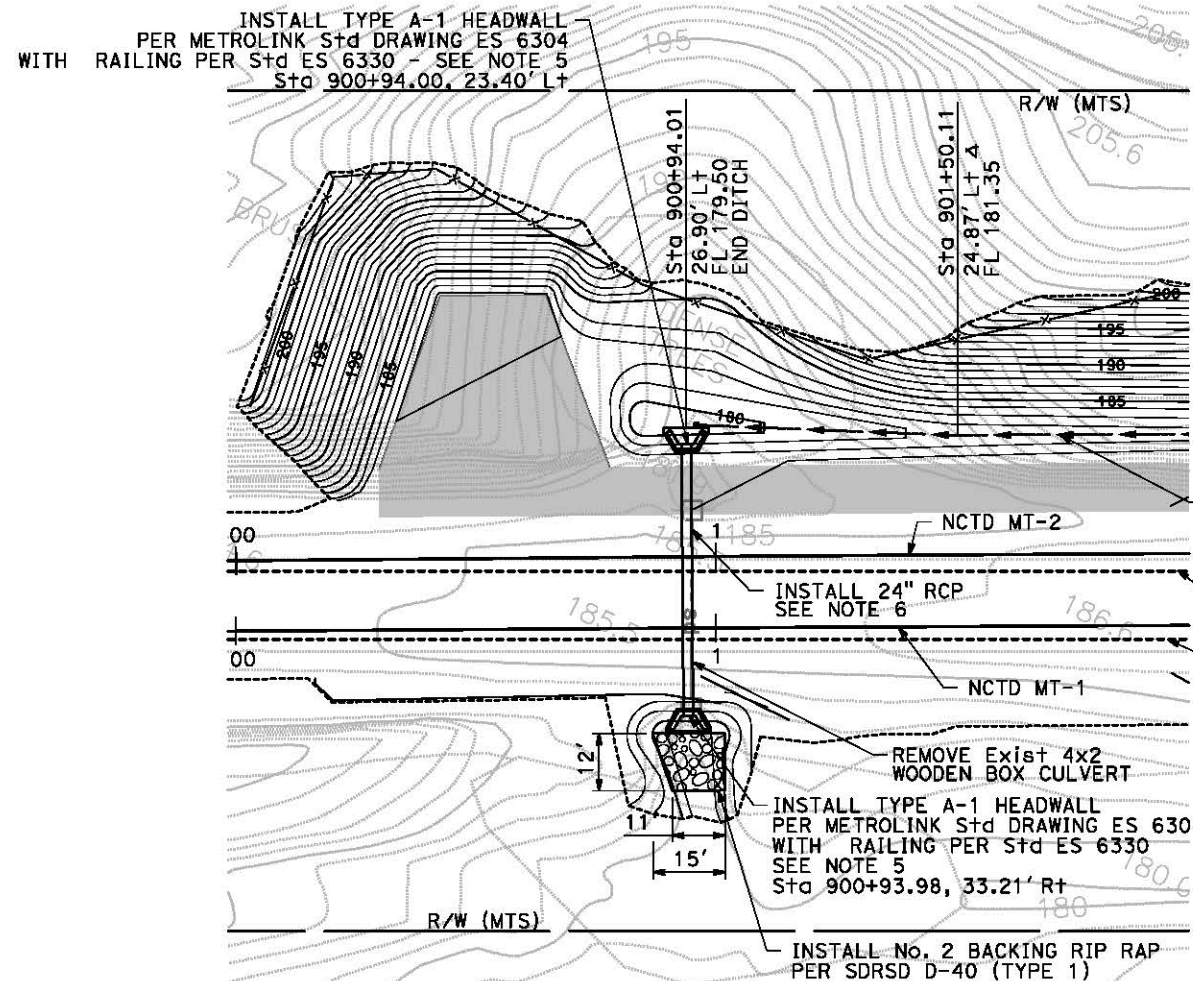
ELVIRA TO MORENA DOUBLE TRACK PROJECT
CP ROSE UNIVERSAL CROSSOVER
GRADING AND DRAINAGE
CP ROSE AND SIGNAL LOCATIONS

SCALE 1"=40'

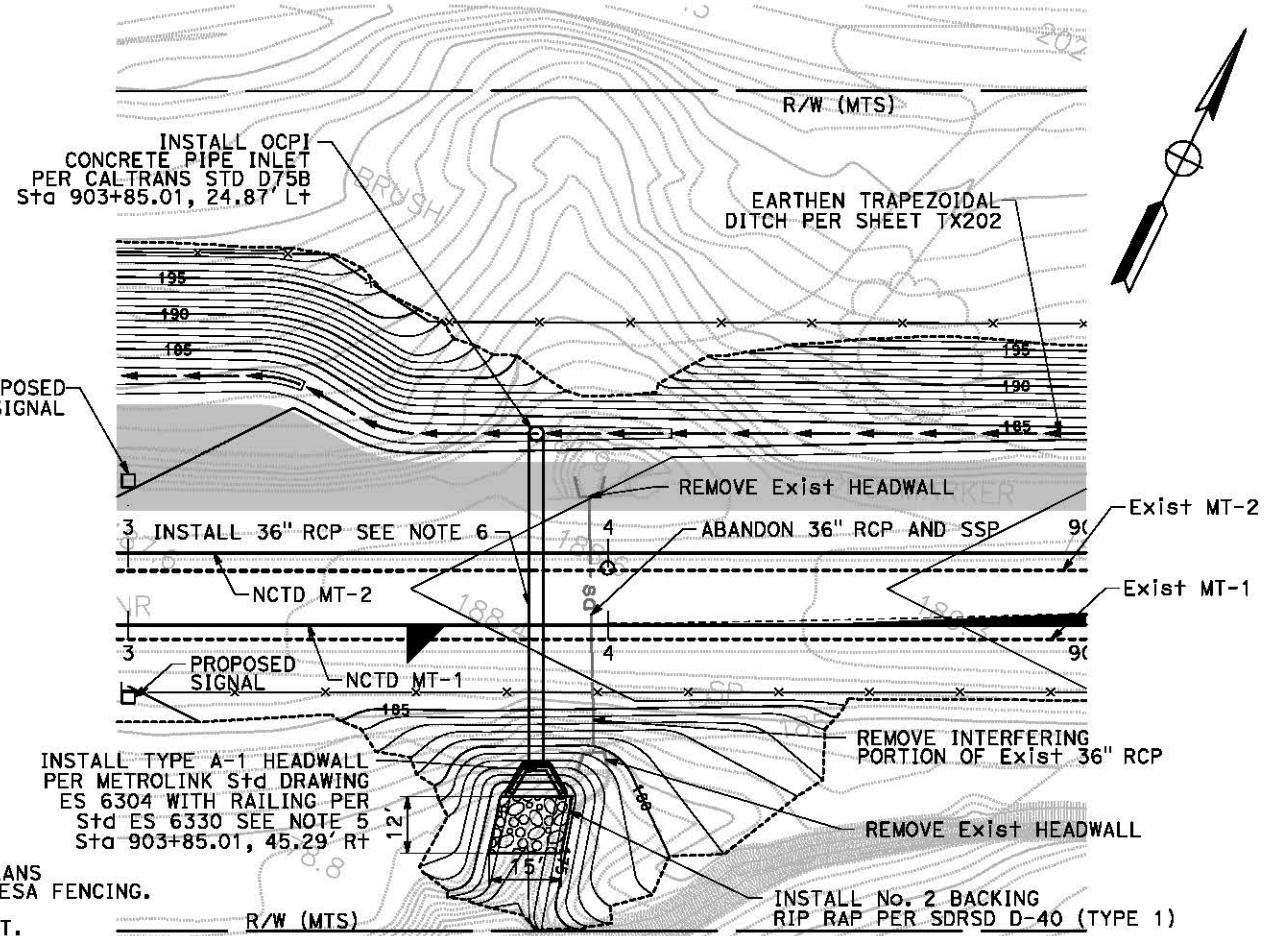
SANDAG CONTRACT NO. 1239811

DRAWING NO. GD203 SHEET NO. 47 OF 229

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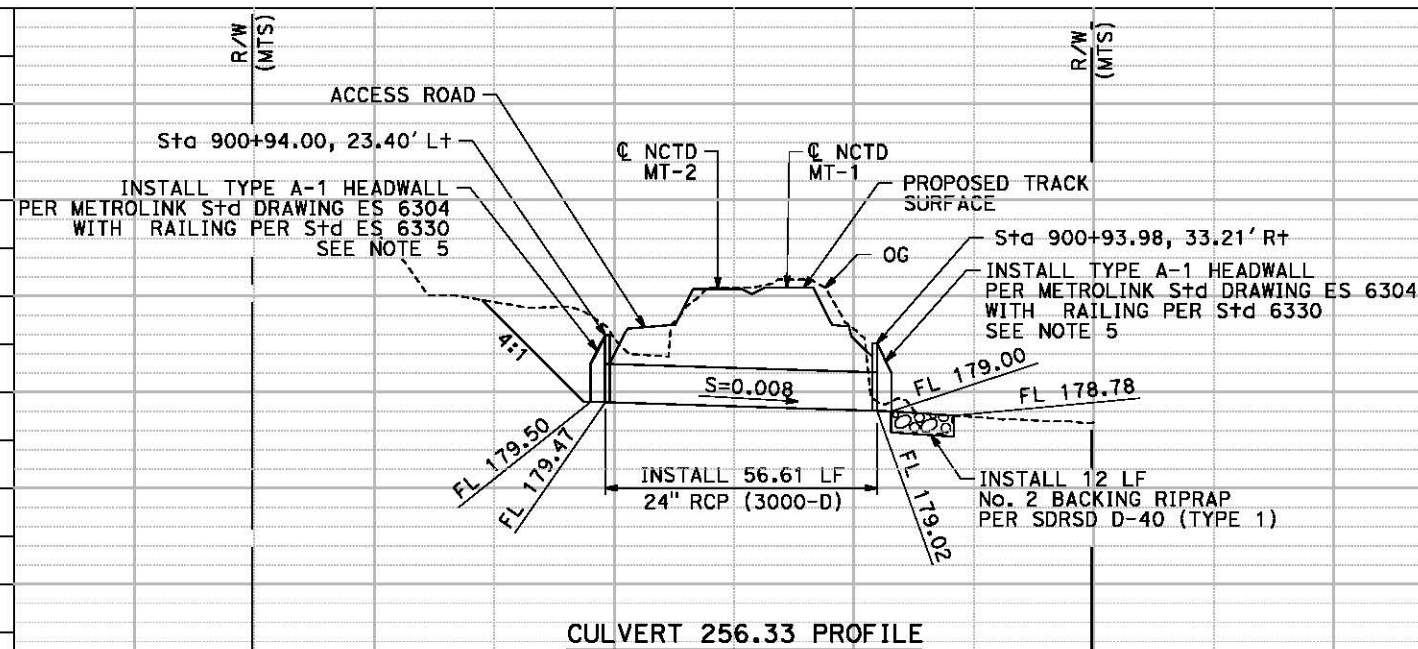
CULVERT 256.33 PLAN



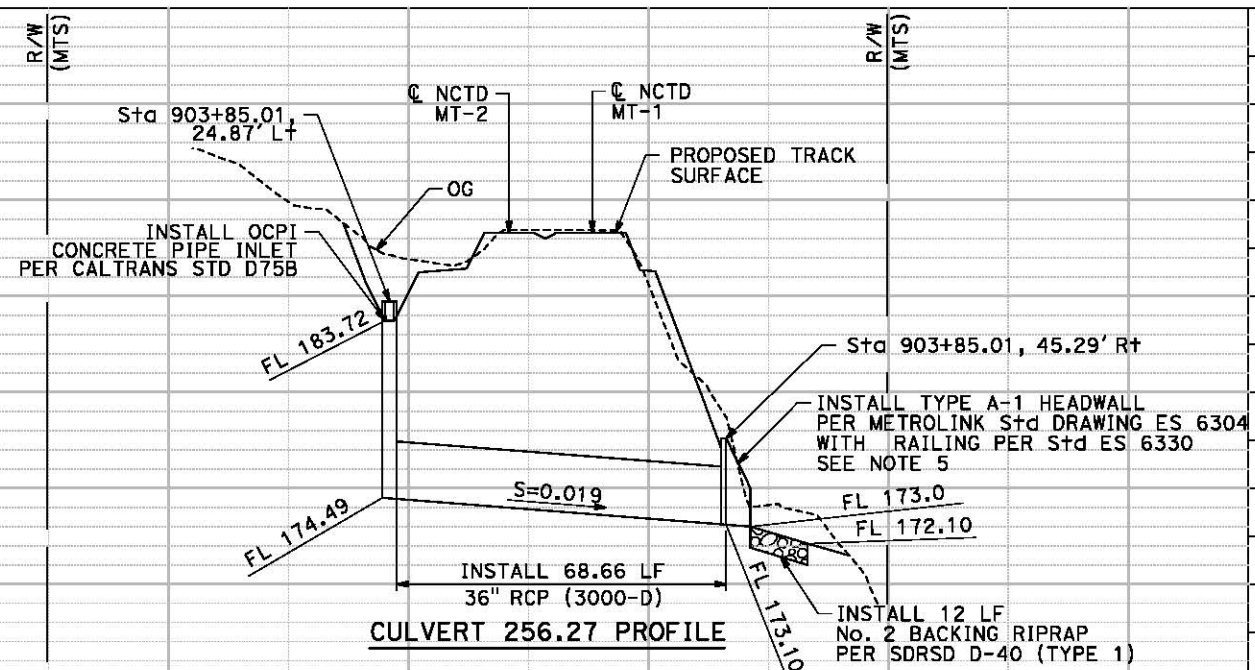
CULVERT 256.27 PLAN

NOTES:

1. CONTOURS SHOWN REPRESENT SUBGRADE.
2. STATIONS/OFFSETS REFERENCE NCTD MT-2.
3. SEE PROJECT FOOTPRINT PLANS FOR LIMITS OF TEMPORARY ESA FENCING.
4. \angle HORIZONTAL ANGLE POINT.
5. INSTALL KEY FOOTING PER DETAIL E, CALTRANS STD. D86B. PIPE SHALL BE EMBEDDED MIN. OF 10" INTO THE HEADWALL.
6. ALL REINFORCED CONCRETE PIPE JOINTS SHALL BE POSITIVE JOINTS PER CALTRANS STD. PLAN D97H.



CULVERT 256.33 PROFILE



CULVERT 256.27 PROFILE

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	CS	VH	SH

HDR
 HDR ENGINEERING, INC.
 401 B STREET, SUITE 1110
 SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
 1" = 20'
 1" = 5'

DESIGNED BY
 V. HAGHDUST
 DATE
 7/15

DRAWN BY
 E. GRAY
 7/15

CHECKED BY
 B. FLORES
 7/15

SANDAG
 S. HUMPHREYS
 7/15

PROFESSIONAL
 CIVIL
 ENGINEER
 VAHID HAGHDUST
 No. 74716
 Exp. 12/31/2015
 STATE OF CALIFORNIA

SANDAG
 San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
 CP ROSE UNIVERSAL CROSSOVER
 GRADING AND DRAINAGE
 CULVERTS 256.33 & 256.27
 PLAN AND PROFILE

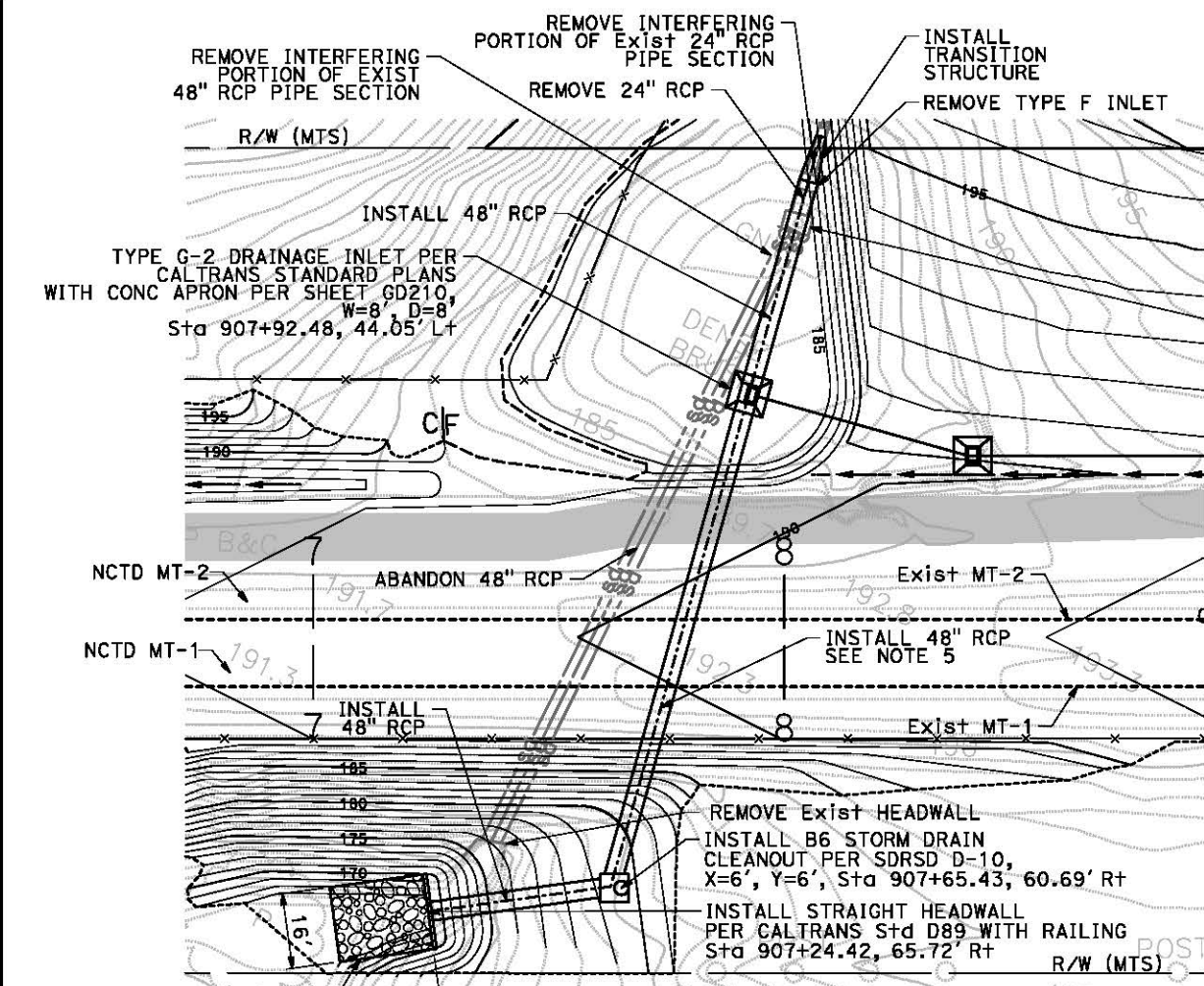
SCALE HORIZ 1"=20' VERT 1"=5'
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. GD204 48 OF 229

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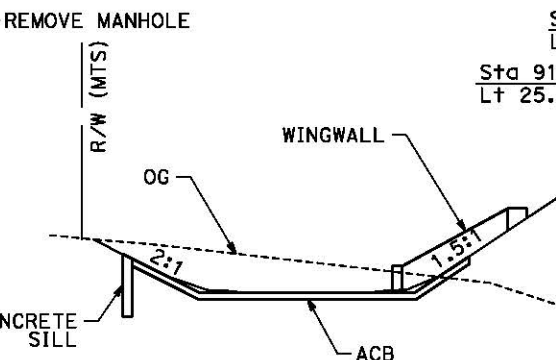
7/8/2015

IP-SHORT-PEN-TABLE

EMDT-SW-B19CD205.dgn



CULVERT 256.2 PLAN

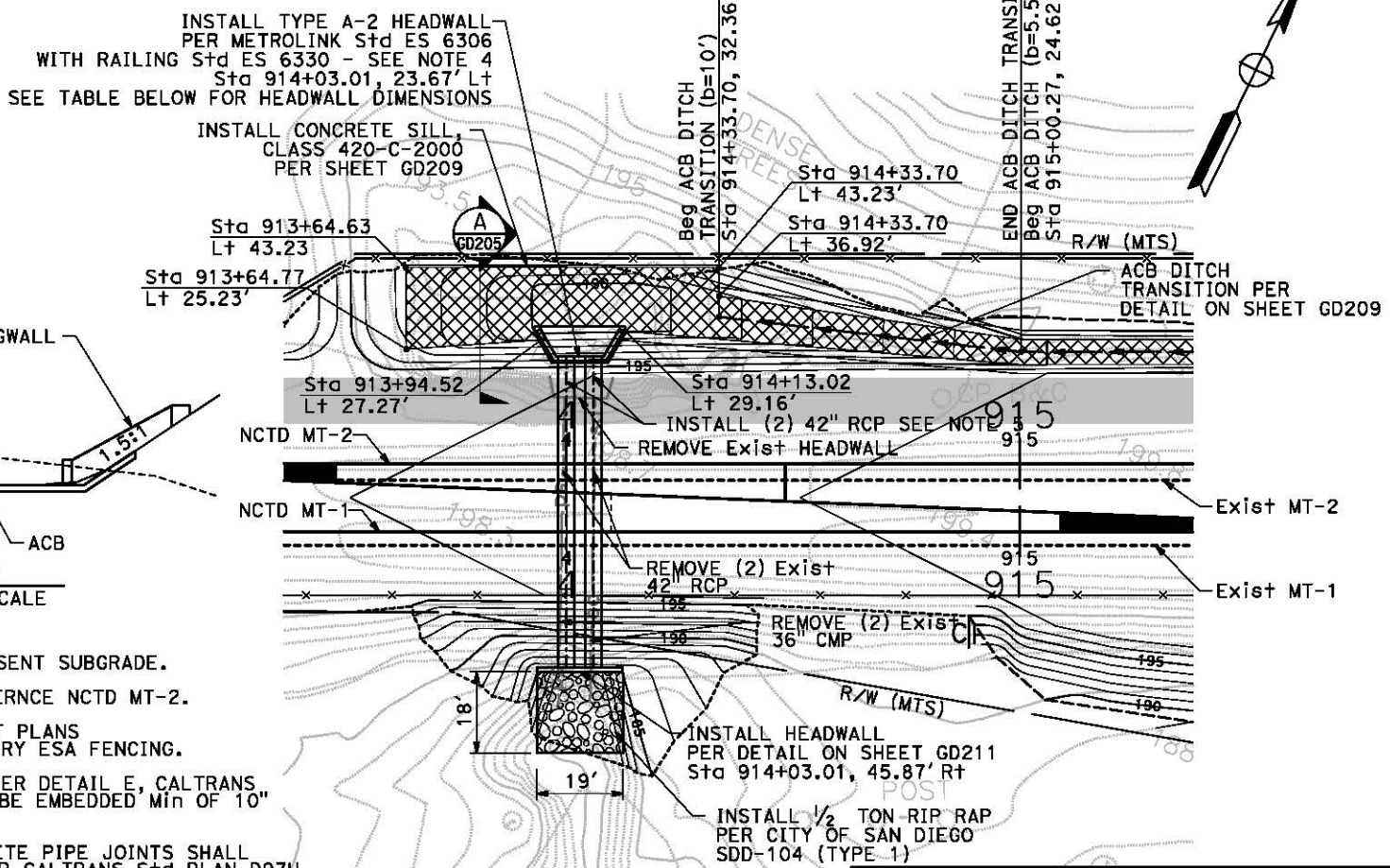


SECTION A NOT TO SCALE

- NOTES:**
1. CONTOURS SHOWN REPRESENT SUBGRADE.
 2. STATIONS/OFFSETS REFERENCE NCTD MT-2.
 3. SEE PROJECT FOOTPRINT PLANS FOR LIMITS OF TEMPORARY ESA FENCING.
 4. INSTALL KEY FOOTING PER DETAIL E, CALTRANS. STD D86B. PIPE SHALL BE EMBEDDED MIN OF 10" INTO THE HEADWALL.
 5. ALL REINFORCED CONCRETE PIPE JOINTS SHALL BE POSITIVE JOINTS PER CALTRANS STD PLAN D97H.

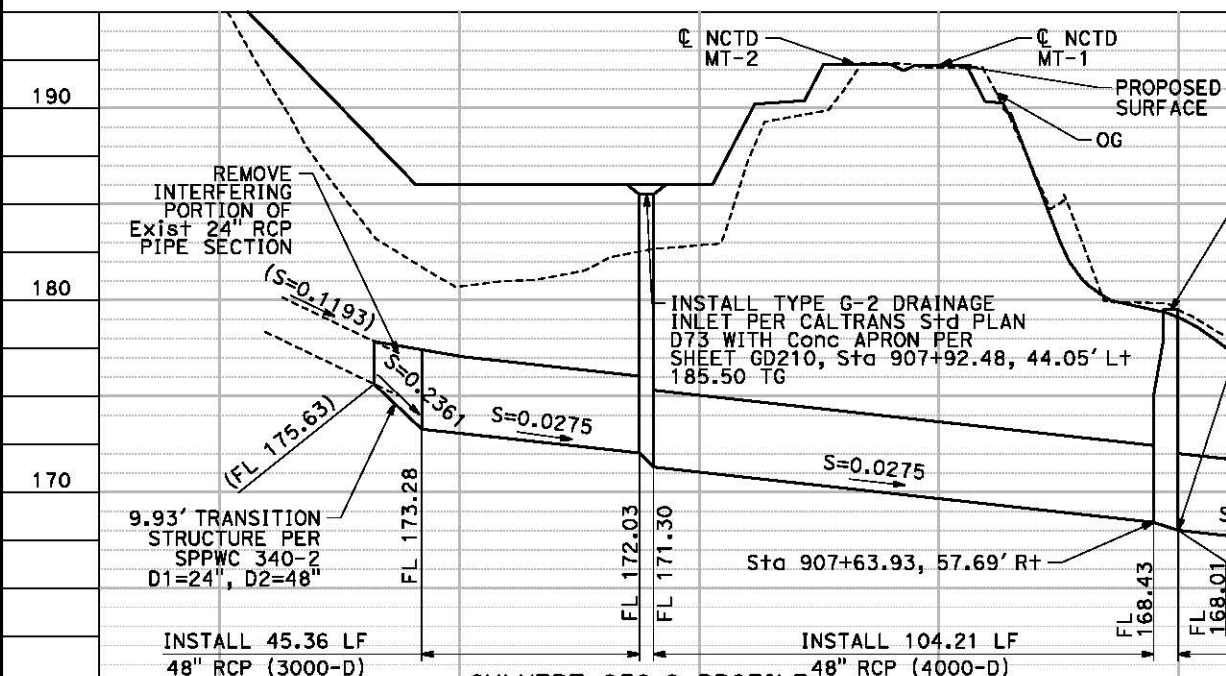
LEGEND:

ARTICULATED CONCRETE BLOCK, SEE DETAIL ON SHEET GD209

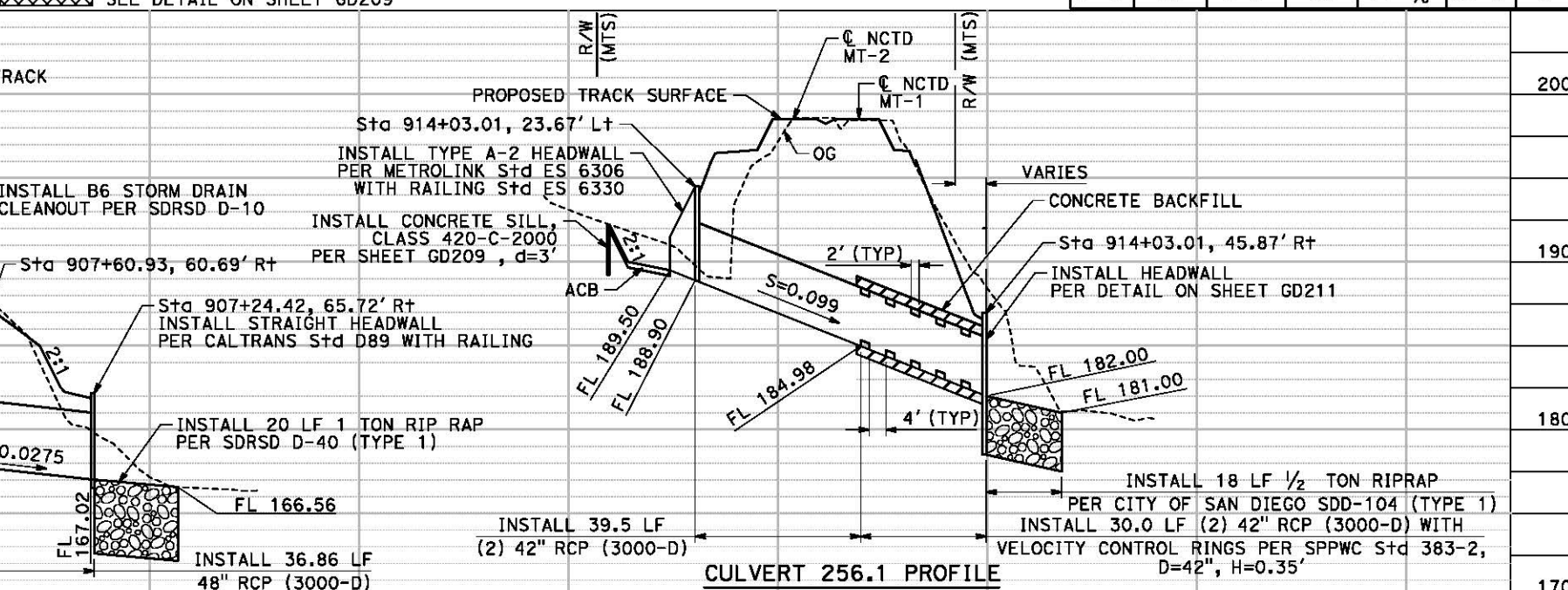


CULVERT 256.1 PLAN

TYPE A-2 HEADWALL DIMENSIONS						
H	D	S	W	XL	Z	Y
5'-6"	42"	2'-6"	20'	17'-3/8"	10'-6"	6'



CULVERT 256.2 PROFILE



CULVERT 256.1 PROFILE

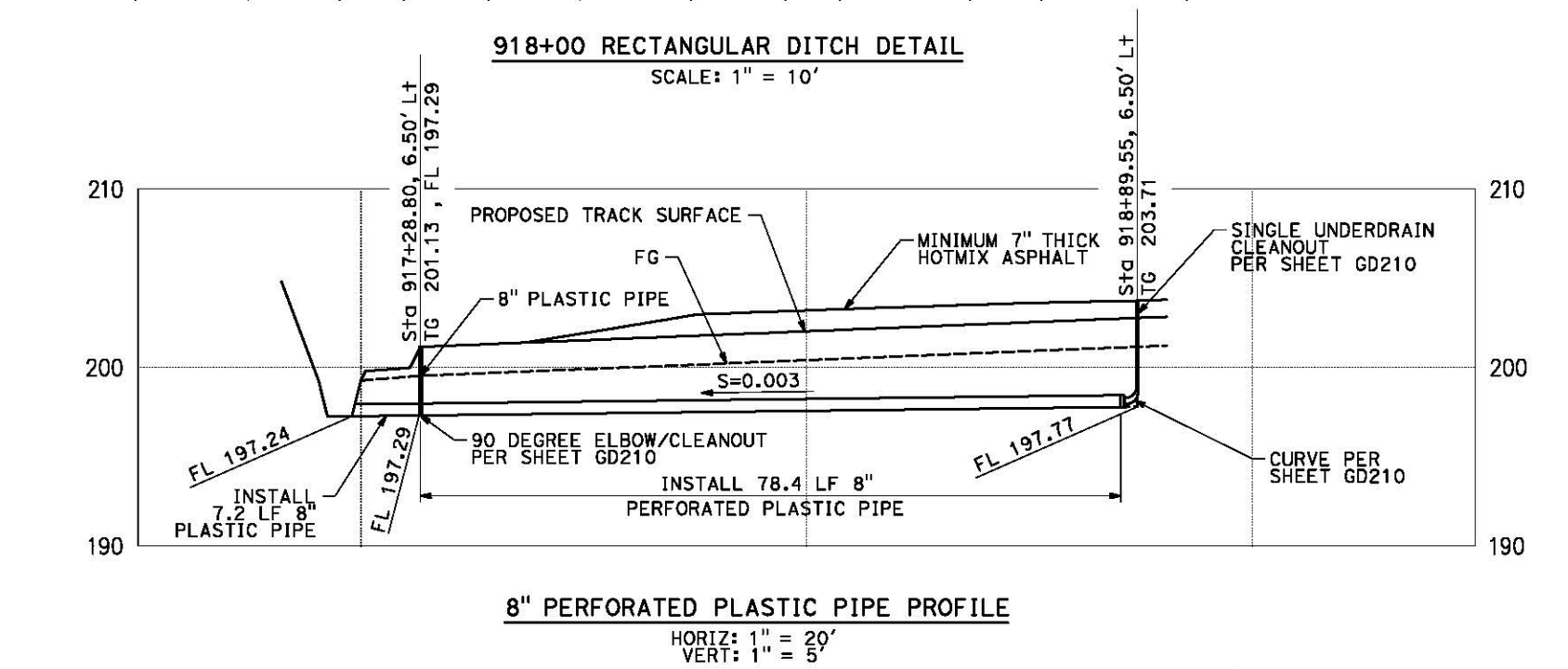
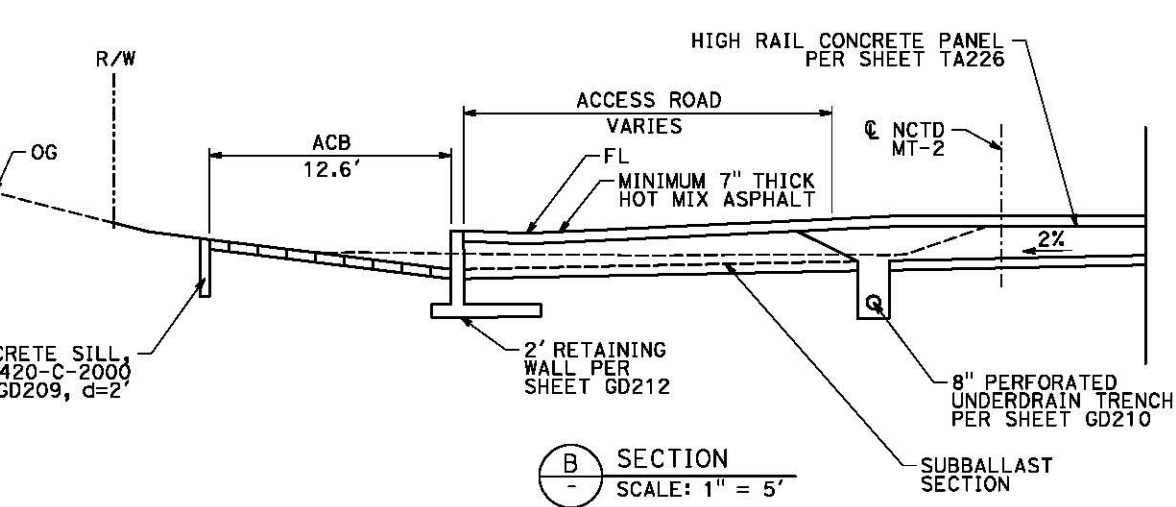
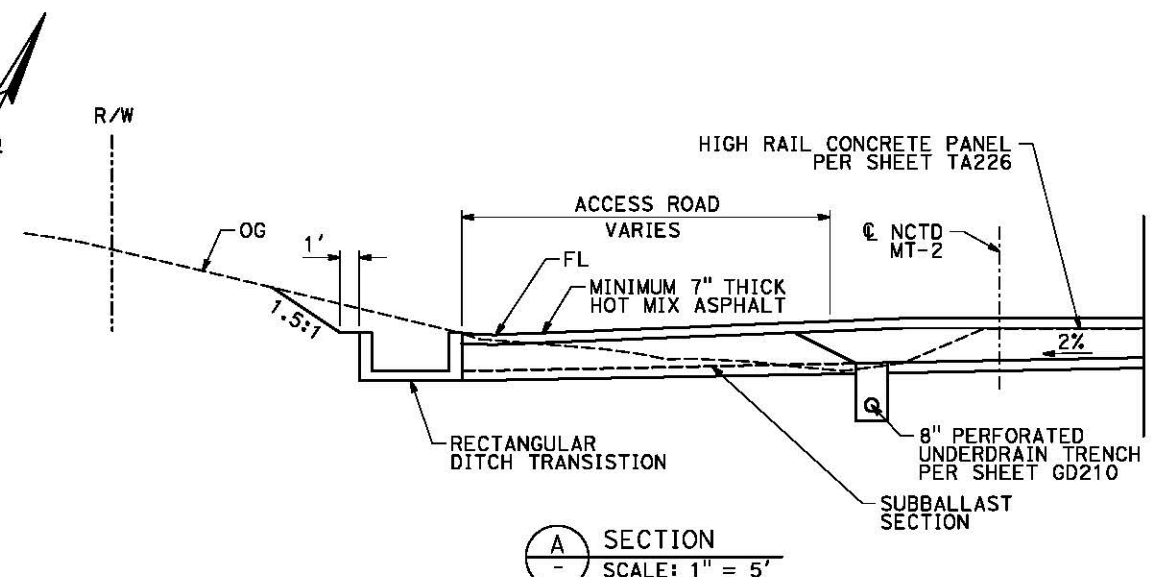
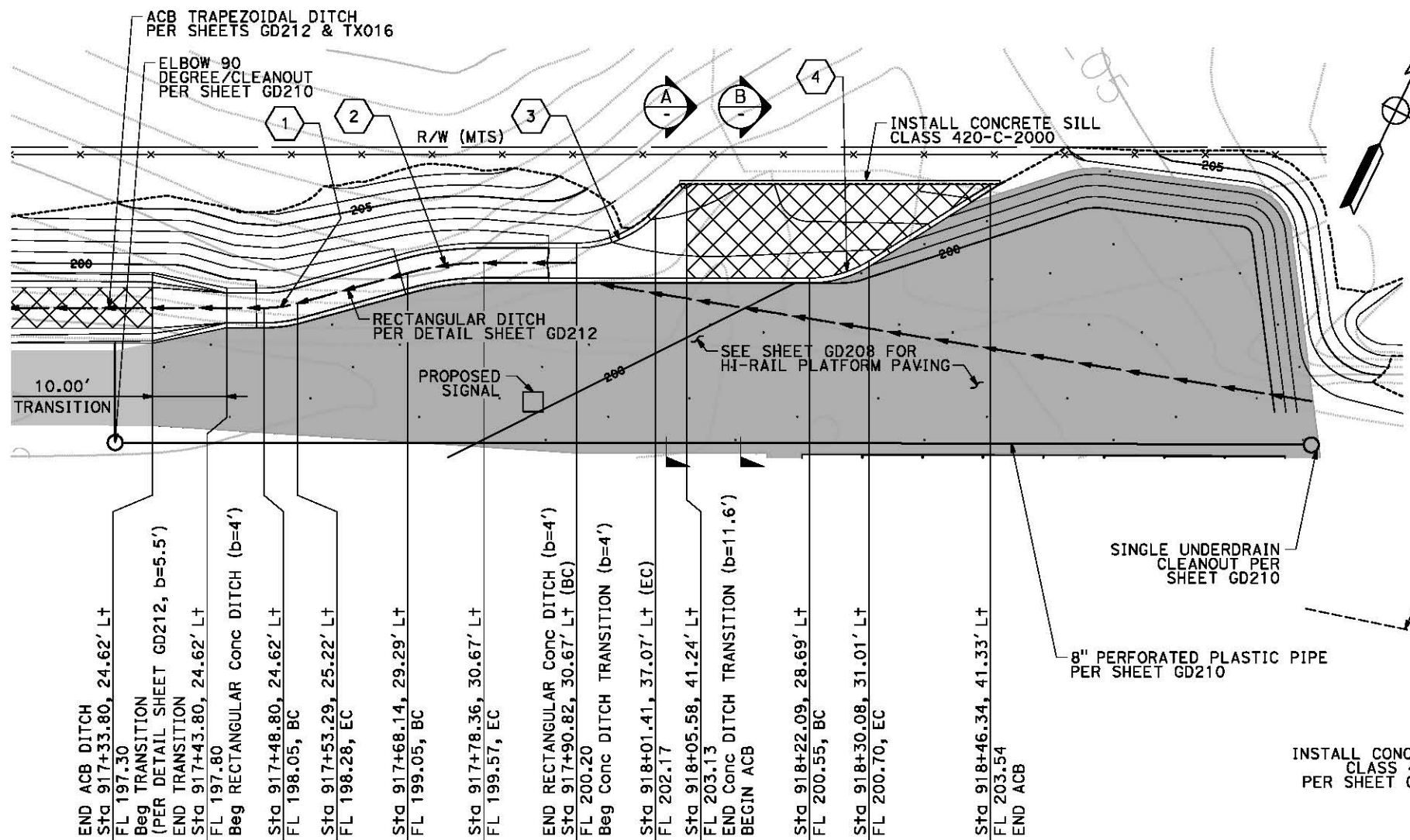
No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	CS	VH	SH

DESIGNED BY V. HAGHDOUST DATE 7/15
 DRAWN BY E. GRAY 7/15
 CHECKED BY B. FLORES 7/15
 SANDAG S. HUMPHREYS 7/15

ELVIRA TO MORENA DOUBLE TRACK PROJECT
 CP ROSE UNIVERSAL CROSSOVER
 GRADING AND DRAINAGE
 CULVERTS 256.2 AND 256.1
 PLAN AND PROFILE

SCALE HORIZ 1"=20' VERT 1"=5'
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. GD205 49 OF 229

7/8/2015 3:55:19 PM user



CURVE DATA				
CURVE No.	RADIUS	LENGTH	DELTA	TANGENT
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2	38.67	10.35	15°19'58"	5.21
3	15.00	11.78	45°00'00"	6.21
4	15.00	8.44	32°13'56"	4.33

- NOTES:**
- CONTOURS SHOWN REPRESENT SUBGRADE.
 - STATIONS/OFFSETS REFERENCE NCTD MT-2.
- LEGEND:**
- ARTICULATED CONCRETE BLOCK, SEE DETAIL ON SHEET GD208
 - LIMITS OF HOT MIX ASPHALT PAVING

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	CS	VH	SH

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

DESIGNED BY V. HAGDOUST
DRAWN BY E. GRAY
CHECKED BY B. FLORES
SANDAG S. HUMPHREYS

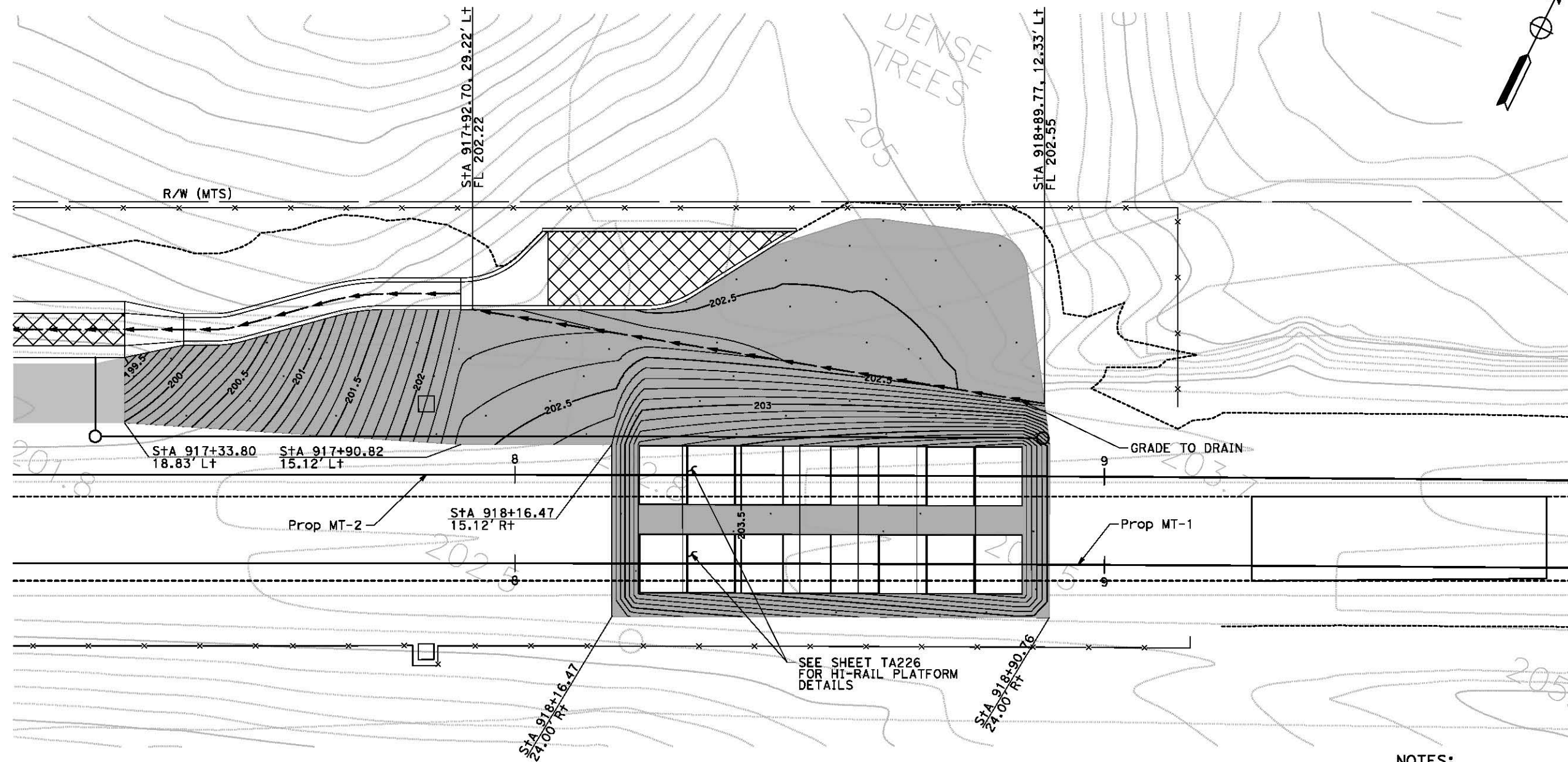
DATE 7/15
DATE 7/15
DATE 7/15
DATE 7/15

San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
CP ROSE UNIVERSAL CROSSOVER
GRADING AND DRAINAGE
DRAINAGE DETAILS No. 1

SCALE	AS NOTED
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GD207
SHEET NO.	51 OF 229

7/8/2015 3:55:58 PM User



HI-RAIL PLATFORM GRADING
SCALE: 1" = 10'

NOTES:

1. CONTOURS SHOWN AT 0.1' INTERVAL REPRESENTS PAVED SURFACE.
2. STATIONS/OFFSETS REFERENCE NCTD MT-2.

LEGEND:

- ARTICULATED CONCRETE BLOCK, SEE DETAIL ON SHEET GD208
- LIMITS OF HOT MIX ASPHALT PAVING

EMDT-SW-B19CD208.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	CS	VH	SH

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

DESIGNED BY
V. HAGDOUST

DRAWN BY
E. GRAY

CHECKED BY
B. FLORES

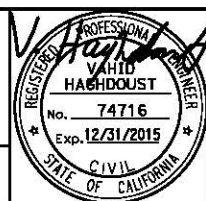
SANDAG
S. HUMPHREYS

DATE
7/15

7/15

7/15

7/15



San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
CP ROSE UNIVERSAL CROSSOVER

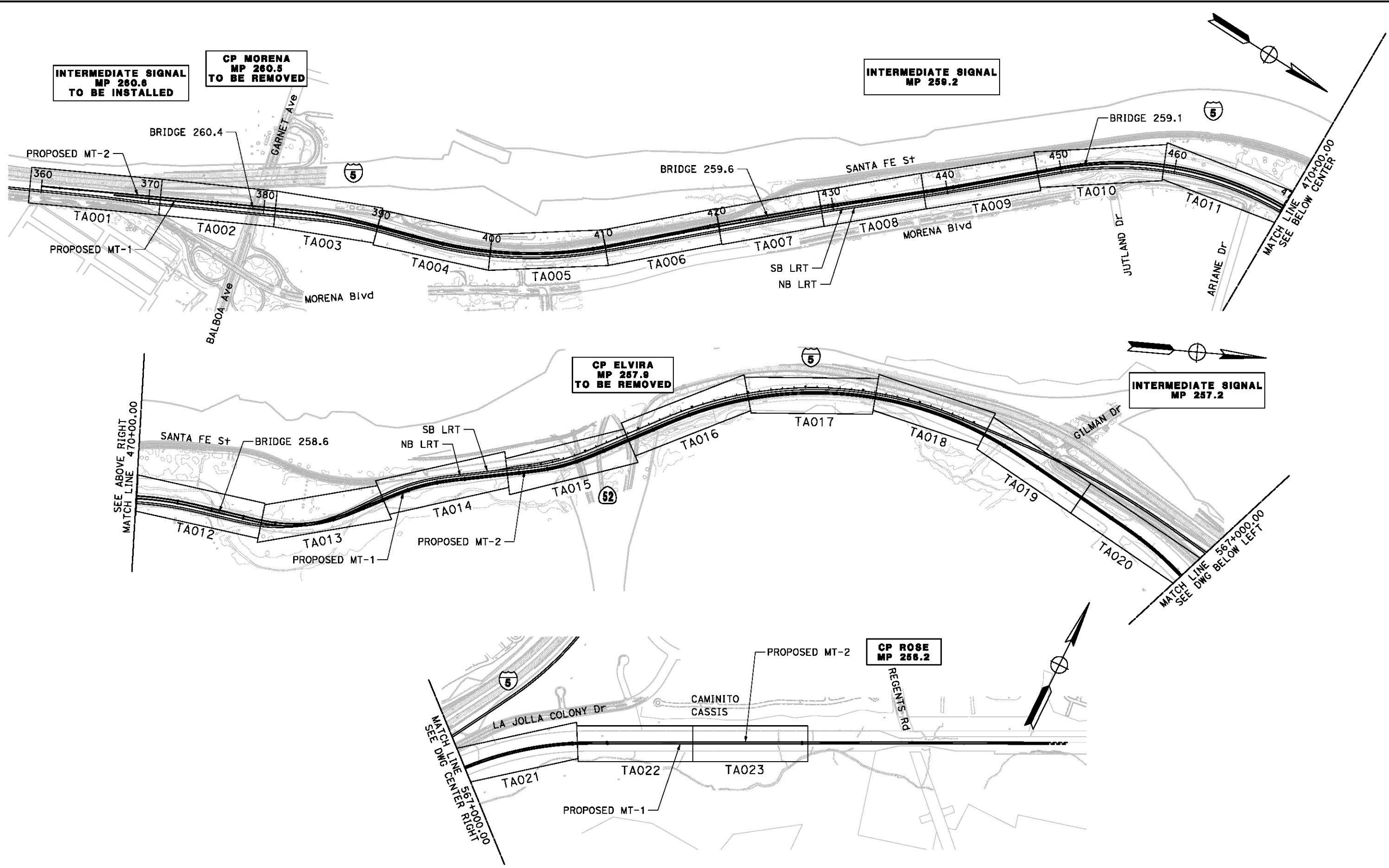
GRADING AND DRAINAGE
DRAINAGE DETAILS No. 2

SCALE AS NOTED	
SANDAG CONTRACT NO. 1239811	
DRAWING NO. GD208	SHEET NO. 52 OF 229

4/21/2015 11:38:36 AM User

IP-SHORT-PEN-TABLE

EMDT-SW-B01CG003.dgn



No.	DATE	REVISION	BY	CHK	APRV

HDR
 HDR ENGINEERING, INC.
 401 B STREET, SUITE 1110
 SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE IS IN INCHES

65% SUBMITTAL

NOT FOR CONSTRUCTION

DESIGNED BY	J. MOLINARO	DATE	4/15
DRAWN BY	H. LAI	DATE	4/15
CHECKED BY	A. DIRECTO	DATE	4/15
SANDAG	S. HUMPHREYS	DATE	4/15

SANDAG

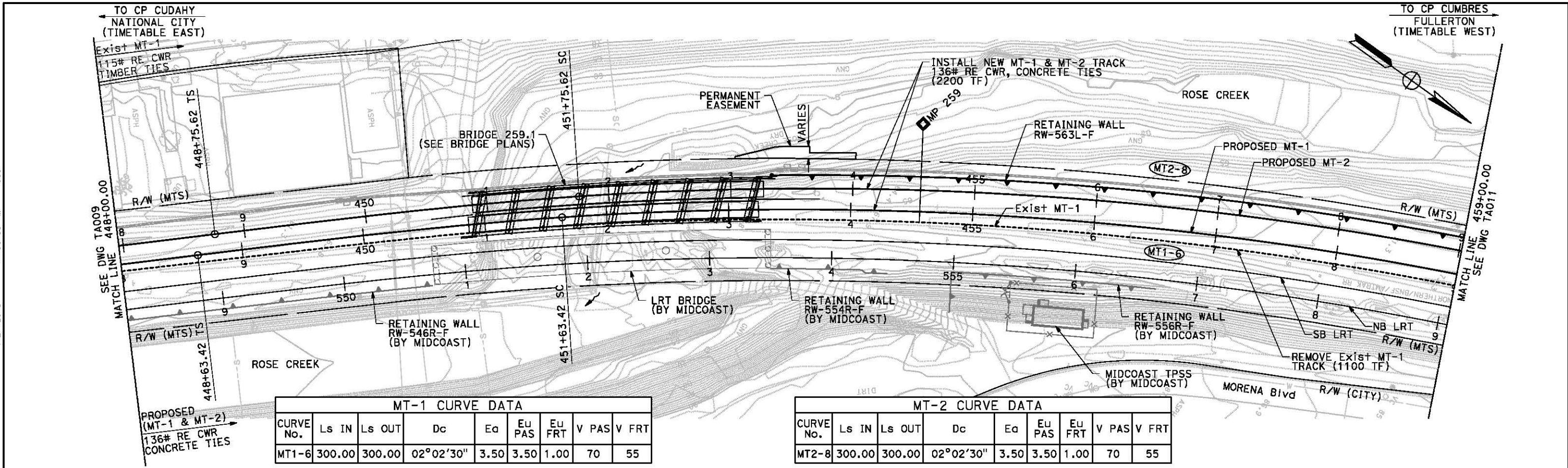
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT

TRACK KEYMAP

SCALE	NO SCALE
SANDAG CONTRACT NO.	1239811
DRAWING NO.	CG003
SHEET NO.	13 OF 382

4/21/2015 11:56:38 AM User



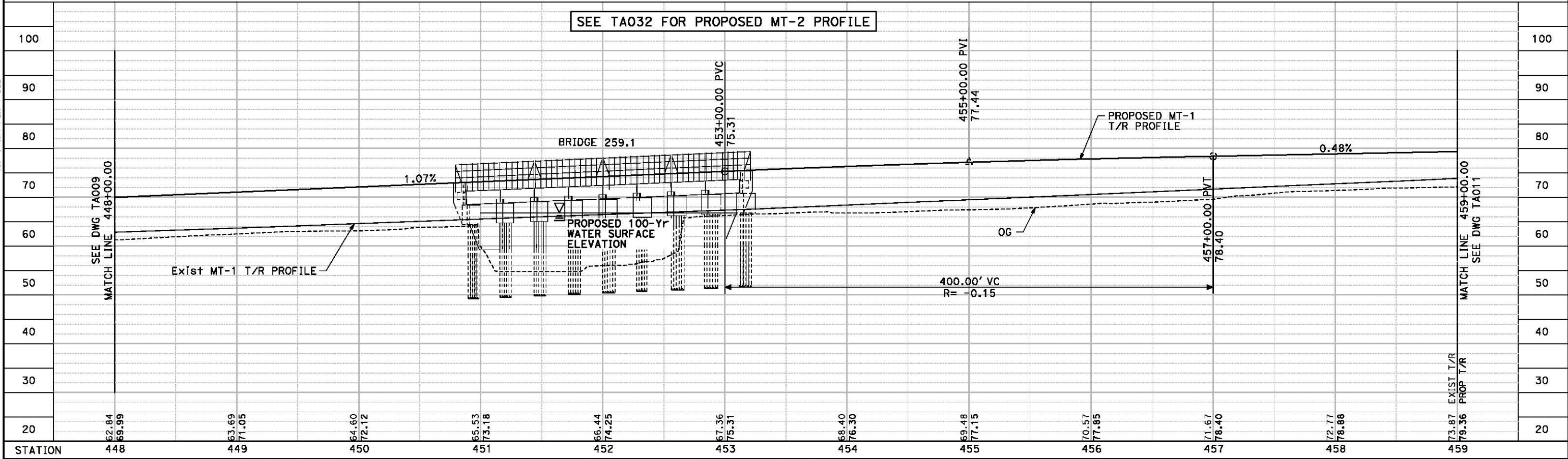
MT-1 CURVE DATA

CURVE No.	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
MT1-6	300.00	300.00	02°02'30"	3.50	3.50	1.00	70	55

MT-2 CURVE DATA

CURVE No.	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
MT2-8	300.00	300.00	02°02'30"	3.50	3.50	1.00	70	55

SEE TA032 FOR PROPOSED MT-2 PROFILE



EMDT-SW-B07TA010.dgn

No.	DATE	REVISION	BY	CHK	APRV

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
1" = 40'

65% SUBMITTAL

NOT FOR CONSTRUCTION

DESIGNED BY K. MAGEE	DATE 04/15
DRAWN BY H. LAI	DATE 04/15
CHECKED BY M. STRIDER	DATE 04/15
SANDAG S. HUMPHREYS	DATE 04/15

San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT

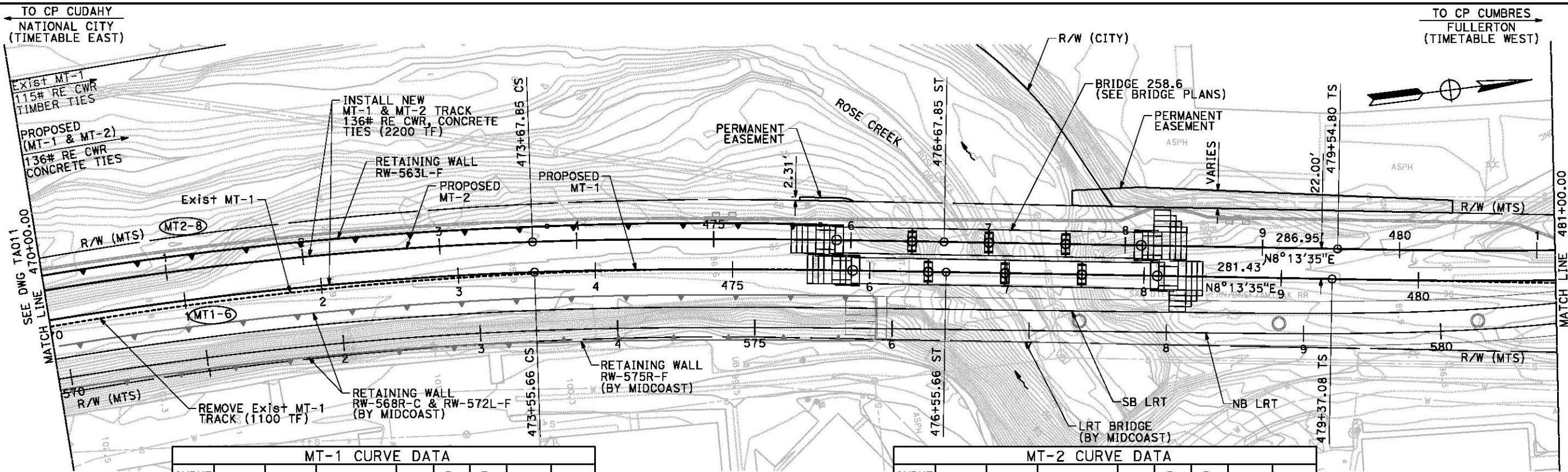
TRACK PLAN AND PROFILE
MT-1 Sta 448+00 TO Sta 459+00

SCALE
HORIZ 1"=40'
VERT 1"=10'

SANDAG CONTRACT NO.
1239811

DRAWING NO. SHEET NO.
TA010 28 OF 382

4/21/2015 12:05:06 PM user



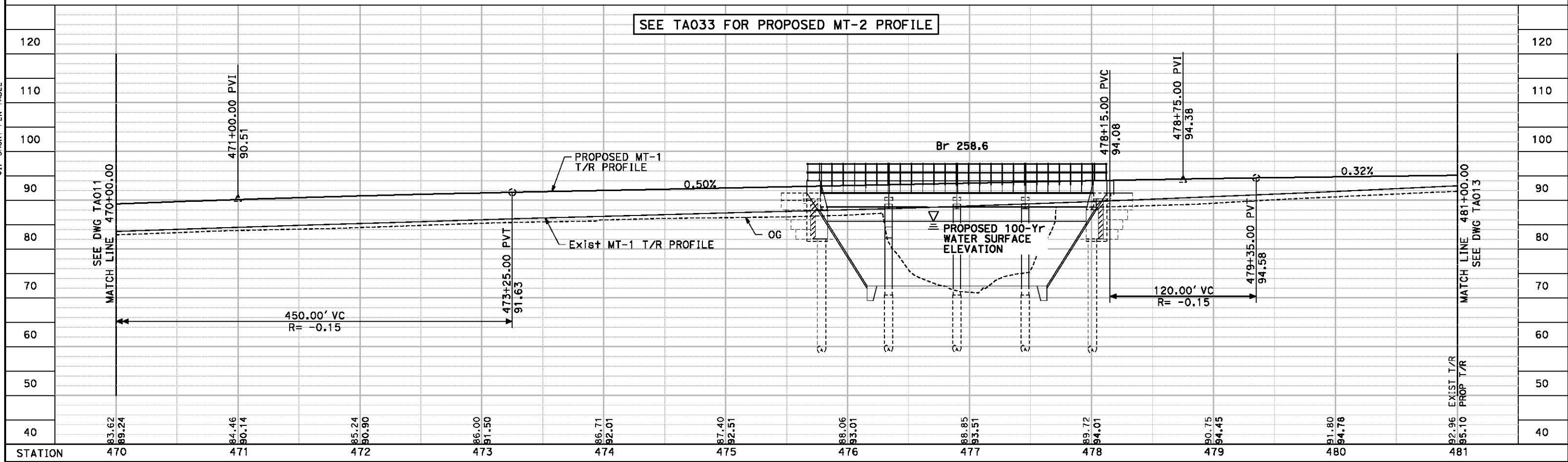
MT-1 CURVE DATA

CURVE No.	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
MT1-6	300.00	300.00	02°02'30"	3.50	3.50	1.00	70	55

MT-2 CURVE DATA

CURVE No.	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
MT2-8	300.00	300.00	02°02'30"	3.50	3.50	1.00	70	55

SEE TA033 FOR PROPOSED MT-2 PROFILE



No.	DATE	REVISION	BY	CHK	APRV

HDR
 HDR ENGINEERING, INC.
 401 B STREET, SUITE 1110
 SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
 IS IN INCHES

65% SUBMITTAL
 NOT FOR CONSTRUCTION

DESIGNED BY K. MAGEE	DATE 04/15
DRAWN BY H. LAI	DATE 04/15
CHECKED BY M. STRIDER	DATE 04/15
SANDAG S. HUMPHREYS	DATE 04/15

SANDAG
 San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT

TRACK PLAN AND PROFILE
 MT-1 Sta 470+00 TO Sta 481+00

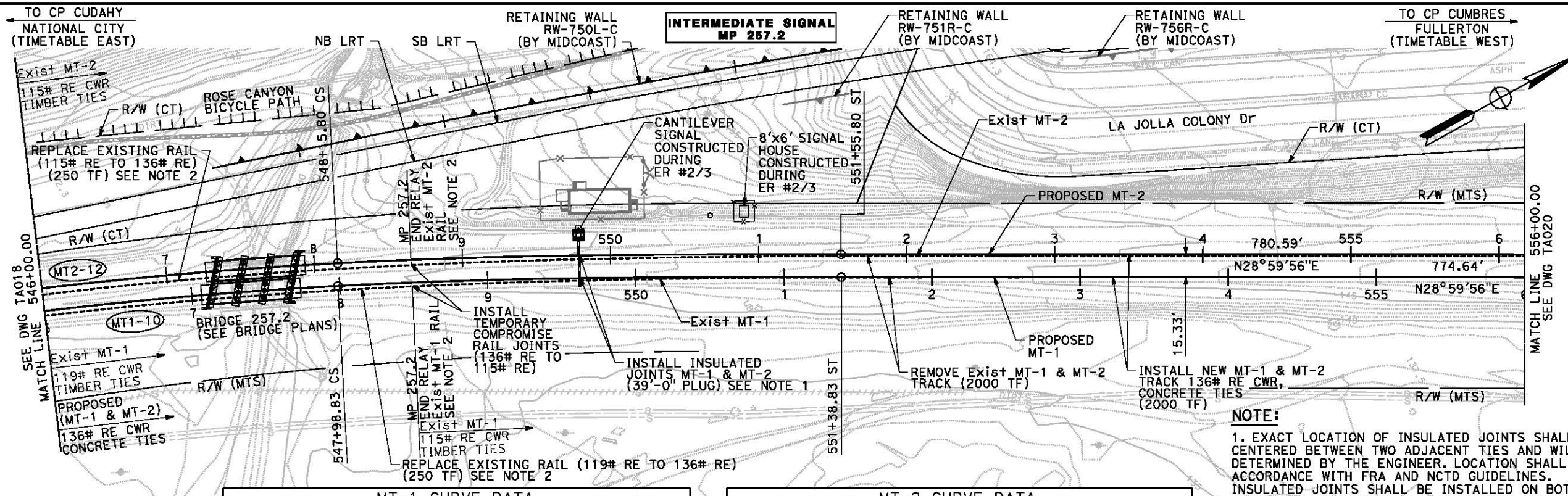
SCALE
 HORIZ 1"=40'
 VERT 1"=10'

SANDAG CONTRACT NO.
 1239811

DRAWING NO. SHEET NO.
 TA012 30 OF 382

EMDT-SW-BOTTA012.dgn

4/22/2015 6:24:45 PM User



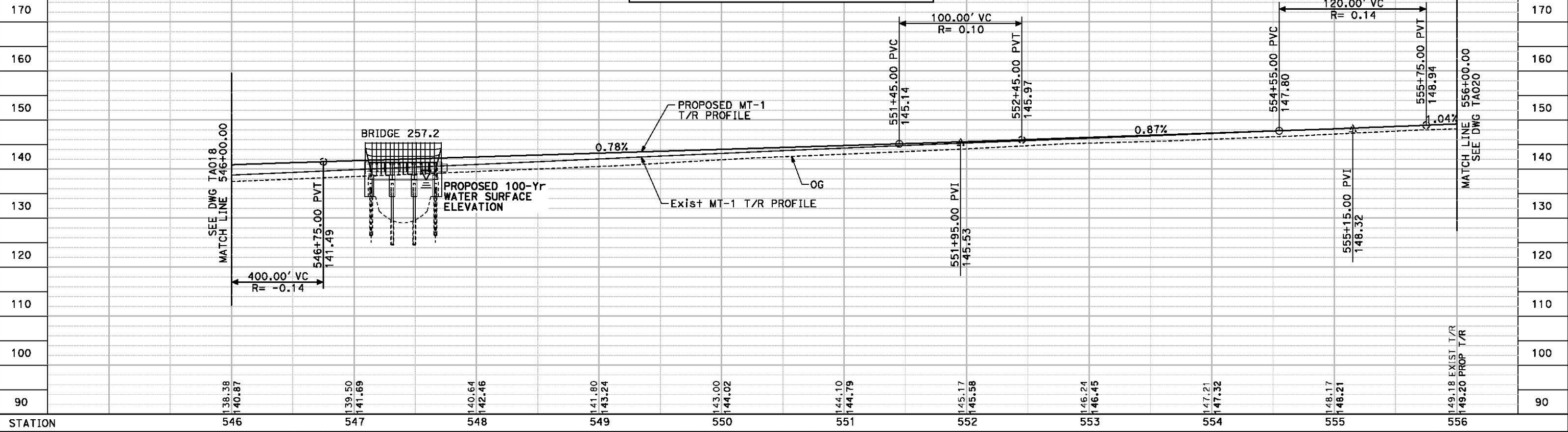
MT-1 CURVE DATA

CURVE No.	Ls IN	Ls OUT	Dc	Ea	Eu PAS	Eu FRT	V PAS	V FRT
MT1-10	340.00	340.00	1°48'50"	2.75	3.50	1.25	70	55

MT-2 CURVE DATA

CURVE No.	Ls IN	Ls OUT	Dc	Ea	Eu PAS	Eu FRT	V PAS	V FRT
MT2-12	340.00	340.00	1°48'18"	2.75	3.50	1.25	70	55

SEE TA037 FOR PROPOSED MT-2 PROFILE



No.	DATE	REVISION	BY	CHK	APRV

HDR

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE IS IN INCHES

0 1 2

65% SUBMITTAL

NOT FOR CONSTRUCTION

DESIGNED BY K. MAGEE DATE 04/15

DRAWN BY H. LAI DATE 04/15

CHECKED BY M. STRIDER DATE 04/15

SANDAG S. HUMPHREYS 04/15

SANDAG

San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT

TRACK PLAN AND PROFILE

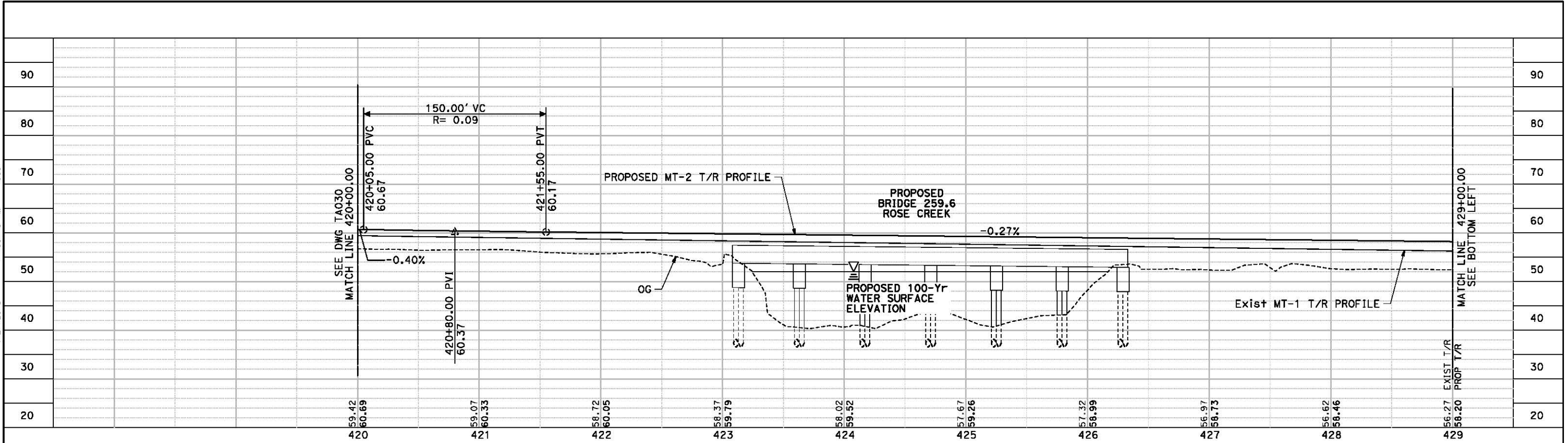
MT-1 Sta 546+00 TO Sta 556+00

SCALE: HORIZ 1"=40', VERT 1"=10'

SANDAG CONTRACT NO. 1239811

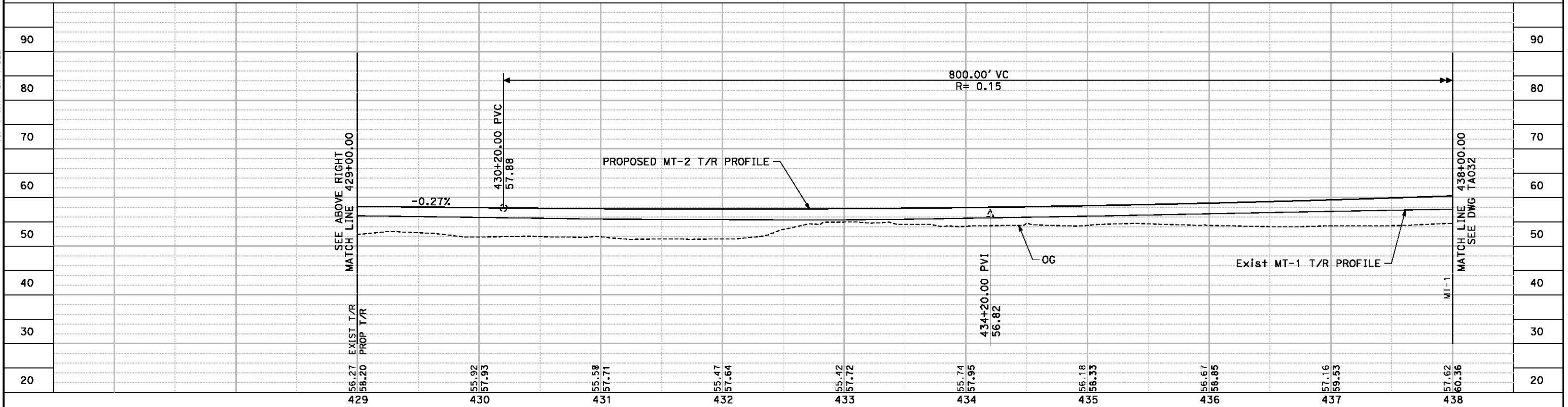
DRAWING NO. TA019 SHEET NO. 37 OF 382

4/21/2015 11:59:16 AM user



NOTE:
1. EXISTING T/R ELEVATIONS ARE BASED ON EXISTING MT-1

#IP-SHORT-PEN-TABLE



EMDT-SW-B07TA031.dgn

No.	DATE	REVISION	BY	CHK	APRV

HDR
HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
1" = 40'
1" = 10'

65% SUBMITTAL
NOT FOR CONSTRUCTION

DESIGNED BY K. MAGEE	DATE 4/15
DRAWN BY J. MOLINARO	4/15
CHECKED BY M. STRIDER	4/15
SANDAG S. HUMPHREYS	4/15

SANDAG
San Diego's Regional Planning Agency

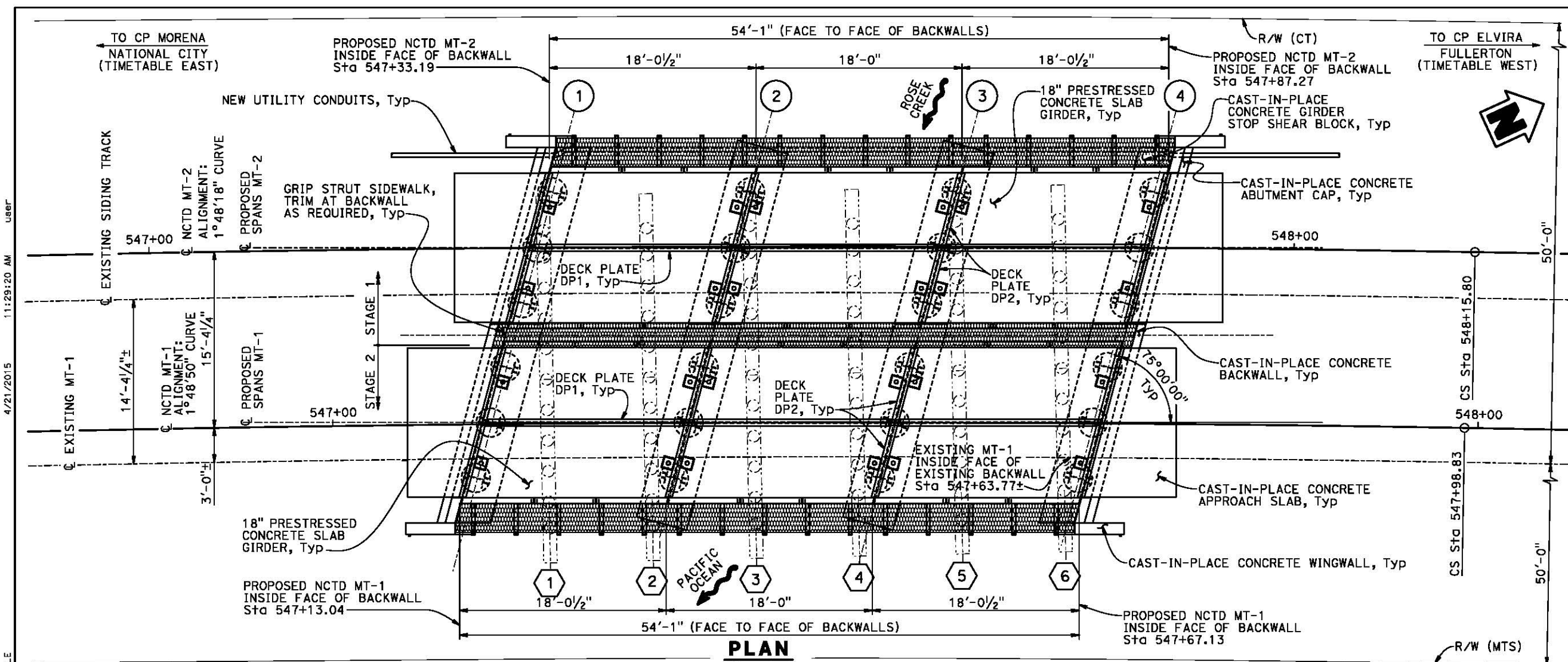
ELVIRA TO MORENA DOUBLE TRACK PROJECT

TRACK PROFILE
MT-2 STA 420+00 TO STA 438+00

SCALE
HORIZ 1"=40'
VERT 1"=10'

SANDAG CONTRACT NO.
1239811

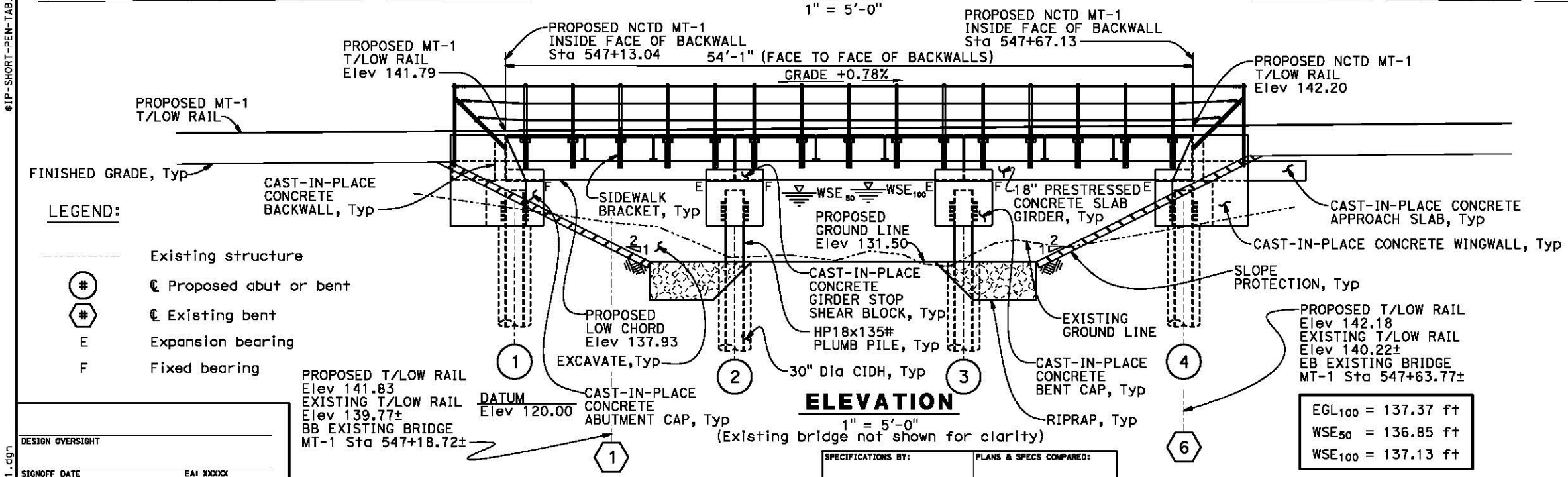
DRAWING NO. SHEET NO.
TA031 45 OF 382



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
REGISTERED CIVIL ENGINEER			
PLANS APPROVAL DATE			



PLAN
1" = 5'-0"



NOTE:
Backwall stationing based on existing MT-1 track.

TABLE OF ESTIMATED WEIGHTS	
DESCRIPTION	WEIGHT
SLAB GIRDER WITH VERTICAL CURB	31,800 LB (15.9 TONS)

- REFERENCES:
- TA019 TRACK PLAN AND PROFILE MT-1 Sta 546+00 TO Sta 556+00
 - TA037 TRACK PLAN AND PROFILE MT-2 Sta 546+00 TO Sta 556+00
 - BRO01 REMOVAL PLAN AND DETAILS
 - FPO01 FOUNDATION PLAN
 - ATO01 ABUTMENT CAP LAYOUT
 - ATO03 APPROACH SLAB FRAMING
 - ATO04 WINGWALL FRAMING
 - BT001 BENT CAP LAYOUT
 - TY001 ABUTMENT TYPICAL SECTION
 - TY002 BENT TYPICAL SECTION
 - SD001 BRIDGE CONSTRUCTION SEQUENCE
 - SD002 RESTRAINER DETAILS
 - SD003 SIDEWALK AND HANDRAIL DETAILS
 - MDO01 ABUTMENT SLOPE PROTECTION DETAILS
 - MDO02 GENERAL DETAILS

- LEGEND:
- Existing structure
 - Proposed abut or bent
 - Existing bent
 - Expansion bearing
 - Fixed bearing

DESIGN OVERSIGHT
SIGNOFF DATE EA1 XXXXX

No.	DATE	REVISION	BY	CHK	APRV



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

SPECIFICATIONS BY:		PLANS & SPECS COMPARED:	
DESIGNED BY	M. HATCH	CHECKED BY	T. STRICKLAND
DATE	4/15	DATE	4/15
DETAILS BY	R. DIXON	CHECKED BY	M. HATCH
DATE	4/15	DATE	4/15
QUANTITIES BY	S. HUMPHREYS	CHECKED BY	
DATE	4/15	DATE	4/15

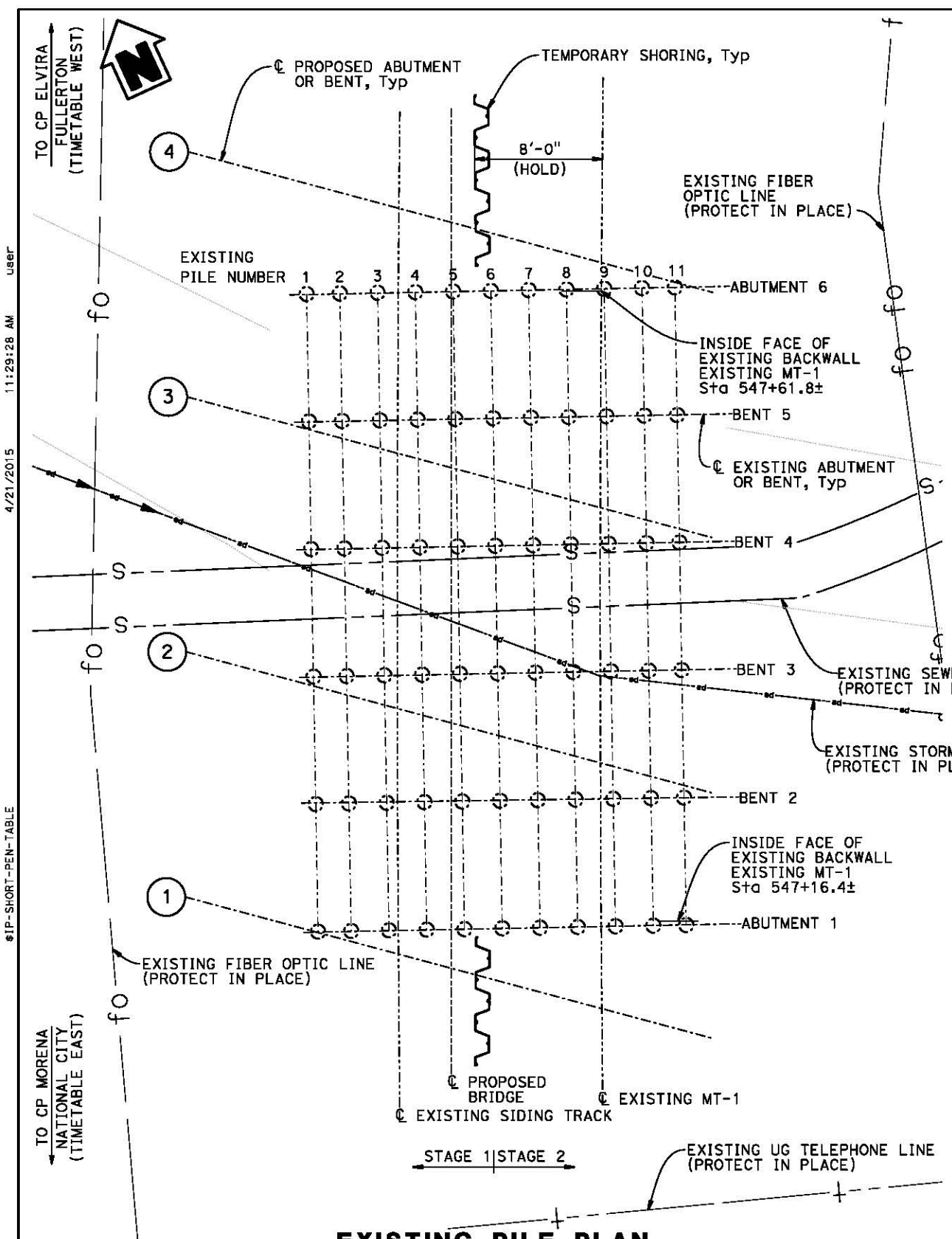


65% SUBMITTAL
NOT FOR CONSTRUCTION

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BRIDGE 257.2 GENERAL PLAN

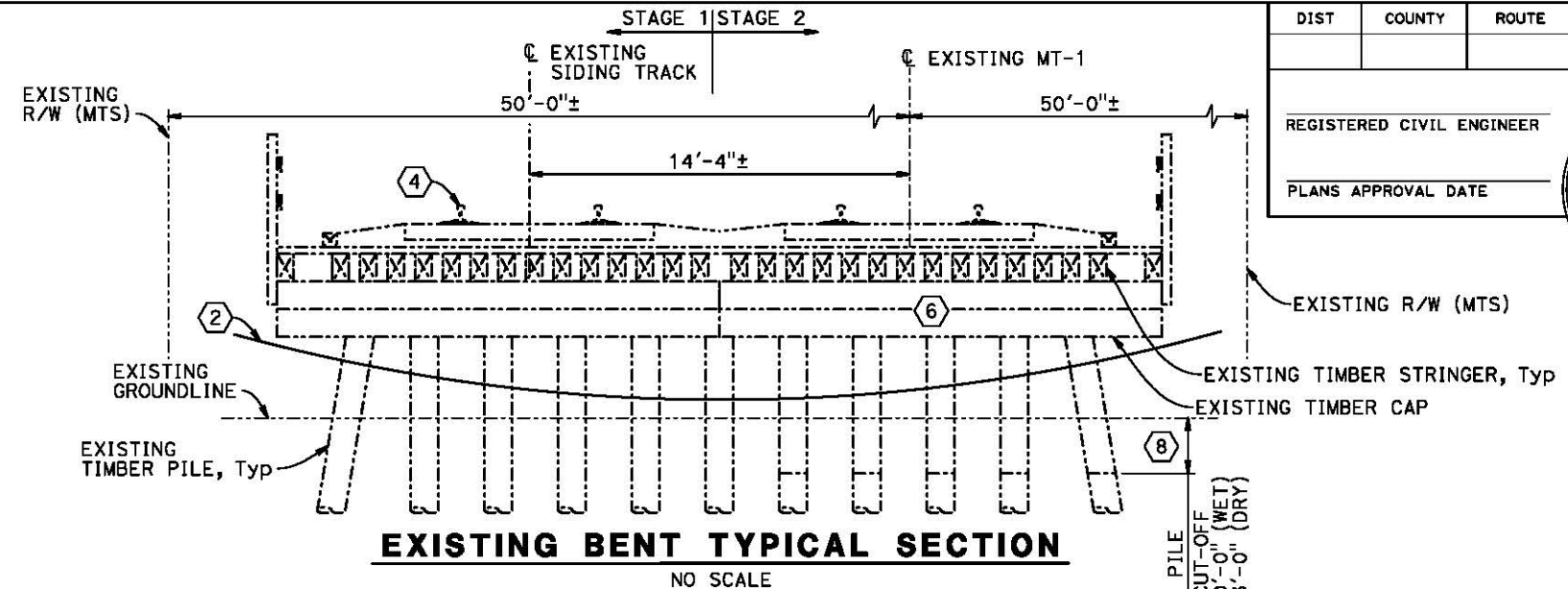
SCALE	AS SHOWN
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GP001
SHEET NO.	68 OF 382

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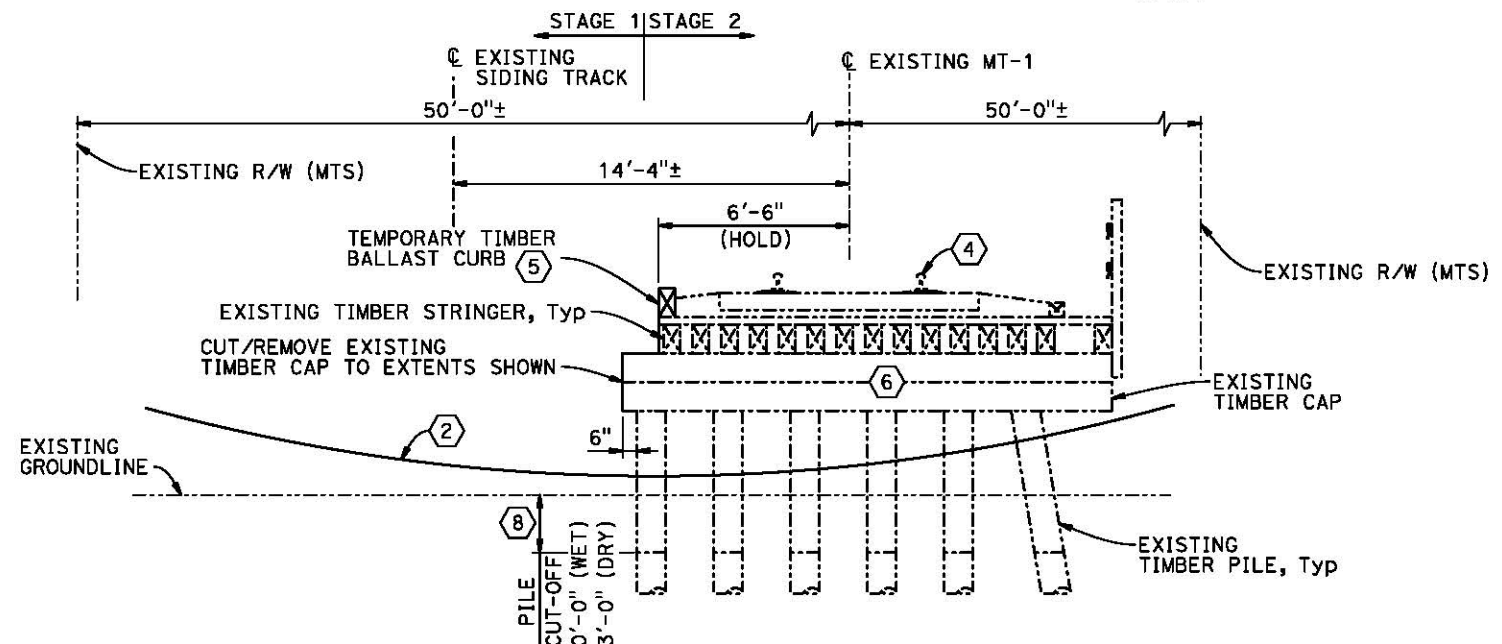


EXISTING PILE PLAN
1" = 5'-0"

LEGEND:
 ○ Existing timber pile
 ⊕ Proposed abutment or bent



EXISTING BENT TYPICAL SECTION
NO SCALE



EXISTING BENT TYPICAL SECTION PHASE 1
NO SCALE

BRIDGE REMOVAL NOTES:

- ① Contractor shall submit a bridge removal and disposal plan for approval by NCTD prior to commencing any bridge removal. The removal plan shall conform to contract and show the methods and sequence for removal and equipment to be used.
- ② Erect a plywood debris barrier and a fabric debris net under the existing bridge per the typical section. No existing bridge debris shall be allowed to fall onto the embankment or into the existing waterway below the bridge. All debris from the removal process shall be contained and removed from the site and properly disposed.
- ③ Construct temporary sheet pile shoring.
- ④ Remove existing rail, timber cross ties and ballast. Ballast and track shall be removed a minimum of 10 feet beyond existing bridge ends.
- ⑤ Install temporary timber ballast curb.
- ⑥ Remove existing timber deck, stringers and pile caps in sections.
- ⑦ Remove all temporary support, floating booms, debris nets and temporary shoring.
- ⑧ All piles shall be cut-off and removed a minimum of 3'-0" below existing grade in dry situations and removed to proposed groundline in wet situations.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
REGISTERED CIVIL ENGINEER			
PLANS APPROVAL DATE			



DESIGN OVERSIGHT	
SIGNOFF DATE	EA1 XXXXX

No.	DATE	REVISION	BY	CHK	APRV

HDR
 HDR ENGINEERING, INC.
 401 B STREET, SUITE 1110
 SAN DIEGO, CALIFORNIA 92101

DESIGNED BY M. HATCH	CHECKED BY T. STRICKLAND	DATE 4/15
DETAILS BY R. DIXON	CHECKED BY M. HATCH	4/15
QUANTITIES BY	CHECKED BY	4/15
SANDAG S. HUMPHREYS		4/15



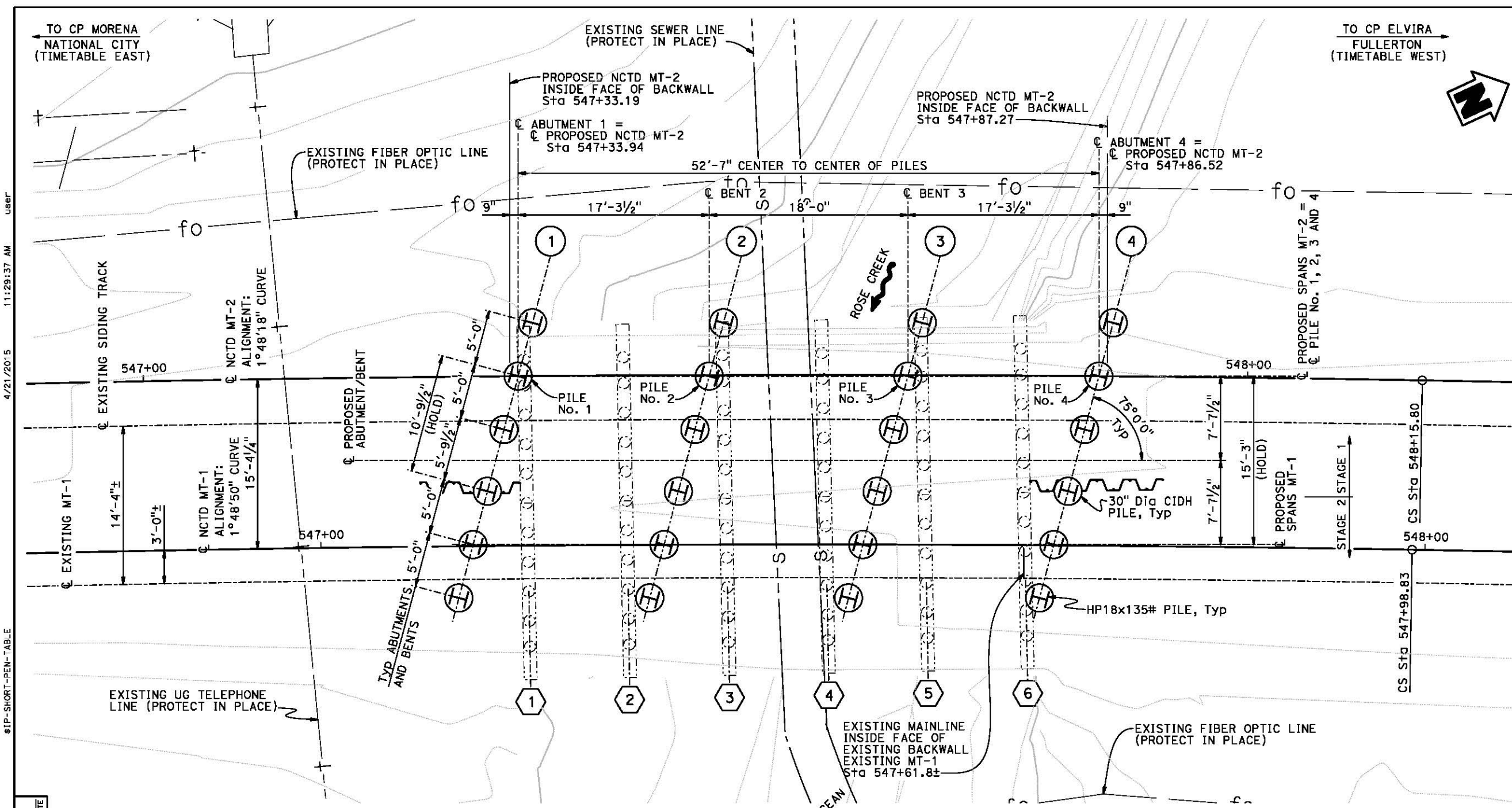
**65%
SUBMITTAL**
NOT FOR CONSTRUCTION

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BRIDGE 257.2
REMOVAL PLAN AND DETAILS

SCALE AS SHOWN
SANDAG CONTRACT NO. 1239811
DRAWING NO. BR001
SHEET NO. 69 OF 382

BRIDGE NO. 257.2
MILE POST

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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 #IP-SHORT-PEN-TABLE
 EMDT-SW-257.2-608FP001-CGN
 GEOTECHNICAL PROFESSIONAL APPROVAL DATE

NOTE:
 Bridge spans chorded from
 C NCTD MT-2 abutment 1 to
 C NCTD MT-2 abutment 4.

PILE No.	TRACK	OFFSET *	STATION	NORTHING	EASTING
1	MT-2	0.00'	547+33.94	1889629.11	6259194.70
2	MT-2	0.10' R	547+51.23	1889644.79	6259201.99
3	MT-2	0.10' R	547+69.23	1889661.11	6259209.58
4	MT-2	0.00'	547+86.52	1889676.79	6259216.86

* FROM PROPOSED TRACK NCTD MT-2

LOCATION	PILE TYPE	NOMINAL RESISTANCE		CIDH CUT-OFF ELEVATION (FT)	DESIGN TIP ELEVATION (FT)
		COMPRESSION (KIP)	TENSION (KIP)		
ABUTMENT 1	30"Ø CIDH PILE	X	0	137.08	110.00
BENT 2	30"Ø CIDH PILE	X	0	137.22	102.00
BENT 3	30"Ø CIDH PILE	X	0	137.36	102.00
ABUTMENT 4	30"Ø CIDH PILE	X	0	137.49	110.00

FOUNDATION PLAN
 1" = 5'-0"

NOTE:
 Design tip elevation is controlled by the following demands:
 (A) Compression
 (D) Lateral loads
 (E) Scour

LEGEND:
 ----- Existing structure
 ⊕ Proposed abut or bent
 ⊕ Existing bent

BRIDGE NO.	257.2
MILE POST	

PHOTOGRAMMETRY AS OF:	DRAWN BY	
SURVEYED BY	TRACED BY	
FIELD CHECKED BY	CHECKED BY	
DESIGNED BY M. HATCH	CHECKED BY T. STRICKLAND	DATE 4/15
DETAILS BY R. DIXON	CHECKED BY M. HATCH	4/15
QUANTITIES BY	CHECKED BY	4/15
SANDAG S. HUMPHREYS		4/15



65% SUBMITTAL
 NOT FOR CONSTRUCTION

ELVIRA TO MORENA DOUBLE TRACK PROJECT

BRIDGE 257.2
 FOUNDATION PLAN

SCALE AS SHOWN
 SANDAG CONTRACT NO. 1239811
 DRAWING NO. FP001 SHEET NO. 70 OF 382

RELATIVE BORDER SCALE IS IN INCHES

0 1 2

No.	DATE	REVISION	BY	CHK	APRV

User 11:31:02 AM 4/21/2015 #IP-SHORT-PEN-TABLE EMDT-SW-257.2-G15SD001-CGN

GENERAL NOTES

The contractor may adjust the following recommended sequence as accepted by the engineer. The contractor shall submit a detailed construction sequence plan to NCTD for approval in accordance with the construction documents prior to commencement of work.

WORK PERFORMED BY CONTRACTOR


1. Provide temporary false work for bridge.
2. Install articulated concrete mat protection at abutments per plans and specifications.

STAGE 1 (RR-WEST PORTION)

1. Construct temporary shoring at abutments and install temporary ballast retainer.
2. Remove stage 1 portions of existing bridge per detail on drawing no. BR001.
3. Construct stage 1 CIDH piles.
4. Construct stage 1 abutments and bent caps, except girder stop shear blocks.
5. Construct girder stop shear blocks at abutments and bent caps.
6. Construct stage 1 wingwalls at abutments.
7. Install drain pipes and backfill behind abutments.
8. Install stage 1 girders and associated components.
9. Construct stage 1 approach slabs.
10. Place new ballast.
11. Construct new CWR to Class 5 standards. Use contractor furnished rails, ties, screw spikes and otm with galvanized e-clips. Adjust CWR, tamp, surface, regulate and de-stress as required by NCTD.
12. Connect newly constructed track to existing track during temporary closure.
13. Transfer train service to newly constructed bridge.

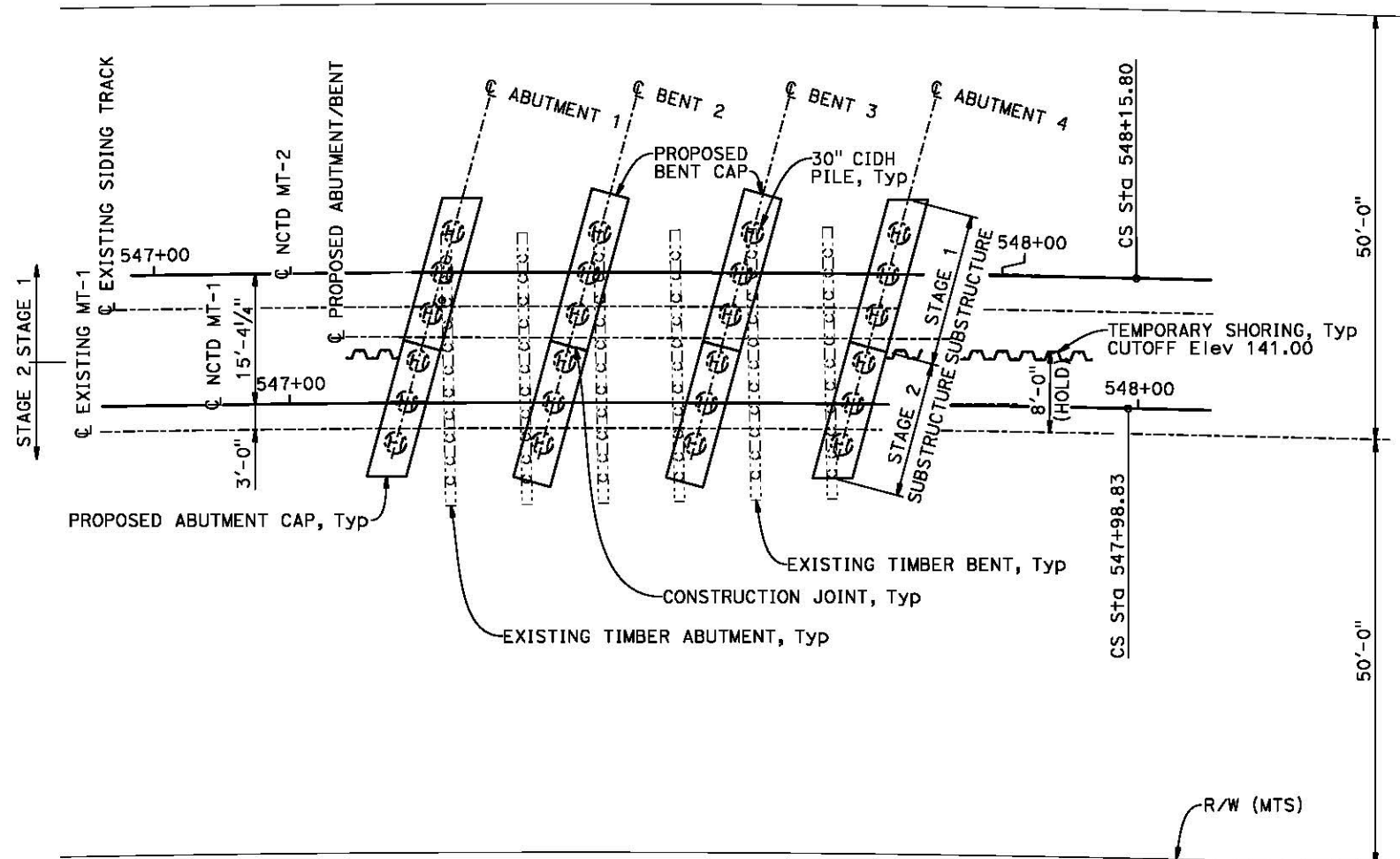
STAGE 2 (RR-EAST PORTION)

1. Remove stage 2 portions of existing bridge per detail on drawing no. BR001.
2. Construct stage 2 CIDH piles.
3. Construct stage 2 abutments and bent caps, except girder stop shear blocks.
4. Install stage 2 girders and associated components.
5. Construct girder stop shear blocks at abutments and bent caps.
6. Construct stage 2 wingwalls at abutments.
7. Install drain pipes and backfill behind abutments.
8. Construct stage 2 approach slabs.
9. Install conduit hangers and place 8-4" dia conduit on left side of bridge per "UTILITY HANGER DETAIL" (see drawing no. SD003).
10. Remove temporary shoring below groundline or 2'-0" below top of the cap behind abutment.
11. Construct new CWR to Class 5 standards. Use contractor furnished rails, ties, screw spikes and otm with galvanized e-clips. adjust CWR, tamp, surface, regulate and de-stress as required by NCTD.
12. Connect newly constructed track to existing track.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
REGISTERED CIVIL ENGINEER			
PLANS APPROVAL DATE			

TO CP MORENA
NATIONAL CITY
(TIMETABLE EAST)

TO CP ELVIRA
FULLERTON
(TIMETABLE WEST)



CONSTRUCTION CLEARANCE AND STAGING DIAGRAM

1" = 10'-0"


REFERENCES:

- BR001 REMOVAL PLAN AND DETAILS
- FP001 FOUNDATION PLAN
- SD003 SIDEWALK AND HANDRAIL DETAILS

BRIDGE NO.	257.2
MILE POST	

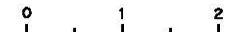
DESIGN OVERSIGHT	
SIGNOFF DATE	EAI XXXXX

No.	DATE	REVISION	BY	CHK	APRV



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
15 IN INCHES



DESIGNED BY M. HATCH	CHECKED BY T. STRICKLAND	DATE 4/15
DETAILS BY R. DIXON	CHECKED BY M. HATCH	4/15
QUANTITIES BY	CHECKED BY	4/15
SANDAG S. HUMPHREYS		4/15



**65%
SUBMITTAL**

NOT FOR
CONSTRUCTION

ELVIRA TO MORENA DOUBLE TRACK PROJECT

**BRIDGE 257.2
BRIDGE CONSTRUCTION SEQUENCE**

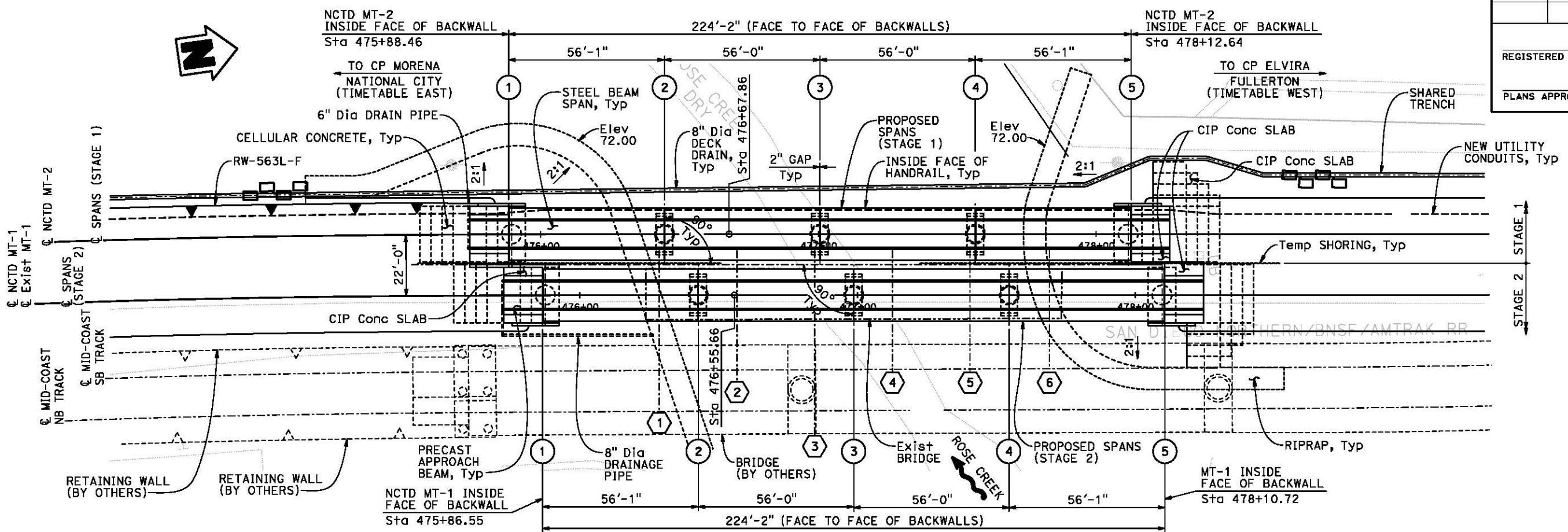
SCALE	AS SHOWN
SANDAG CONTRACT NO.	1239811
DRAWING NO.	SD001
SHEET NO.	82 OF 382

4/21/2015 12:33:53 PM user

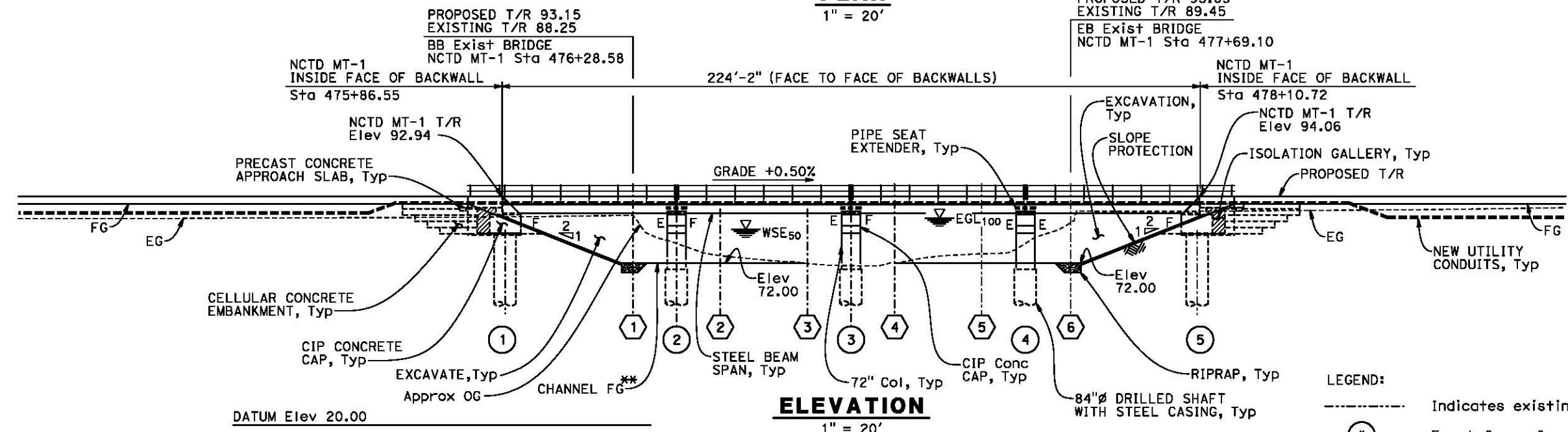
IP-SHORT-PEN-TABLE

EMDT-SW-258.6-G04GPO01-CGN

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT



PLAN
1" = 20'



ELEVATION
1" = 20'

EGL ₁₀₀	= 86.32 ft
WSE ₅₀	= 83.41 ft
WSE ₁₀₀	= 85.69 ft

- LEGEND:
- Indicates existing structure
 - ⊙ Front face of proposed abutment or @ bent
 - ⊕ Existing bent callout
 - E = Expansion Bearing
 - F = Fixed Bearing

EXISTING BRIDGE NOT SHOWN FOR CLARITY
ONLY THE PROPOSED STAGE 2 SPANS ARE SHOWN
PROPOSED STAGE 1 SPANS ARE SIMILAR

DESIGN OVERSIGHT	
SIGNOFF DATE	EA1 XXXXX

No.	DATE	REVISION	BY	CHK	APRV

SPECIFICATIONS BY:	PLANS & SPECS COMPARED:
DESIGNED BY G. ZHANG	CHECKED BY DATE 4/15
DETAILS BY E. GRAY	CHECKED BY DATE 4/15
QUANTITIES BY	CHECKED BY DATE 4/15
SANDAG S. HUMPHREYS	CHECKED BY DATE 4/15



**65%
SUBMITTAL**
NOT FOR
CONSTRUCTION

ELVIRA TO MORENA DOUBLE TRACK PROJECT
**BRIDGE 258.6
GENERAL PLAN
(1 OF 2)**

SCALE	AS SHOWN
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GP001
SHEET NO.	94 OF 382


TO CP MORENA
NATIONAL CITY
(TIMETABLE EAST)

TO CP ELVIRA
FULLERTON
(TIMETABLE WEST)

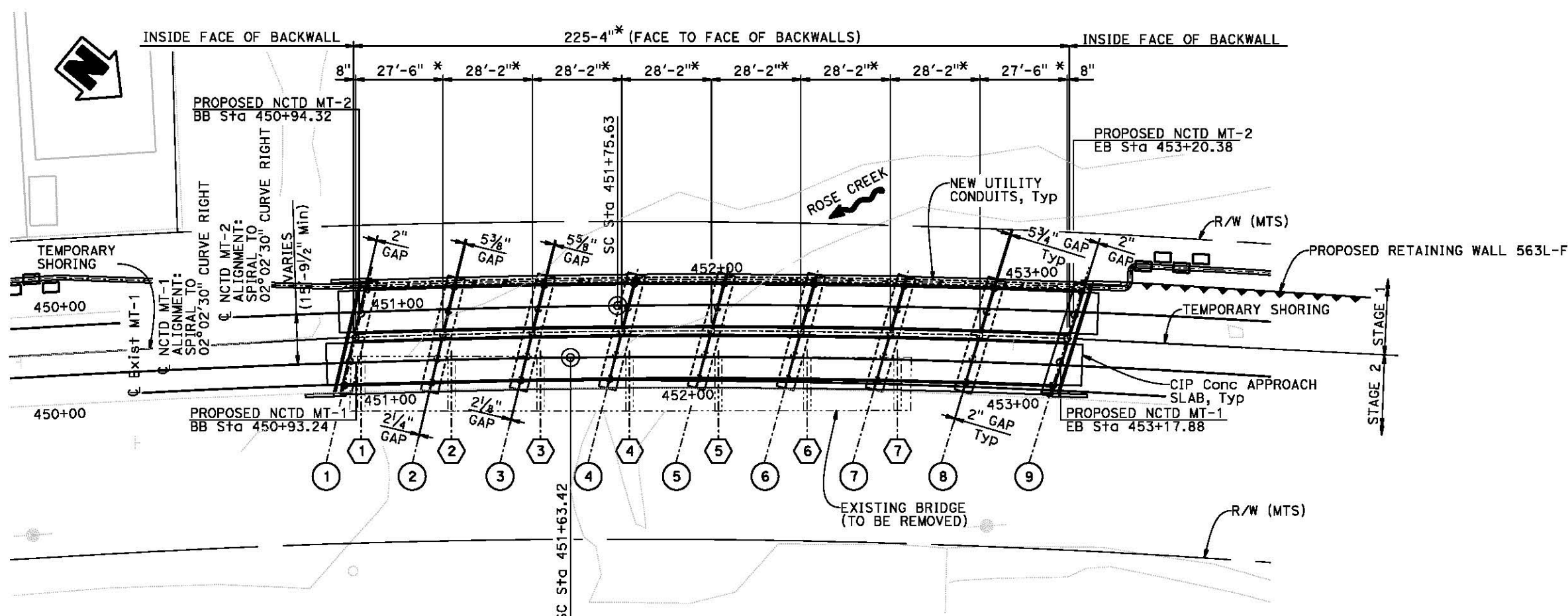
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT

REGISTERED CIVIL ENGINEER

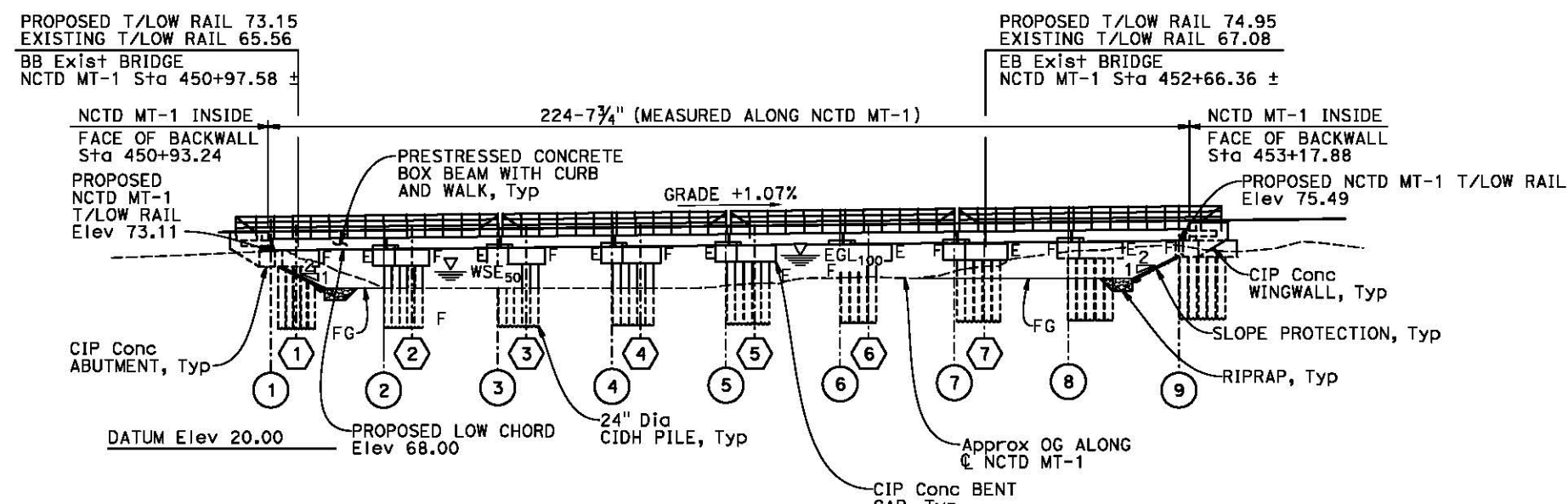
PLANS APPROVAL DATE



- REFERENCES:
- TA010 TRACK PLAN AND PROFILE MT-1 Sta 448+00 TO Sta 459+00
 - TA031 TRACK PLAN AND PROFILE MT-2 Sta 438+00 TO Sta 459+00
 - RW001 RETAINING WALL PLANS
 - BR001 REMOVAL PLAN AND DETAILS
 - TY001 ABUTMENT TYPICAL SECTION
 - TY002 BENT TYPICAL SECTION
 - SD001 BRIDGE CONSTRUCTION SEQUENCE
 - MD001 ABUTMENT SLOPE PROTECTION DETAILS
 - MD002 GENERAL DETAILS



PLAN
1" = 20'
*CHORD LENGTH MEASURED FROM C CENTER PILE TO C CENTER PILE



EGL ₁₀₀	= 67.14 ft
WSE ₅₀	= 63.83 ft
WSE ₁₀₀	= 66.76 ft


- LEGEND:**
- Indicates existing structure
 - ⊕ Proposed abutment or bent
 - ⊕ Existing bent
 - E = Expansion bearing
 - F = Fixed bearing

DESCRIPTION	WEIGHT
BOX BEAM WITH VERTICAL CURB	48,910 LB (24.5 TONS)

DESIGN OVERSIGHT


SIGNOFF DATE EA XXXXX

No.	DATE	REVISION	BY	CHK	APRV



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
15 IN INCHES



DESIGNED BY M. GIESMANN	CHECKED BY M. HATCH	DATE 4/15
DETAILS BY M. MCKIBBIN	CHECKED BY M. GIESMANN	4/15
QUANTITIES BY M. GIESMANN	CHECKED BY M. HATCH	4/15
SANDAG S. HUMPHREYS		4/15



San Diego's Regional Planning Agency

**65%
SUBMITTAL**

NOT FOR
CONSTRUCTION

ELVIRA TO MORENA DOUBLE TRACK PROJECT

BRIDGE 259.1
GENERAL PLAN

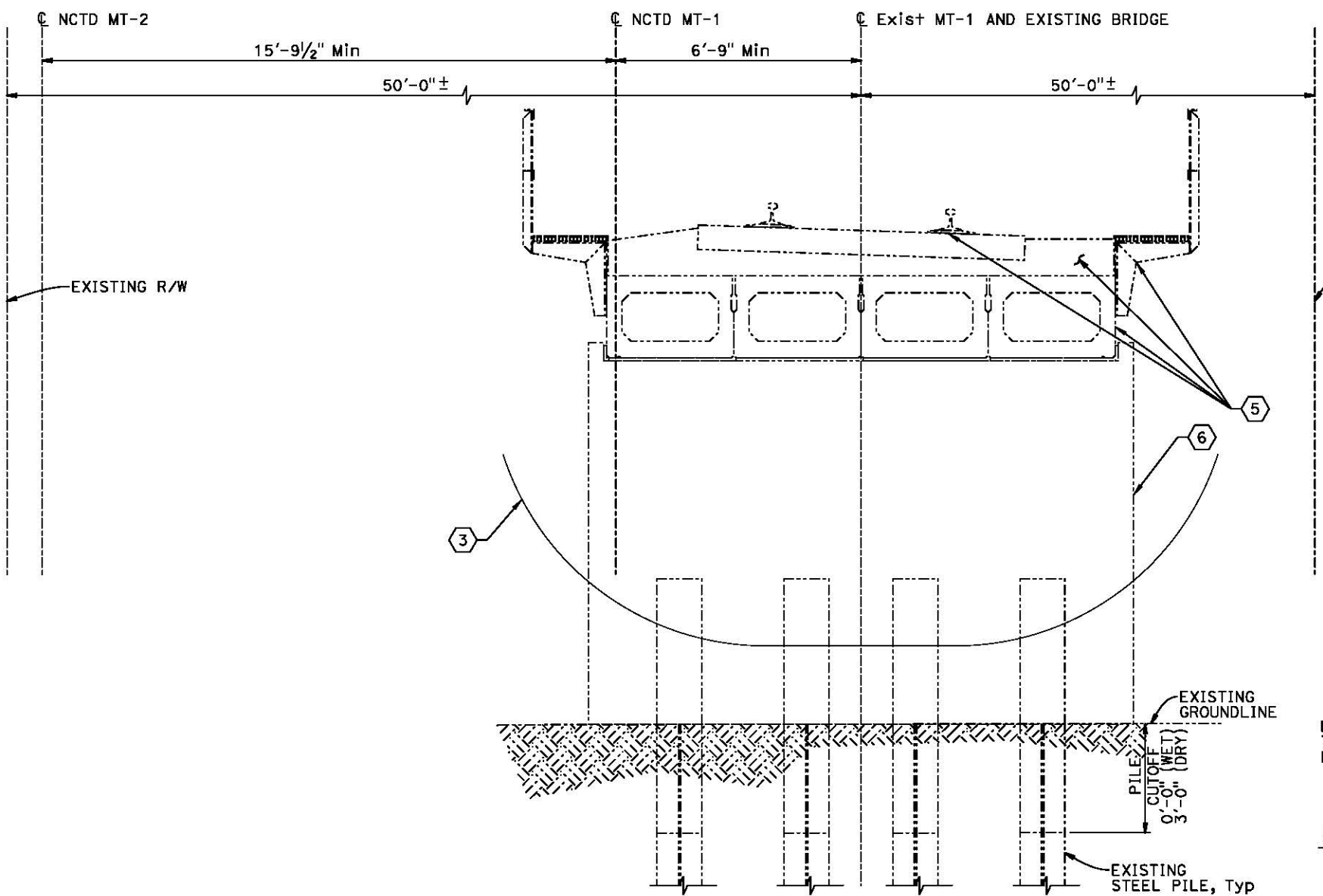
SCALE AS SHOWN
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. GP001 139 OF 382

4/21/2015 12:40:41 PM User \$IP-SHORT-PEN-TABLE EMDT-SW-259.1-0040P001.cgn

4/21/2015 12:40:57 PM User
 \$IP-SHORT-PEN-TABLE
 EMDT-SW-259.1-605BROOT1 - cgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT

REGISTERED CIVIL ENGINEER
 PLANS APPROVAL DATE



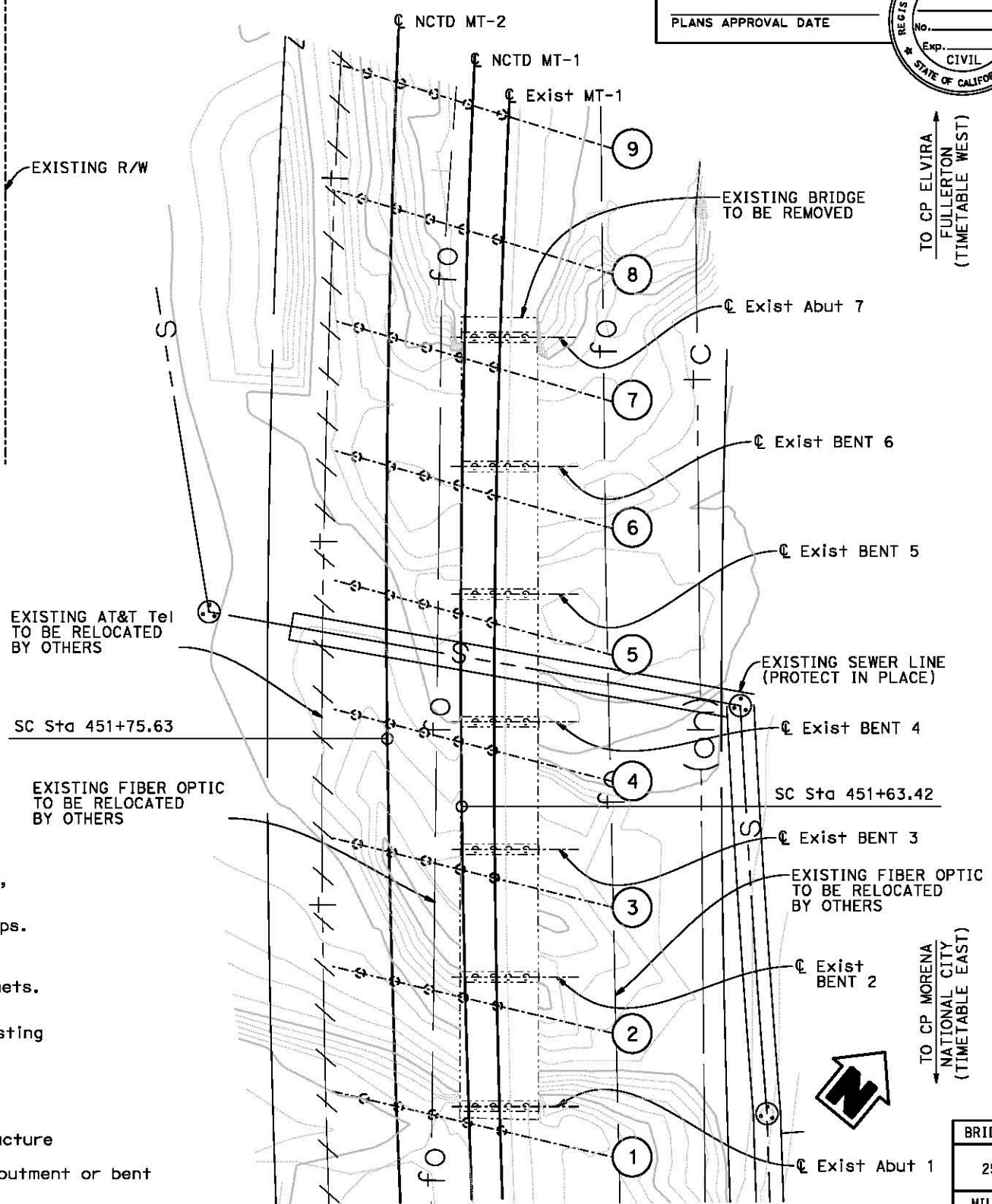
EXISTING BENT TYPICAL SECTION

BRIDGE REMOVAL NOTES:

- 1 Contractor shall submit a bridge removal and disposal plan for approval by NCTD prior to commencing any bridge removal. The removal plan shall conform to contract and show the methods and sequence of removal and equipment to be used.
- 2 Utilities from existing bridge shall be temporarily relocated prior to start of construction. Contractor to remove utility hangers and conduit. Coordinate removal with utilities.
- 3 Erect a plywood debris barrier and a fabric debris net under the existing bridge per the typical section. No existing bridge debris shall be allowed to fall onto the embankment or into the existing waterway below the bridge. All debris from the removal process shall be contained and removed from the site and properly disposed.

- 4 Prior to commencing any removal operations over the water, floating surface booms shall be installed.
- 5 Remove existing track, ballast, curb, box beams and pile caps.
- 6 Remove existing pier walls.
- 7 Remove all temporary supports, floating booms and debris nets.
- 8 All piles shall be cut-off and removed a minimum depth of 3'-0" below grade in dry situations and removed to the existing groundline in wet situations.

LEGEND:
 --- Existing structure
 # Proposed abutment or bent



EXISTING PILE PLAN

DESIGN OVERSIGHT	
SIGNOFF DATE	EA1 XXXXX

No.	DATE	REVISION	BY	CHK	APRV

HDR ENGINEERING, INC.
 401 B STREET, SUITE 1110
 SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE IS IN INCHES
 0 1 2

DESIGNED BY M. GIESMANN	CHECKED BY M. HATCH	DATE 4/15
DETAILS BY M. MCKIBBIN	CHECKED BY M. GIESMANN	4/15
QUANTITIES BY M. GIESMANN	CHECKED BY M. HATCH	4/15
SANDAG S. HUMPHREYS		4/15



**65%
SUBMITTAL**
 NOT FOR CONSTRUCTION


ELVIRA TO MORENA DOUBLE TRACK PROJECT
**BRIDGE 259.1
REMOVAL PLAN AND DETAILS**

SCALE AS SHOWN
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. BR001 140 OF 382

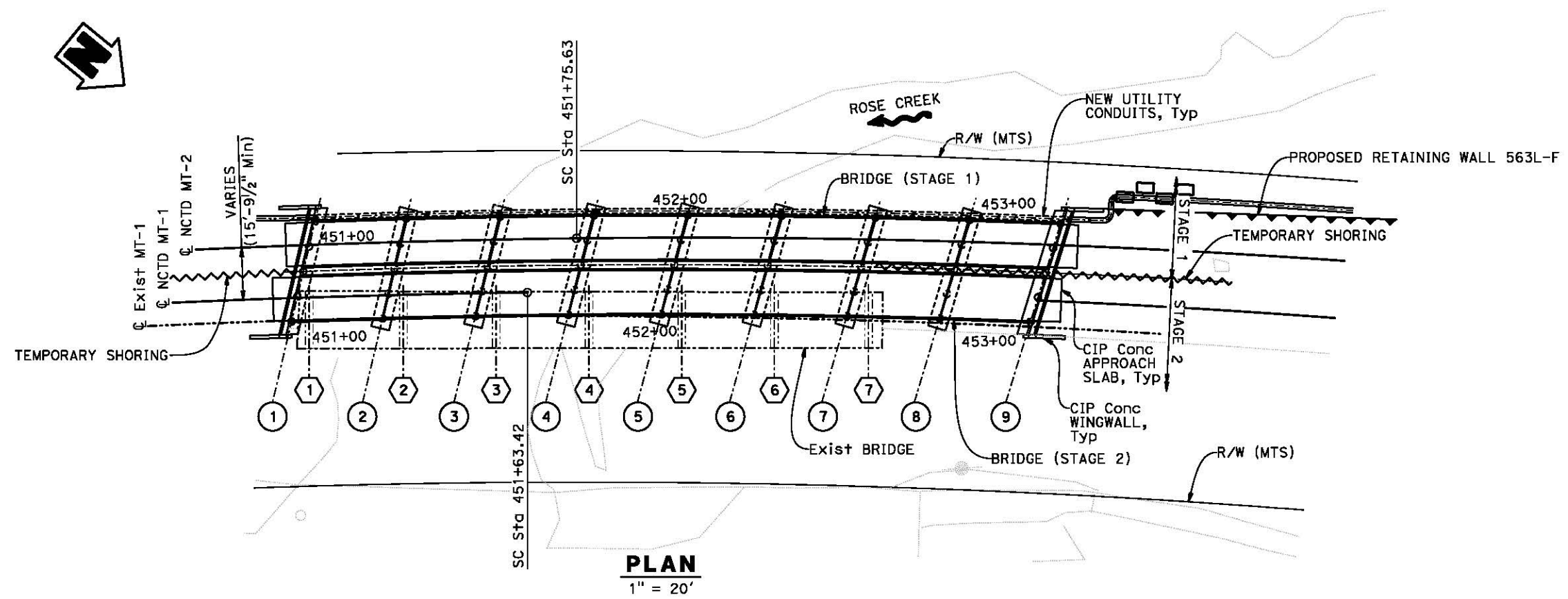
BRIDGE NO.	259.1
MILE POST	

TO CP MORENA
NATIONAL CITY
(TIMETABLE EAST)

TO CP ELVIRA
FULLERTON
(TIMETABLE WEST)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
REGISTERED CIVIL ENGINEER			
PLANS APPROVAL DATE			

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PLAN
1" = 20'

STAGE 1 (RR-WEST PORTION)

1. Relocate existing fiber optic lines at the west.
2. Install temporary shoring at abutments.
3. Excavate at abutments in order to construct stage 1 foundations.
4. Construct CIDH piles.
5. Construct CIP concrete substructure elements.
6. Install drain pipes and backfill behind abutments.
7. Erect prestressed double box beam spans.
8. Construct approach slabs.
9. Construct track on stage 1 bridge.
10. Connect newly constructed track to existing track during temporary closure.
11. Transfer train service to NCTD MT-2 on newly constructed stage 1 bridge.

STAGE 2 (RR-EAST PORTION)

1. Excavate at abutments in order to construct stage 2 foundations.
2. Construct CIDH piles.
3. Construct CIP concrete substructure elements, provide closure pour between caps.
4. Install drain pipes and backfill behind abutments.
5. Erect prestressed double box beam spans.
6. Construct approach slabs.
7. Remove temporary shoring below groundline and 2'-0" below top of the cap behind abutment.
8. Construct track on stage 2 bridge.
9. Connect newly constructed track to NCTD MT-1.

REMOVAL OF EXISTING STRUCTURE

1. See drawing No. BR001 for additional information.

REFERENCES:

- BR001 BRIDGE REMOVAL PLAN AND DETAILS
- TY001 ABUTMENT TYPICAL SECTION
- TY002 BENT TYPICAL SECTION


LEGEND:

- Existing structure
- ⊕ Proposed abutment or bent
- ⊕ Existing bent callout

BRIDGE NO.	259.1
MILE POST	

DESIGN OVERSIGHT	
SIGNOFF DATE	EAI XXXXX

No.	DATE	REVISION	BY	CHK	APRV



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

DESIGNED BY M. GIESMANN	CHECKED BY M. HATCH	DATE 4/15
DETAILS BY M. MCKIBBIN	CHECKED BY M. GIESMANN	4/15
QUANTITIES BY M. GIESMANN	CHECKED BY M. HATCH	4/15
SANDAG S. HUMPHREYS		4/15

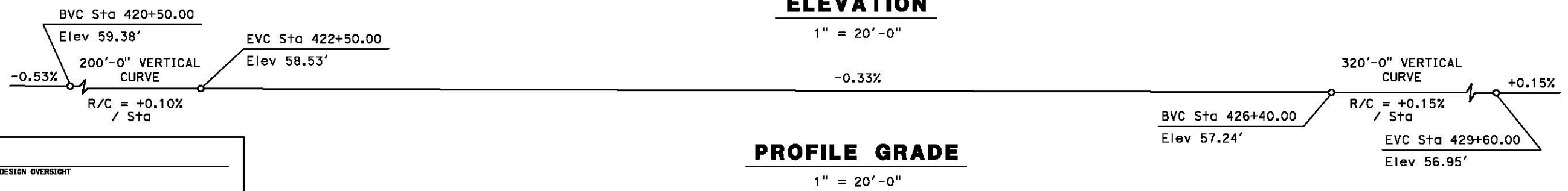
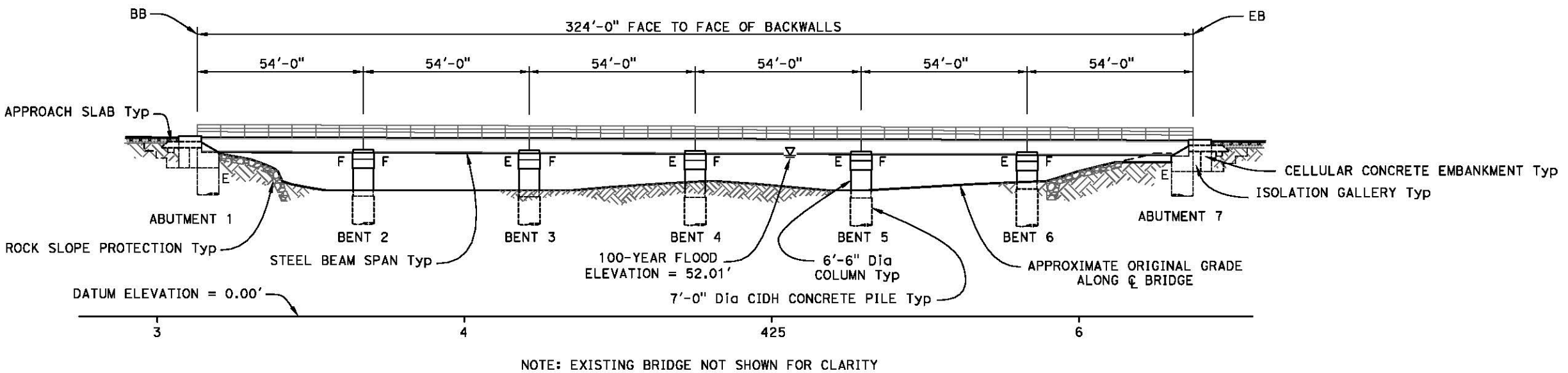
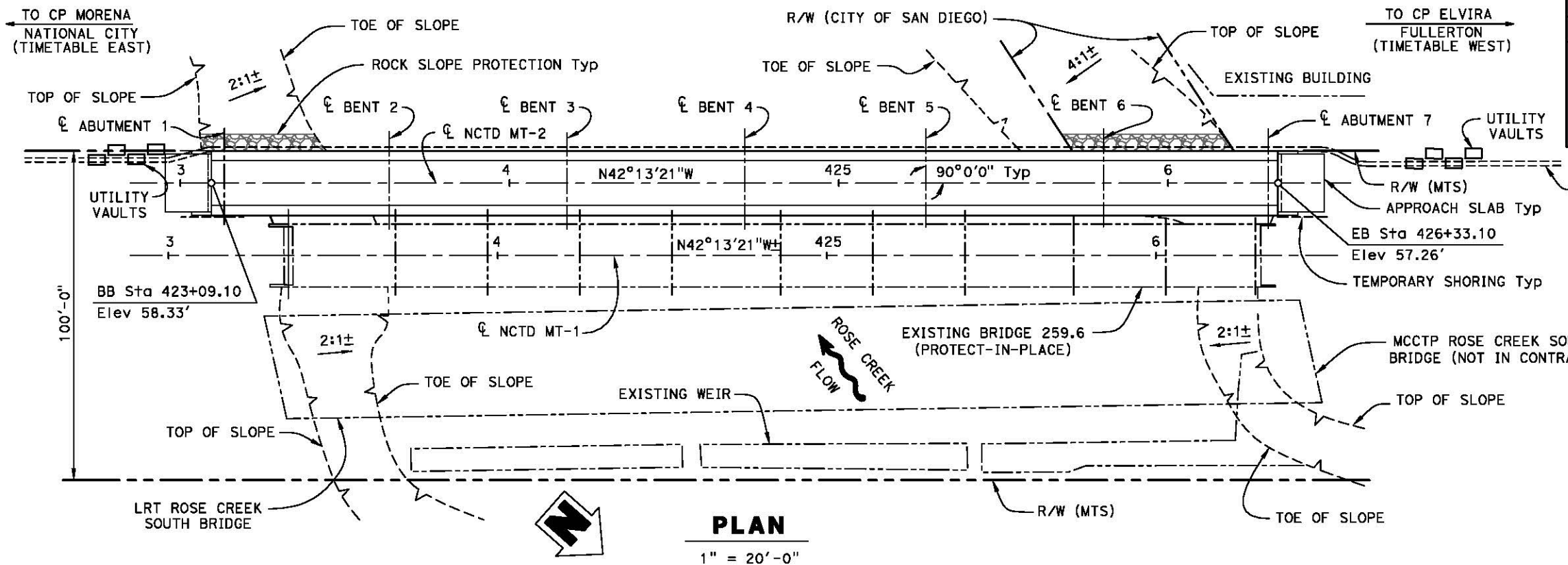


San Diego's Regional Planning Agency

**65%
SUBMITTAL**
**NOT FOR
CONSTRUCTION**

ELVIRA TO MORENA DOUBLE TRACK PROJECT
**BRIDGE 259.1
BRIDGE CONSTRUCTION SEQUENCE**

SCALE	AS SHOWN
SANDAG CONTRACT NO.	1239811
DRAWING NO.	SD001
SHEET NO.	153 OF 382



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
11	SD		

REGISTERED CIVIL ENGINEER
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
KELLY P. BURNELL
No. 72985
Exp. 12/31/16
CIVIL
STATE OF CALIFORNIA

DESIGN OVERSIGHT	
SIGNOFF DATE	EA: XXXXX

No.	DATE	REVISION	BY	CHK	APRV

KLEINFELDER
Bright people. Right Solutions.
550 West C Street, Suite 1200 San Diego, CA. 92101
Tel: (619) 831-4600

Simon Wong Engineering

RELATIVE BORDER SCALE IS IN INCHES
0 1 2

DESIGNED BY K. BURNELL	CHECKED BY P. MOREL	DATE 4/15
DETAILS BY T. BRITAIN	CHECKED BY K. BURNELL	4/15
QUANTITIES BY D. FISH	CHECKED BY K. BURNELL	4/15
SANDAG S. HUMPHREYS		4/15




65% SUBMITTAL
NOT FOR CONSTRUCTION

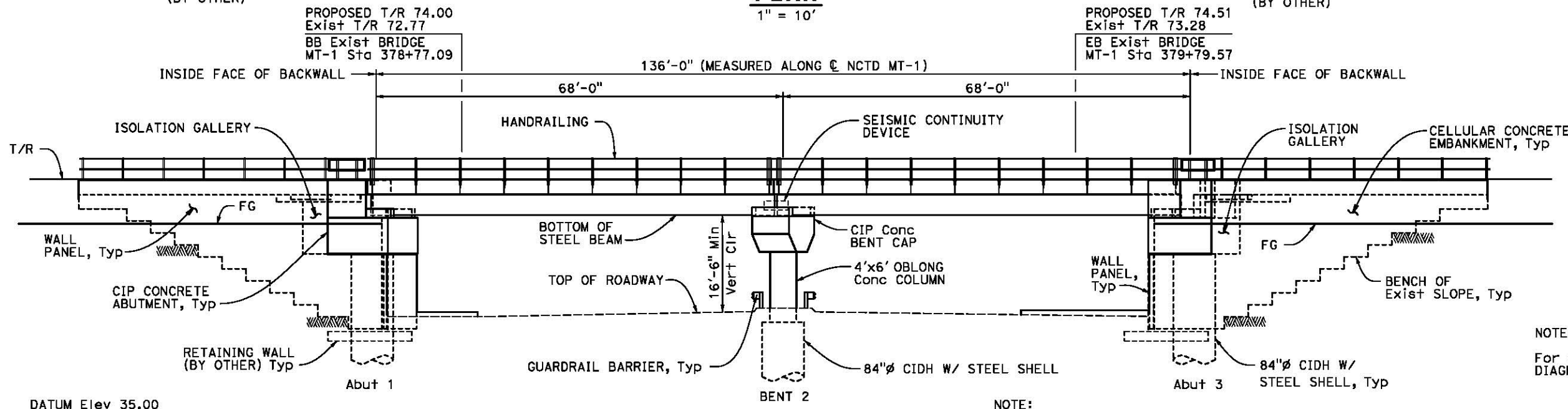
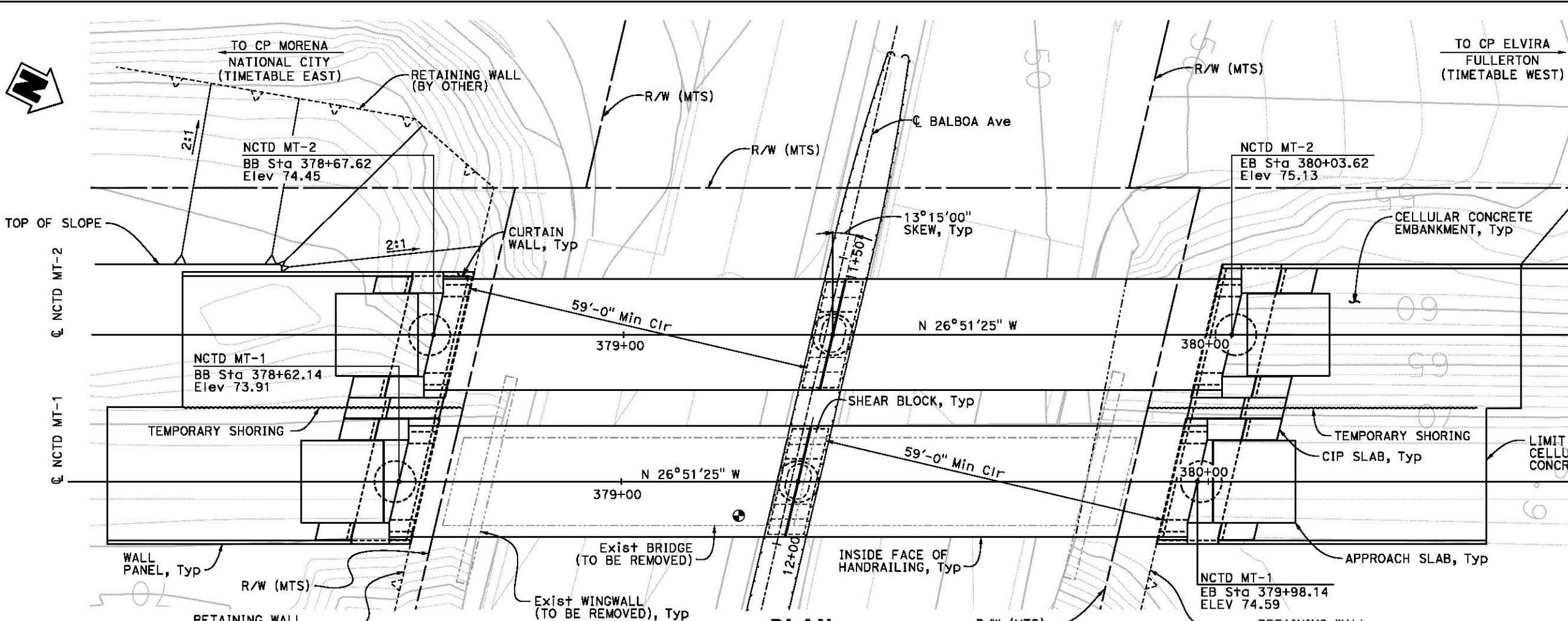
ELVIRA TO MORENA DOUBLE TRACK
BRIDGE 259.6
GENERAL PLAN (1 OF 2)

SCALE AS SHOWN
SANDAG CONTRACT NO. 1239811
DRAWING NO. GP001
SHEET NO. 166 OF 382



BRIDGE NO.	259.6
MILE POST	

4/21/2015 12:45:07 PM User
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 EMDT-SW-260.4-G04GP001-CGN

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT
REGISTERED CIVIL ENGINEER			
PLANS APPROVAL DATE			



NOTE:
For profile grade, see "ALIGNMENT DIAGRAM AND INDEX TO PLANS" sheet.

LEGEND:
 Point of minimum vertical clearance
 Exist structure

DESIGN OVERSIGHT	
SIGNOFF DATE	EA1 XXXXX

No.	DATE	REVISION	BY	CHK	APRV



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

SPECIFICATIONS BY:	PLANS & SPECS COMPARED:
DESIGNED BY A. ZHENG	CHECKED BY B. REZNIKOV
DETAILS BY M. DeGUZMAN	CHECKED BY A. ZHENG
QUANTITIES BY	CHECKED BY
SANDAG S. HUMPHREYS	4/15



**65%
SUBMITTAL**

NOT FOR CONSTRUCTION

ELVIRA TO MORENA DOUBLE TRACK PROJECT

BRIDGE 260.4
GENERAL PLAN
SHEET 1 OF 2

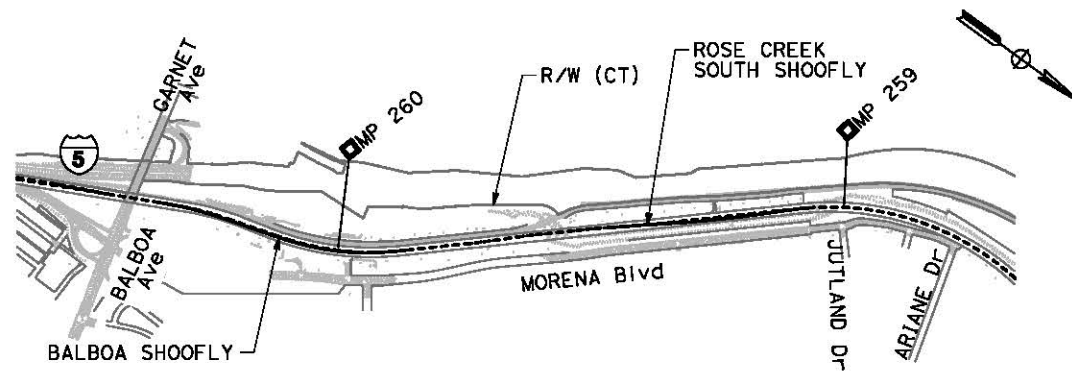
BRIDGE NO.	
MILE POST	
SCALE	AS SHOWN
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GP001
SHEET NO.	201 OF 382

SAN DIEGO ASSOCIATION OF GOVERNMENTS PROJECT PLANS FOR THE ELVIRA TO MORENA DOUBLE TRACK

← TO CP CUDAHY
NATIONAL CITY
(TIMETABLE EAST)

INTERMEDIATE SIGNAL
MP 259.2
TO BE RELOCATED

TO CP CUMBRES
FULLERTON
(TIMETABLE WEST) →

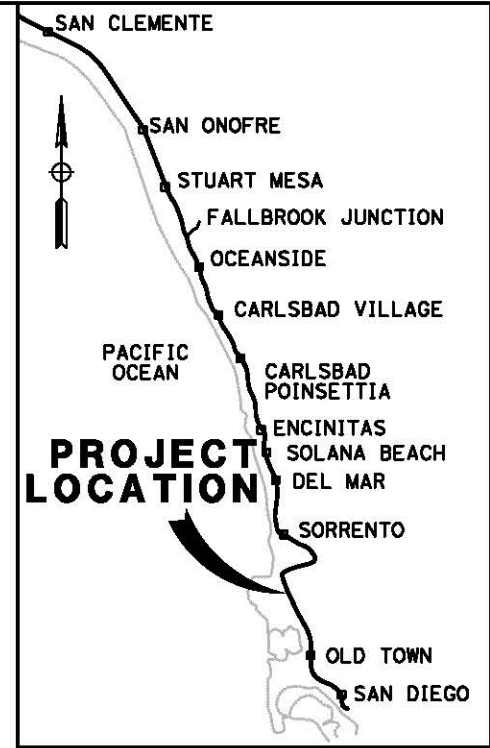


RAILROAD EMERGENCY 24-HOUR CONTACT No.
760-966-6700

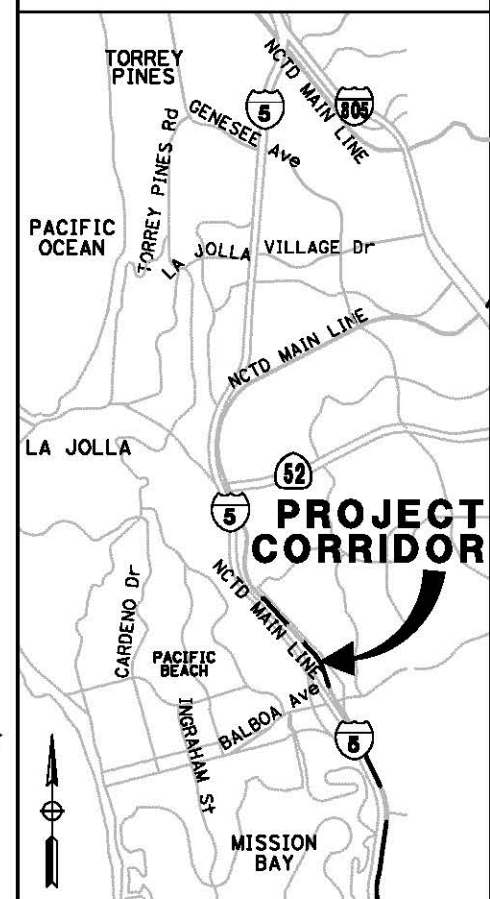
IMPORTANT NOTICE
SECTION 4216/4217 OF THE GOVERNMENT
CODE REQUIRES A DIG ALERT IDENTIFICATION
NUMBER BE ISSUED BEFORE A
"PERMIT TO EXCAVATE" WILL BE VALID.
FOR YOUR DIG ALERT I.D. NUMBER CALL
UNDERGROUND SERVICE ALERT
CALL 8-1-1
TWO WORKING DAYS BEFORE YOU DIG.
ALSO, NOTIFY NCTD FOR SIGNALING MARK-OUTS.

GENERAL NOTES

1. FOR ALL EMERGENCIES AFFECTING THE TRACK AND TRAIN SAFETY CALL NORTH COUNTY TRANSIT DISTRICT'S (NCTD) 24 HOUR SECURITY OFFICE AT (760) 966-6700.
2. PRIOR TO THE START OF CONSTRUCTION AND AT THE CONTRACTOR'S EXPENSE, ALL PERSONNEL ENTERING THE NCTD RIGHT-OF-WAY (ROW), INCLUDING SUBCONTRACTORS AND THIRD PARTIES, SHALL COMPLETE NCTD ROADWAY WORKER PROTECTION (RWP) TRAINING COURSE. CONTACT TRANSITAMERICA SERVICES, INC. (TASI) AT (760) 966-6514 TO ARRANGE FOR TRAINING.
3. ALL PERSONS ENTERING THE RAILROAD ROW SHALL HAVE THE RWP STICKER AFFIXED TO THEIR HARD HAT AND RWP BADGE IN THEIR POSSESSION.
4. ALL PERSONNEL ENTERING THE RAILROAD ROW SHALL COMPLY WITH NCTD SAFETY REQUIREMENTS. FAILURE TO COMPLY SHALL BE GROUNDS FOR TERMINATION OF WORK AND REVOCATION OF THE RIGHT TO ENTER NCTD'S RIGHT-OF-WAY AND/OR RIGHT-OF-ENTRY (ROE) PERMIT.
5. THE CONTRACTOR OR ENTITY BEING ISSUED AUTHORIZATION BY NCTD TO WORK IN THE ROW (CONTRACTOR) SHALL COMPLY WITH ALL APPLICABLE TERMS, CONDITIONS AND REQUIREMENTS OF NCTD'S POLICIES REGARDING NCTD'S ROW AND OTHER NCTD ORDINANCES, RULES AND REGULATIONS. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS OF THE FEDERAL, STATE, COUNTY, LOCAL GOVERNMENTS AND ALL ADMINISTRATIVE AGENCIES WHICH MAY HAVE JURISDICTION OVER THE CONTRACTOR'S WORK OR WORK AREA.
6. THE CONTRACTOR SHALL PAY ALL COSTS ASSOCIATED WITH RWP TRAINING, FLAGGING, INSPECTIONS, AND REVIEWS AS REQUIRED IN THE ROE PERMIT AND/OR WORK AUTHORIZATION LETTER.
7. NO WORK SHALL BE PERFORMED WITHIN THE RAILROAD ROW WITHOUT A ROE PERMIT AND/OR WORK AUTHORIZATION LETTER, AS APPLICABLE. THE CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS SET FORTH BY NCTD, THE ROE PERMIT, THE WORK AUTHORIZATION LETTER, PROJECT PLANS AND SPECIFICATIONS, AND THE JOB SITE RAILROAD FLAGMAN/EMPLOYEE-IN-CHARGE (EIC). FAILURE TO COMPLY MAY RESULT IN WORK STOPPAGE OR REMOVAL FROM NCTD PROPERTY.
8. ONLY AN NCTD AUTHORIZED RAILROAD FLAGMAN (RAILROAD FLAGMAN) IS PERMITTED TO PERFORM FLAGGING OPERATIONS WITHIN THE RAILROAD RIGHT-OF-WAY. NO PERSONNEL SHALL CROSS ANY TRACK WITHOUT THE APPROVAL FROM THE RAILROAD FLAGMAN. NO WORKERS OR EQUIPMENT SHALL BE ACTIVELY WORKING, PARKED OR STATIONARY ON NCTD'S ROW WITHOUT PRIOR APPROVAL FROM THE RAILROAD FLAGMAN.
9. A RAILROAD FLAGMAN SHALL BE PRESENT DURING ALL CONSTRUCTION RELATED ACTIVITIES. THE RAILROAD FLAGMAN/ EIC HAS SOLE RESPONSIBILITY TO PROTECT THE RAILROAD INFRASTRUCTURE AND OPERATIONS. AT ALL TIMES THE CONTRACTOR SHALL FOLLOW THE RAILROAD FLAGMAN/EIC'S DIRECTION.
10. CONTRACTOR IS RESPONSIBLE TO REQUEST RAILROAD FLAGMAN SERVICES WITH ADEQUATE NOTICE TO MEET CONTRACTOR'S CONSTRUCTION SCHEDULE.
11. THE CONTRACTOR SHALL MAKE THE NECESSARY ARRANGEMENTS FOR EACH EQUIPMENT OPERATOR TO HAVE CONSTANT AND DIRECT RADIO CONTACT WITH THEIR FOREMAN. THE FOREMAN WILL IN TURN HAVE CONSTANT AND DIRECT CONTACT WITH THE RAILROAD FLAGMAN/EIC.
12. THE CONTRACTOR SHALL HAVE THE PERMITTED STAMPED SET OF PLANS ON-SITE. WORK WILL BE TERMINATED BY NCTD SHOULD NO STAMPED PLANS BE ON-SITE.
13. WHERE APPLICABLE, ALL WORK ON OR ADJACENT TO THE SAN DIEGO TROLLEY SHALL ALSO ADHERE TO METROPOLITAN TRANSIT SYSTEM (MTS) REQUIREMENTS.
14. THE MOVEMENT OF TRAINS IS UNPREDICTABLE. TRAINS MAY APPROACH THE JOB SITE IN ANY DIRECTION, AT ANY SPEED, AT ANY TIME, ON ANY TRACK, AND MAY STOP AND OCCUPY THE TRACK WITHIN THE CONTRACTOR'S WORK ZONE FOR AN UNDETERMINED PERIOD OF TIME.
15. CONTRACTORS MUST CONTACT CALL BEFORE YOU DIG (811) BEFORE ANY EXCAVATION OCCURS WITHIN THE ROW.
16. NCTD RAILROAD UTILITIES ARE NOT A PART OF CALL BEFORE YOU DIG. CONTRACTOR MUST REQUEST NCTD UTILITY MARK OUT BEFORE ANY EXCAVATIONS CAN OCCUR BY CALLING HERZOG TECHNOLOGIES INC. (HTI) AT (760) 305-1970 FOR SIGNALING AND PTC FIBER MARK-OUTS WITHIN THE ROW AT LEAST SEVEN (7) WORKING DAYS BEFORE DIGGING.
17. THE CONTRACTOR SHALL CONTACT NCTD AT (760) 967-2883 72-HOURS IN ADVANCE FOR ANY INSPECTIONS REQUIRED IN THE ROE PERMIT AND/OR WORK AUTHORIZATION LETTER, AS APPLICABLE.
18. UPON PROJECT COMPLETION THE NCTD ROW SHALL BE LEFT IN THE SAME CONDITION OR BETTER THEN IT WAS BEFORE CONTRACTOR FIRST ENTERED THE PROJECT. NCTD PROPERTY SHALL NOT BE USED FOR SPOILS.



VICINITY MAP
NO SCALE



LOCATION MAP
NO SCALE

7/6/2015 5:38:37 PM User
81P-SHORT-PEN-TABLE
EMDT-SW-A02CN301.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	MRG	RB	SH

HDR
HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

REGISTERED PROFESSIONAL ENGINEER
RYAN BOLEY
No. 64880
Exp. 6/30/2017
CIVIL
STATE OF CALIFORNIA

DESIGNED BY A. DIRECTO	DATE 7/15
DRAWN BY M.R. GRANADO	7/15
CHECKED BY H.Y. OOI	7/15
SANDAG S. HUMPHREYS	7/15

SANDAG
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT BALBOA AND ROSE CREEK SHOOFLY	SCALE 1" = 1000' SANDAG CONTRACT NO. 1239811 DRAWING NO. SHEET NO. GN301 2 OF 33
TITLE SHEET	

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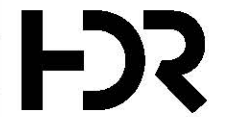
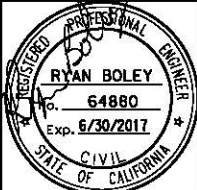
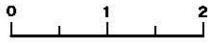

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
1	GN300	COVER SHEET
2	GN301	TITLE SHEET
3	GN302	INDEX OF DRAWINGS
		INDEX OF RELEVANT MID-COAST DRAWINGS
4	CG301	ABBREVIATIONS
5	CG302	LINESTYLES AND SYMBOLS/SURVEY CONTROL
<u>TRACK PLANS</u>		
6	TX301	TYPICAL TRACK SECTIONS BALBOA SHOOFLY
7	TX302	TYPICAL TRACK SECTIONS ROSE CREEK SOUTH SHOOFLY
8	AD301	TRACK ALIGNMENT CURVE PROPERTIES
9	AD302	TRACK HORIZONTAL ALIGNMENT CHARTS
10	TA300	TRACK KEYMAP
11	TA301	TRACK PLAN AND PROFILE BALBOA SHOOFLY STA 685+00 TO STA 693+00
12	TA302	TRACK PLAN AND PROFILE BALBOA SHOOFLY STA 693+00 TO STA 704+00
13	TA303	TRACK PLAN AND PROFILE BALBOA SHOOFLY STA 704+00 TO STA 713+00
14	TA304	TRACK PLAN AND PROFILE ROSE CREEK SOUTH SHOOFLY STA 735+00 TO STA 746+00
15	TA305	TRACK PLAN AND PROFILE ROSE CREEK SOUTH SHOOFLY STA 746+00 TO STA 757+00
16	XX301	BALBOA SHOOFLY CROSS SECTIONS Sta 686+00 TO Sta 690+00
17	XX302	BALBOA SHOOFLY CROSS SECTIONS Sta 691+00 TO Sta 696+00
18	XX303	BALBOA SHOOFLY CROSS SECTIONS Sta 697+00 TO Sta 702+00
19	XX304	BALBOA SHOOFLY CROSS SECTIONS Sta 703+00 TO Sta 708+00
20	XX305	BALBOA SHOOFLY CROSS SECTIONS Sta 709+00 TO Sta 712+77
21	XX306	ROSE CREEK SOUTH SHOOFLY CROSS SECTIONS Sta 735+17 TO Sta 738+00
22	XX307	ROSE CREEK SOUTH SHOOFLY CROSS SECTIONS Sta 739+00 TO Sta 744+00
23	XX308	ROSE CREEK SOUTH SHOOFLY CROSS SECTIONS Sta 745+00 TO Sta 750+00
24	XX309	ROSE CREEK SOUTH SHOOFLY CROSS SECTIONS Sta 751+00 TO Sta 756+00
<u>GRADING AND DRAINAGE</u>		
25	GD300	GRADING AND DRAINAGE KEYMAP
26	GD301	GRADING AND DRAINAGE BALBOA SHOOFLY Sta 685+00 TO Sta 704+00
27	GD302	GRADING AND DRAINAGE BALBOA SHOOFLY Sta 704+00 TO Sta 713+00
28	GD303	GRADING AND DRAINAGE ROSE CREEK SOUTH SHOOFLY Sta 735+00 TO Sta 757+00
29	GD304	GRADING AND DRAINAGE DRAINAGE SYSTEMS 36.2 AND 37.3 PLAN AND PROFILE
30	GD305	GRADING AND DRAINAGE DRAINAGE SYSTEMS 42.2 AND 44.1 PLAN AND PROFILE
31	GD306	GRADING AND DRAINAGE CONCRETE COLLAR DETAILS
32	GD307	GRADING AND DRAINAGE UNDERDRAIN DETAILS
33	GD308	GRADING AND DRAINAGE MODIFIED D-09 TYPE A5 CATCH BASIN DETAILS

**INDEX OF RELEVANT MID-COAST DRAWINGS
(BASED ON MID-COAST 65% PLANS - FEBRUARY 2015)**

DRAWING NUMBER	DRAWING TITLE
UTILITIES	
UP0527	UTILITIES SHARED TRENCH STA 415+50 TO STA 421+50
UP0528	UTILITIES SHARED TRENCH STA 426+50 TO STA 436+25
UP0529	UTILITIES SHARED TRENCH STA 400+00 TO STA 410+50
UP0530	UTILITIES SHARED TRENCH STA 410+50 TO STA 421+50
UP0531	UTILITIES SHARED TRENCH STA 421+50 TO STA 432+50
UP0532	UTILITIES SHARED TRENCH STA 432+50 TO STA 443+50
UP0533	UTILITIES SHARED TRENCH STA 443+50 TO STA 507+50
UP0534	UTILITIES SHARED TRENCH STA 507+50 TO STA 518+50
UP0535	UTILITIES SHARED TRENCH STA 518+50 TO STA 601+50
UP0536	UTILITIES SHARED TRENCH STA 601+50 TO STA 612+50
UP0537	UTILITIES SHARED TRENCH STA 612+50 TO STA 622+50
UP0538	UTILITIES SHARED TRENCH STA 700+00 TO STA 709+50
UP0539	UTILITIES SHARED TRENCH STA 709+50 TO STA 720+50
UP0540	UTILITIES SHARED TRENCH STA 720+50 TO STA 731+50
UP0541	UTILITIES SHARED TRENCH STA 731+50 TO STA 742+50
UP0542	UTILITIES SHARED TRENCH STA 742+50 TO STA 753+50
UP0543	UTILITIES SHARED TRENCH STA 753+50 TO STA 764+50
UP0544	UTILITIES SHARED TRENCH STA 764+50 TO STA 744+40

FOR REFERENCE ONLY

EMDT-SW-A03GN302.dgn

 HDR ENGINEERING, INC. 401 B STREET, SUITE 1110 SAN DIEGO, CALIFORNIA 92101					 REGISTERED PROFESSIONAL ENGINEER RYAN BOLEY No. 64880 Exp. 6/30/2017 CIVIL STATE OF CALIFORNIA		DESIGNED BY M.R. GRANADO		DATE 7/15			
							DRAWN BY M.R. GRANADO		CHECKED BY H.Y. OOI		DATE 7/15	
No. DATE		REVISION			BY CHK APRV		SANDAG S. HUMPHREYS		DATE 7/15			
RELATIVE BORDER SCALE IS IN INCHES							 San Diego's Regional Planning Agency		ELVIRA TO MORENA DOUBLE TRACK PROJECT BALBOA AND ROSE CREEK SHOOFLY		SCALE NO SCALE	
7/7/15 ISSUED FOR CONSTRUCTION MRG RB SH											SANDAG CONTRACT NO. 1239811	
INDEX OF DRAWINGS INDEX OF RELEVANT MID-COAST DRAWINGS								DRAWING NO. SHEET NO. GN302 3 OF 33				

ABBREVIATIONS

GEOMETRICS

C	CENTERLINE
°	DEGREES
D _C	DEGREE OF CURVE
Δ _C	DEFLECTION ANGLE - CIRCULAR CURVE
Δ _T	DEFLECTION ANGLE - TOTAL CURVE
θ _S	DEFLECTION ANGLE - SPIRAL
E	EQUILIBRIUM SUPERELEVATION
E _a	ACTUAL SUPERELEVATION
E _u	UNBALANCED SUPERELEVATION
L _c	LENGTH OF CIRCULAR CURVE
L _s	LENGTH OF SPIRAL
L _T	LENGTH OF TOTAL CURVE
R	RADIUS
T	TANGENT
POB	POINT OF BEGINNING
PC	POINT OF CURVATURE
CS	POINT OF CIRCULAR CURVE TO SPIRAL
POE	POINT OF ENDING
PI	POINT OF INTERSECTION
PI	POINT OF INTERSECTION - CIRCULAR CURVE
SPI	POINT OF INTERSECTION - SPIRAL
PI _C	POINT OF INTERSECTION - TOTAL CURVE
PITO	POINT OF INTERSECTION OF TURNOUT
SC	POINT OF SPIRAL TO CIRCULAR CURVE
ST	POINT OF SPIRAL TO TANGENT
PS	POINT OF SWITCH
PT	POINT OF TANGENCY
TS	POINT OF TANGENT TO SPIRAL
POC	POINT ON CURVE
POS	POINT ON SPIRAL
POT	POINT ON TANGENT
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENT
POTO	POINT OF TURN OUT
VC	LENGTH OF VERTICAL CURVE

AGENCIES

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AMTRAK	NATIONAL RAILROAD PASSENGER CORPORATION
AREMA	AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AT&T	AMERICAN TELEPHONE AND TELEGRAPH COMPANY
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
CT/CALTRANS	CALIFORNIA DEPARTMENT OF TRANSPORTATION
CCC	CALIFORNIA COASTAL COMMISSION
CSD	CITY OF SAN DIEGO
EPA	ENVIRONMENTAL PROTECTION AGENCY
FRA	FEDERAL RAILROAD ADMINISTRATION
ICG	ICG TELECOM GROUP INC.
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
MBC	MUNICIPAL BOND COMPANY
MCI	MICROWAVE COMMUNICATIONS, INC.
MTS	METROPOLITAN TRANSIT SYSTEM
NCTD	NORTH COUNTY TRANSIT DISTRICT
RWQCB	REGIONAL WATER QUALITY CONTROL BOARD
SANDAG	SAN DIEGO ASSOCIATION OF GOVERNMENTS
SANDWD	SAN DIEGO WATER DISTRICT
SBSD	SOLANA BEACH SANITATION DISTRICT
SCGC	SOUTHERN CALIFORNIA GAS COMPANY
SCTC	SOUTHERN CALIFORNIA TELEPHONE COMPANY
SDG&E	SAN DIEGO GAS AND ELECTRIC COMPANY
SDRS	SAN DIEGO REGIONAL STANDARDS DRAWINGS
SDID	SAN DIEGO IRRIGATION DISTRICT
SWCA	SOUTHWESTERN CABLE
TCG	TELEPORT COMMUNICATION GROUP
USACE	UNITED STATES ARMY CORPS OF ENGINEERS
USFWS	UNITED STATES FISH AND WILDLIFE SERVICE
UPRR	UNION PACIFIC RAILROAD

GENERAL

ABT	ABOUT
AHJ	AUTHORITY HAVING JURISDICTION
APN	ASSESSOR'S PARCEL NUMBER
APPRV	APPROVE
AWW	ABSOLUTE WORK WINDOW
B/	BOTTOM OF
BLS	BLUE LIGHT STATION
BOR	BASE OF RAIL
BTWN	BETWEEN
C	CUT
C/C	CENTER-TO-CENTER
CA.	CALIFORNIA
CCTV	CLOSED CIRCUIT TELEVISION
CFS	CUBIC FEET PER SECOND
CLR	CLEAR
CO.	COMPANY
Cont	CONTINUED
CPT	CONE PENETRATION TEST
CPUC	CALIFORNIA PUBLIC UTILITIES COMMISSION
C/S	COMMUNICATION AND SIGNALS
CWR	CONTINUOUS WELDED RAIL
DWG	DRAWING
E	EASTING
EA	EACH
EASE	EASEMENT
EF	EACH FACE
E.G.	FOR EXAMPLE
EGL	ENERGY GRADE LINE
EIC	EMPLOYEE IN CHARGE
Elec	ELECTRICAL
EMDT	ELVIRA TO MORENA DOUBLE TRACK PROJECT
ERP	END RAILING POST
EST	ESTIMATED
EQ	EQUAL
ETC	ETCETERA
ETS	EMERGENCY TRIP SWITCH (BLUE LIGHT STATION)
ETW	EDGE OF TRAVELED WAY
EVT	END VERTICAL TANGENT
F	FIXED BEARING/FILL
FDN	FOUNDATION
FG	FINISHED GRADE
FO	FIBER OPTIC
FOC	FIBER OPTIC CABLE
FPS	FEET PER SECOND
FRT	FREIGHT
FT	FEET
FWW	FREIGHT WORK WINDOW
Galv	GALVANIZED
Grnd	GROUND
HGL	HYDRAULIC GRADE LINE
H.P.	HIGH POINT
Horiz	HORIZONTAL
IDS	INTRUSION DETECTION SYSTEM
IJ	INSULATED JOINT
INC.	INCORPORATED
IR	INSIDE RADIUS
INT	INTERMEDIATE
JT	JOINT TRENCH
LB, #	POUND
LF	LINEAR FOOT
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LT	LT (LEFT OFFSET FROM TRACK)
LRT	LIGHT RAIL TRANSIT, LIGHT RAIL TRACK
MH	MANHOLE
MHHW	MEAN HIGHER HIGH WATER
MIN	MINIMUM
Mk, MK	MARK
ML	MAINLINE
MOW	MAINTENANCE OF WAY
MP	MILE POST

GENERAL (Cont)

MPH	MILES PER HOUR
MT	MAIN TRACK
MT-1	MAIN TRACK 1
MT-2	MAIN TRACK 2
MTS	METROPOLITAN TRANSIT SYSTEM
N	NORTHING
NCTD	NORTH COUNTY TRANSIT DISTRICT
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
No.	NUMBER
NOI	NOTICE OF INTENT
NR	NEGATIVE RETURN
O.C.	ON CENTER
OCS	OVERHEAD CONTACT SYSTEM
OG	ORIGINAL GROUND
OH	OVERHEAD
OTM	OTHER TRACK MATERIAL
PA	PUBLIC ADDRESS
PB	PULLBOX
PAS	PASSENGER
PEHP	POLYETHYLENE HIGH PRESSURE
PGL	PROFILE GRADE LINE
POS	POSITIVE (TRACTION POWER FEEDER)
POTO	POWER OPERATED TURNOUT
PR	PAIR
PROJ	PROJECT, PROJECTION
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PTC	POSITIVE TRAIN CONTROL
PVC	POINT OF VERTICAL CURVE
Q100	100 YEAR FLOW DISCHARGE
RCP	REINFORCED CONCRETE PIPE
RE	LB/YD, AREMA CONFORMED CROSS SECTIONS
REQ'D	REQUIRED
RIM	TOP OF MANHOLE RIM
ROE	RIGHT OF ENTRY
RT	RT (RIGHT OFFSET FROM TRACK)
R/W, ROW	RIGHT OF WAY
RP	RAILING POST
S	SLOPE
SAD	SAN DIEGO SUBDIVISION
SB	STEEL BRACKET
SD	SAN DIEGO
SDRS	SAN DIEGO COUNTY REGIONAL STANDARD
SE	SUPERELEVATION
SGH	SUBGRADE HINGE
SIG	SIGNALS (TRAIN CONTROL)
SPA	SPACE/SPACING
SS	SANITARY SEWER
SSPWC	STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK)
STA	STATION
STD	STANDARD
STL	STEEL
STR	STRAIGHT
SWMDCMA	STORM WATER MANAGEMENT AND DISCHARGE CONTROL MAINTENANCE AGREEMENT
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
SWR	SEWER
T	THICKNESS
T/	TOP OF
T/R	TOP OF RAIL
TBC	TO BE CONFIRMED
TC	TRAIN CONTROL
TeI	TELECOMMUNICATIONS
TF	TRACK FEET
TO	TURNOUT
TOE	TOP OF ENCASEMENT
TPSS	TRACTION POWER SUBSTATION
TRK	TRACK
TW	TOP OF WALL

GENERAL (Cont)

TWC	TRAIN-TO-WAYSIDE COMMUNICATIONS
TYP.	TYPICAL
UFS	UNIVERSAL FARE SYSTEM
U.N.O.	UNLESS NOTED OTHERWISE
VC	VITRIFIED CLAY/VERTICAL CURVE
VCH	VELOCITY IN CHANNEL
Vert	VERTICAL
VMAX	MAXIMUM VELOCITY
VMS	VARIABLE MESSAGE SIGN
VRZ	VERIZON
W/O	WEST OF
WP	WORK POINT
WPCP	WATER POLLUTION CONTROL PLAN
WSE	WATER SURFACE ELEVATION
XING	CROSSING

GENERAL NOTES:

- ABBREVIATIONS FOLLOW CALTRANS STANDARD PLANS AND THOSE SHOWN HERE.
- ALL SYMBOLS AND LINE STYLES PER CALTRANS STANDARD, EXCEPT AS SHOWN ON DRAWING No. CG302.
- TOP OF RAIL REPRESENTS ELEVATION OF LOW RAIL IN SUPERELEVATED SECTIONS.


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7/6/2015

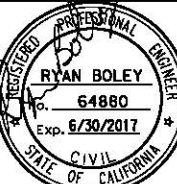
IP-SHORT-PEN-TABLE

EMDT-SW-B01CG301.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	MRG	RB	SH



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101



RYAN BOLEY
No. 64880
Exp. 6/30/2017
CIVIL ENGINEER
STATE OF CALIFORNIA

DESIGNED BY	M.R. GRANADO	DATE	7/15
DRAWN BY	M.R. GRANADO	DATE	7/15
CHECKED BY	H.Y. OOI	DATE	7/15
SANDAG	S. HUMPHREYS	DATE	7/15



SANDAG
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY

ABBREVIATIONS

SCALE	NO SCALE
SANDAG CONTRACT NO.	1239811
DRAWING NO.	CG301
SHEET NO.	4 OF 33

7/6/2015 5:44:09 PM User

IP-SHORT-PEN-TABLE

EMDT-SW-B01CG302.dgn

UTILITY	EXISTING UNDERGROUND	EXISTING OVERHEAD	PROPOSED UNDERGROUND
CABLE TV	-----tv-----	-tv------(oh)-	
COMMUNICATIONS	-----fo-----	-fo------(oh)-	-FO------(OH)-
ELECTRIC POWER	-----e-----	-e------(oh)-	-E-----
FIBER OPTIC CABLE (NAME OF COMPANY)	-----fo-----	-fo------(oh)-	-FO-----
FUEL			
HOT WATER	-----w-----		-W-----W
GAS	-----gs-----		-GS-----GS
INDUSTRIAL FUEL			
IRRIGATION			
LIGHTING			
NATURAL GAS	-----g-----		-G-----
OIL	-----o-----		-O-----O
SANITARY SEWER	-----s-----		-S-----S
SIGNAL			
STORM DRAIN	-----sd-----		
TELECOM	-----tc-----	-tc------(oh)-	-TC-----
TELEPHONE	-----t-----	-t------(oh)-	-T-----T
UNDER DRAIN			
WATER	-----w-----		-W-----W

SYMBOLS

- CHECK DAM
- CONTROL POINT
- COORDINATE GRID TICS AND TEXT
- DIAMETER
- DIMENSION
- HEADWALL
- HYDRANT
- INLET AND GRATE
- INLET PROTECTION
- LIGHTS
- MANHOLE
- METERS
- NORTH ARROW
- PALM
- POLE
- POSTS
- POTHOLE LOCATION
- SAMPLING POINT LOCATION AND NUMBER
- POWERPOLE
- SIGN
- TREE
- UBOX AND VAULTS VALVES
- VISUAL MONITORING POINT LOCATION & NUMBER

SURVEY CONTROL

NOTE:
PARSONS BRINCKERHOFF PREPARED THE PRIMARY AND SUPPLEMENTAL CONTROL FOR THE SANDAG MID-COAST CORRIDOR TRANSIT PROJECT. PARSONS BRINCKERHOFF CONTROL WAS USED AS THE BASIS FOR TOPOGRAPHIC DESIGN SURVEYS AND FOR ESTABLISHING ANY ADDITIONAL SUPPLEMENTAL CONTROL NEEDED FOR THE EMDT PROJECT.

PRIMARY HORIZONTAL CONTROL:

NAD 83, 1991.35 EPOCH

STATION	NORTHING	EASTING	ELEVATION	SOURCE
5-22.31	1868806.5367	6267534.7897	55.50	PARSONS BRINCKERHOFF
5-24.18	1877546.8830	6263152.0209	57.93	PARSONS BRINCKERHOFF
5-26.11	1886653.6650	6258697.9701	239.24	PARSONS BRINCKERHOFF

PRIMARY VERTICAL CONTROL:

NAVD 88

STATION	NORTHING	EASTING	ELEVATION	SOURCE
5-24.18	1877546.8830	6263152.0209	57.93	PARSONS BRINCKERHOFF

PARSONS BRINCKERHOFF SUPPLEMENTARY CONTROL:

STATION	NORTHING	EASTING	ELEVATION	DESCRIPTION
27	1883161.71	6259911.75	102.04	CP SET MAG NAIL & FLASHER
52	1878397.38	6262938.65	57.99	CP SET 5/8" REBAR & CAP "LS 4430 AECp"
115	1874042.35	6265639.01	73.09	CP SET 60D NAIL
128	1888985.89	6258959.97	131.40	CP SET 5/8" REBAR CAP "LS 4430"

SURVEY

- 128 EXIST EASE LINE
- 131 EXIST RW LINE
- 138 MINOR LAMD LINE
- 156 OLD LINE
- 158 TIE LINE
- RECMAP

SURVEY TEXT

- MAP 10788
- LA JOLLA COLONY
- UNIT NO. 2
- LA JOLLA COLONY DR.
- 347-380-02
- RECORD MAP
- 129 EXIST EASE ANNOTATON
- 159 ASSESSOR ANNOTATION

OTHER COMMON LINSTYLES

EXISTING LINSTYLES

- ABANDONED/REMOVED
- ACCESS CONTROL (CALTRANS)
- ASPHALT SURFACE
- BUILDING
- BRUSH LINE/TREE LINE
- CONCRETE SURFACE
- CURB
- DIRT SURFACE
- EXISTING TRACK
- FENCE AND HANDRAILS
- GUARD RAIL
- GUTTER
- PARKING LOT LINES
- PROPERTY LINE
- RAILROAD TRACK
- RETAINING WALL
- RIGHT OF WAY (CALTRANS)
- RIGHT OF WAY (MTS)
- RIGHT OF WAY (CITY OF SAN DIEGO)
- ROADWAY GUARDRAIL
- ROAD STRIPING

PROPOSED LINSTYLES

- MILE POST
- DITCH FLOWLINE
- DRAIN
- NCTD MT
- MIDCOAST LRT
- RETAINING WALL
- TOE OF FILL SLOPE
- TOP OF CUT SLOPE
- TOP OF SLOPE

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	MRG	RB	SH

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RYAN BOLEY
64880
Exp. 6/30/2017
CIVIL ENGINEER
STATE OF CALIFORNIA

DESIGNED BY	DATE
M.R. GRANADO	7/15
DRAWN BY	
M.R. GRANADO	7/15
CHECKED BY	
H.Y. OOI	7/15
SANDAG	
S. HUMPHREYS	7/15

SANDAG
San Diego's Regional Planning Agency

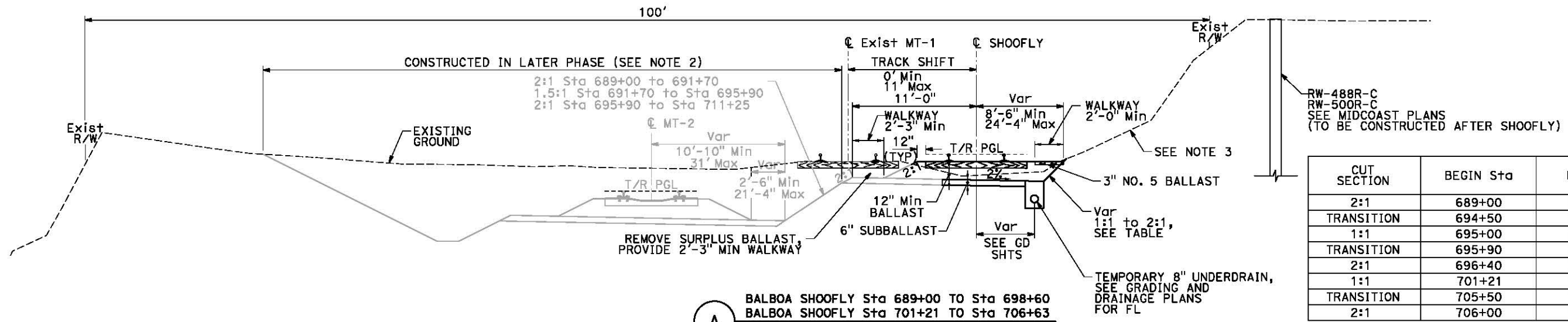
ELVIRA TO MORENA DOUBLE TRACK PROJECT BALBOA AND ROSE CREEK SHOOFLY	
LINESTYLES AND SYMBOLS/SURVEY CONTROL	

SCALE	
NO SCALE	
SANDAG CONTRACT NO. 1239811	
DRAWING NO. CG302	SHEET NO. 5 OF 33

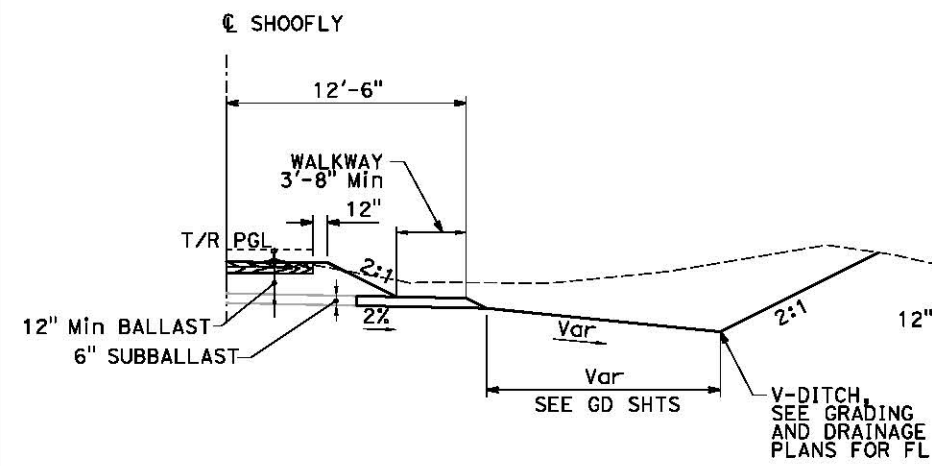
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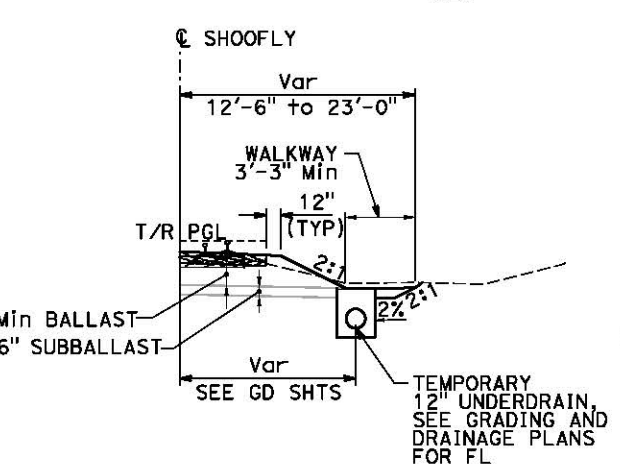
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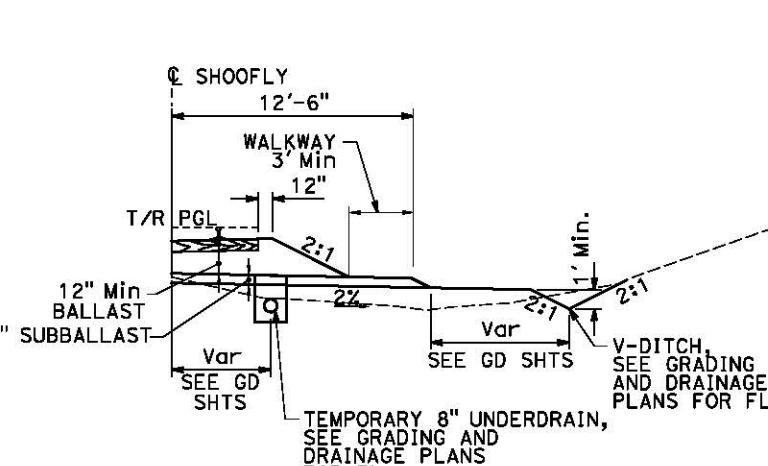
CUT SECTION	BEGIN Sta	END Sta
2:1	689+00	694+50
TRANSITION	694+50	695+00
1:1	695+00	695+90
TRANSITION	695+90	696+40
2:1	696+40	698+85
1:1	701+21	705+50
TRANSITION	705+50	706+00
2:1	706+00	706+83



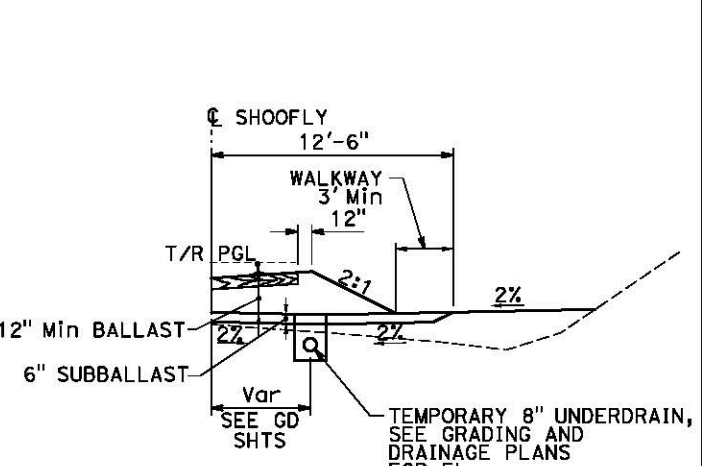
B BALBOA SHOOFLY Sta 685+80 TO Sta 687+68



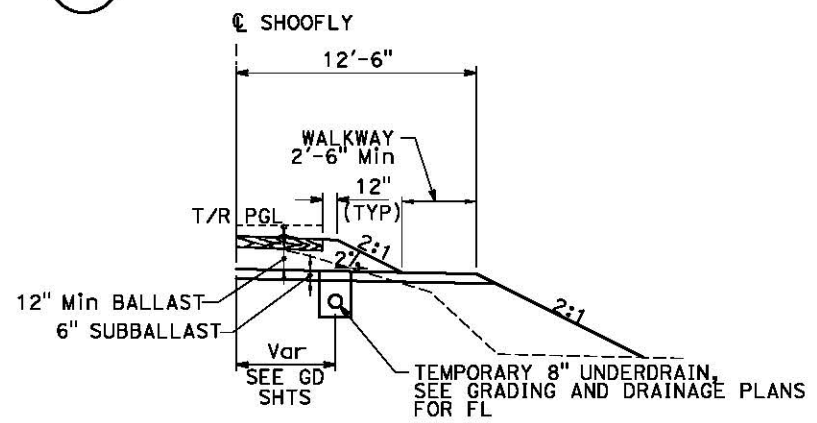
C BALBOA SHOOFLY Sta 687+68 TO Sta 689+00



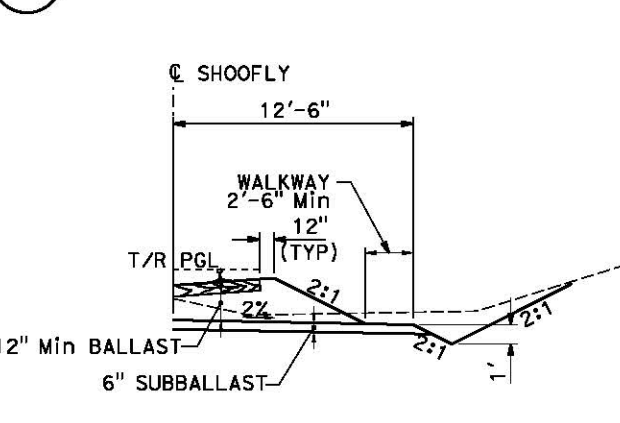
D BALBOA SHOOFLY Sta 698+60 TO Sta 699+67



E BALBOA SHOOFLY Sta 699+67 TO Sta 701+21



F BALBOA SHOOFLY Sta 706+63 TO Sta 706+83



G BALBOA SHOOFLY Sta 706+83 TO Sta 711+25

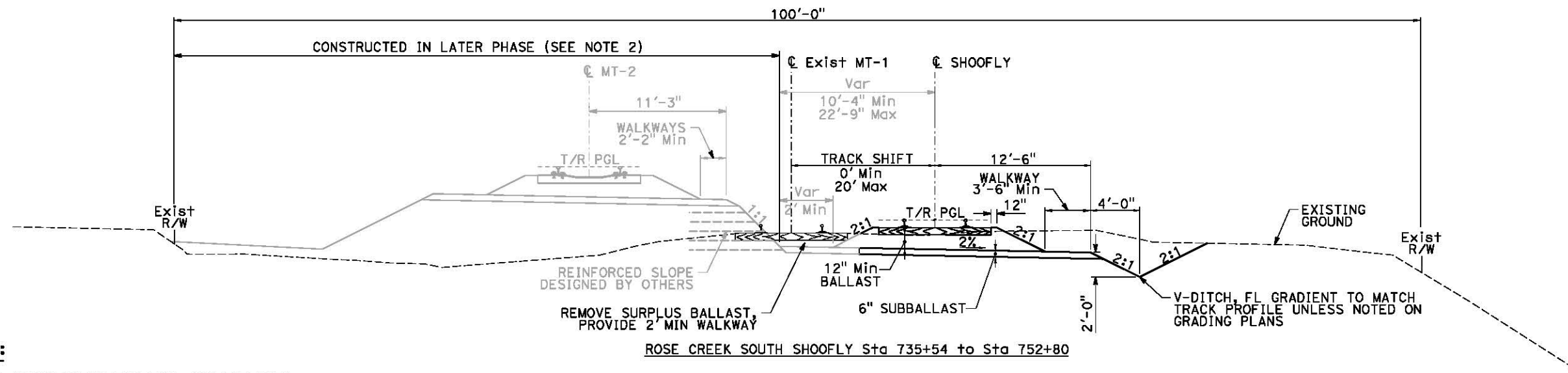
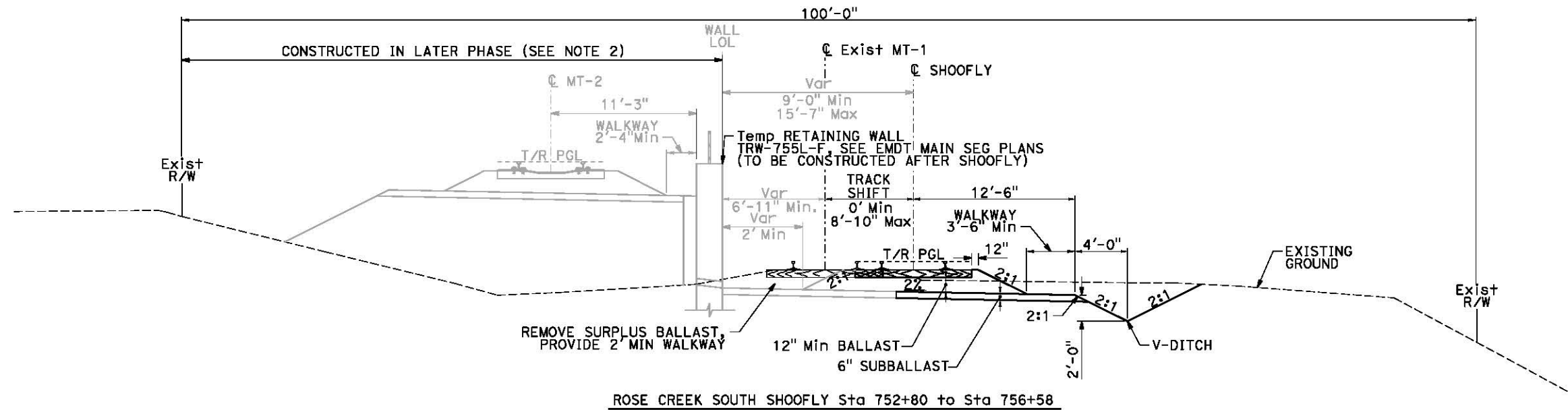
- NOTE:**
- SEE TA301-TA303 FOR RAIL AND TIE TYPE
 - SEE MIDCOAST PLANS AND EMDT MAIN SEGMENT PLANS FOR INFORMATION REGARDING MT-2 CONSTRUCTION. FUTURE PHASE WORK SHOWN IS INCLUDED FOR INFORMATION ONLY AND IS SUBJECT TO CHANGE.
 - CONTRACTOR TO PROTECT BALLAST FROM SILT MIGRATION OFF EXISTING SLOPE

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	RB	SH

DESIGNED BY	K. MAGEE	DATE	7/15
DRAWN BY	K. MAGEE	DATE	7/15
CHECKED BY	M. MIHALOVICH	DATE	7/15
SANDAG	S. HUMPHREYS	DATE	7/15

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY
TYPICAL TRACK SECTIONS
BALBOA SHOOFLY


SCALE	NO SCALE
SANDAG CONTRACT NO.	1239811
DRAWING NO. SHEET NO.	TX301 6 OF 33



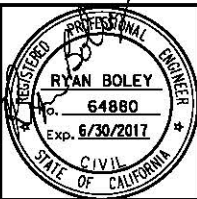
NOTE:

1. SEE TA304-TA305 FOR RAIL AND TIE TYPE
2. SEE MIDCOAST PLANS AND EMDT MAIN SEGMENT PLANS FOR INFORMATION REGARDING MT-2 CONSTRUCTION. FUTURE PHASE WORK SHOWN IS INCLUDED FOR INFORMATION ONLY AND IS SUBJECT TO CHANGE.

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	RB	SH



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101



DESIGNED BY	J. MOLINARO	DATE	7/15
DRAWN BY	J. MOLINARO	DATE	7/15
CHECKED BY	M. MIHALOVICH	DATE	7/15
SANDAG	S. HUMPHREYS	DATE	7/15



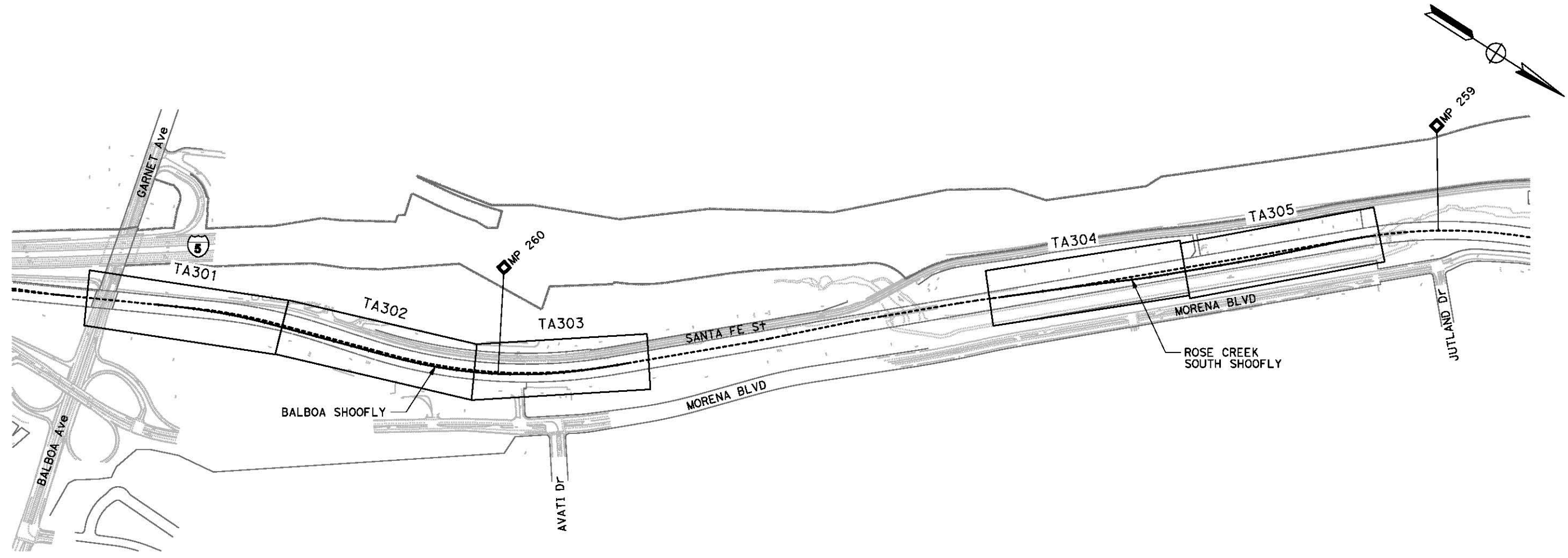
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY

TYPICAL TRACK SECTIONS
ROSE CREEK SOUTH SHOOFLY

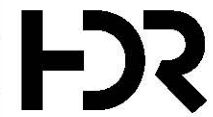
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SANDAG CONTRACT NO.	1239811
DRAWING NO.	TX302
SHEET NO.	7 OF 33

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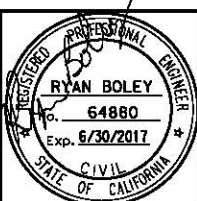


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No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	MRG	RB	SH



HDR
 HDR ENGINEERING, INC.
 401 B STREET, SUITE 1110
 SAN DIEGO, CALIFORNIA 92101



DESIGNED BY K. MAGEE	DATE 7/15
DRAWN BY H. LAI	7/15
CHECKED BY M. MIHALOVICH	7/15
SANDAG S. HUMPHREYS	7/15



SANDAG
 San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY

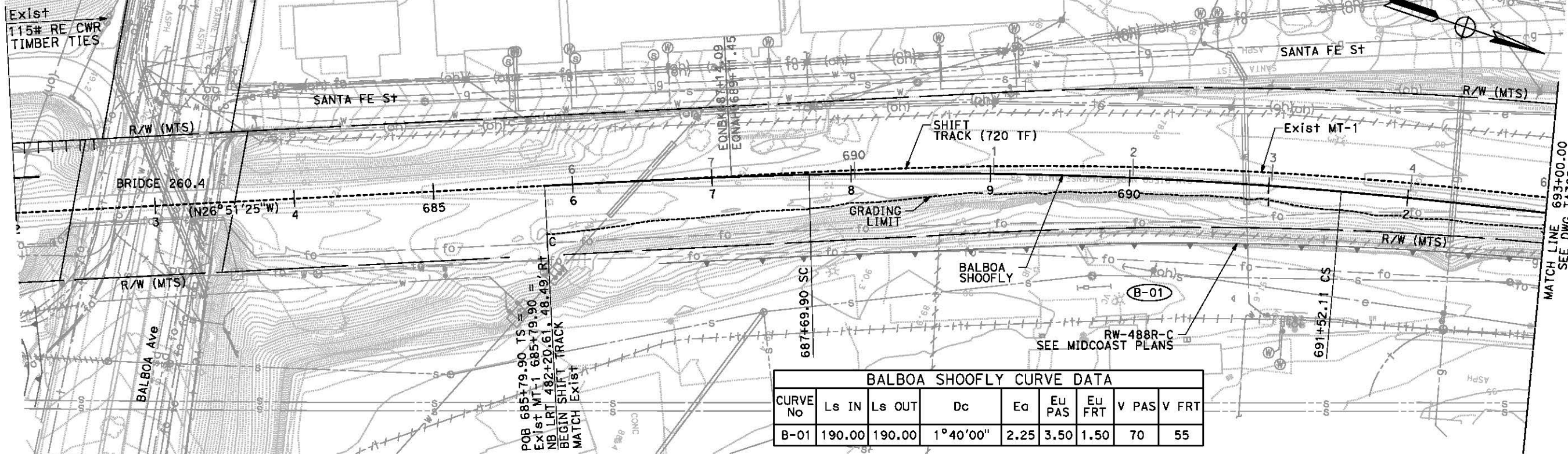
TRACK KEYMAP

SCALE 1"=300'
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. TA300 10 OF 33

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TO CP CUDAHY
NATIONAL CITY
(TIMETABLE EAST)

TO CP CUMBRES
FULLERTON
(TIMETABLE WEST)

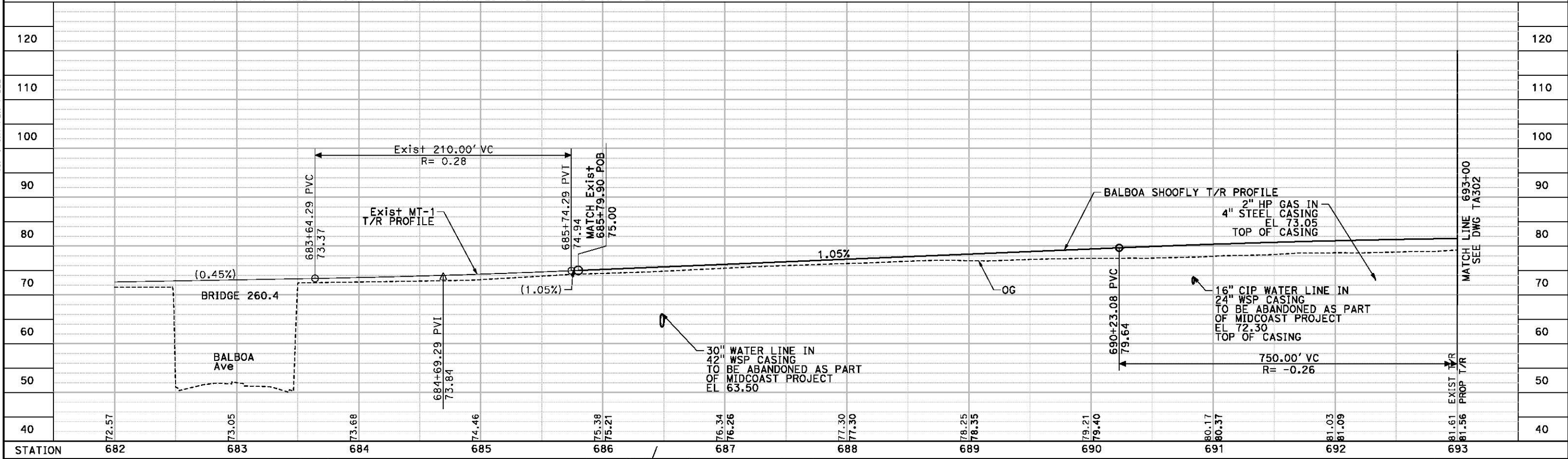


BALBOA SHOOFLY CURVE DATA								
CURVE No	Ls IN	Ls OUT	Dc	Ea	Eu PAS	Eu FRT	V PAS	V FRT
B-01	190.00	190.00	1°40'00"	2.25	3.50	1.50	70	55

NOTE:

1. MIDCOAST WALL RW-488R-C TO BE CONSTRUCTED AFTER SHOOFLY IS IN PLACE

IP-SHORT-PEN-TABLE



No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	RB	SH

HDR
HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
IS IN INCHES

0 1 2

REGISTERED PROFESSIONAL ENGINEER
RYAN BOLEY
No. 64880
Exp. 6/30/2017
CIVIL
STATE OF CALIFORNIA

DESIGNED BY
K. MAGEE
DATE
7/15

DRAWN BY
H. LAI
7/15

CHECKED BY
M. MIHALOVICH
7/15

SANDAG
S. HUMPHREYS
7/15

SANDAG
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY

TRACK PLAN AND PROFILE
BALBOA SHOOFLY
Sta 685+00 TO Sta 693+00

SCALE
HORIZ 1"=40'
VERT 1"=10'

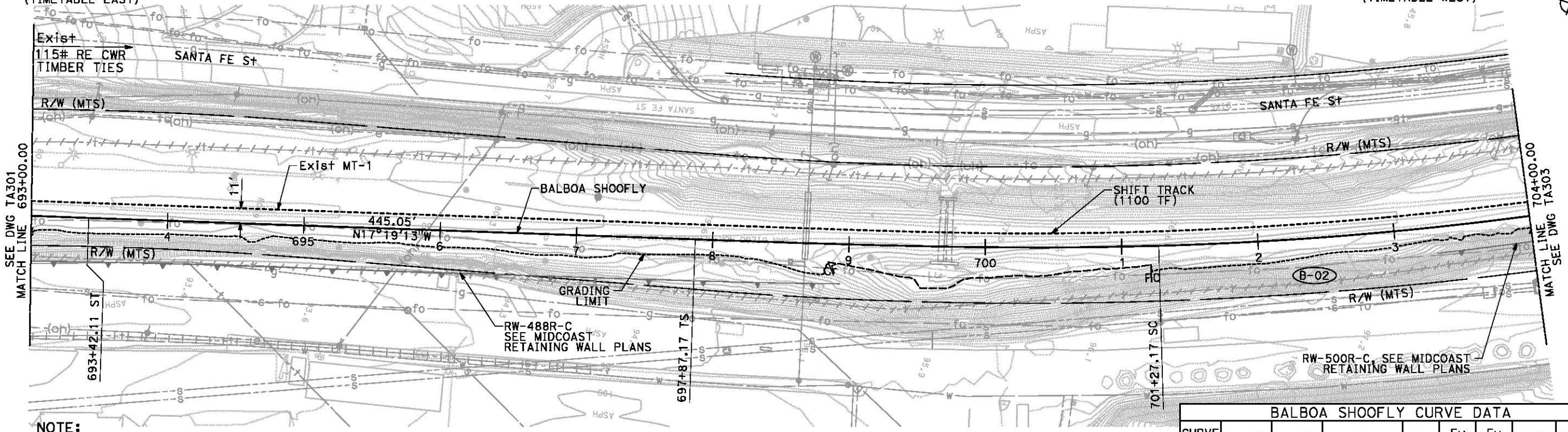
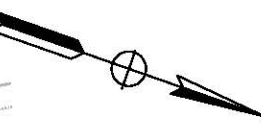
SANDAG CONTRACT NO.
1239811

DRAWING NO. SHEET NO.
TA301 11 OF 33

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TO CP CUDAHY
NATIONAL CITY
(TIMETABLE EAST)

TO CP CUMBRES
FULLERTON
(TIMETABLE WEST)

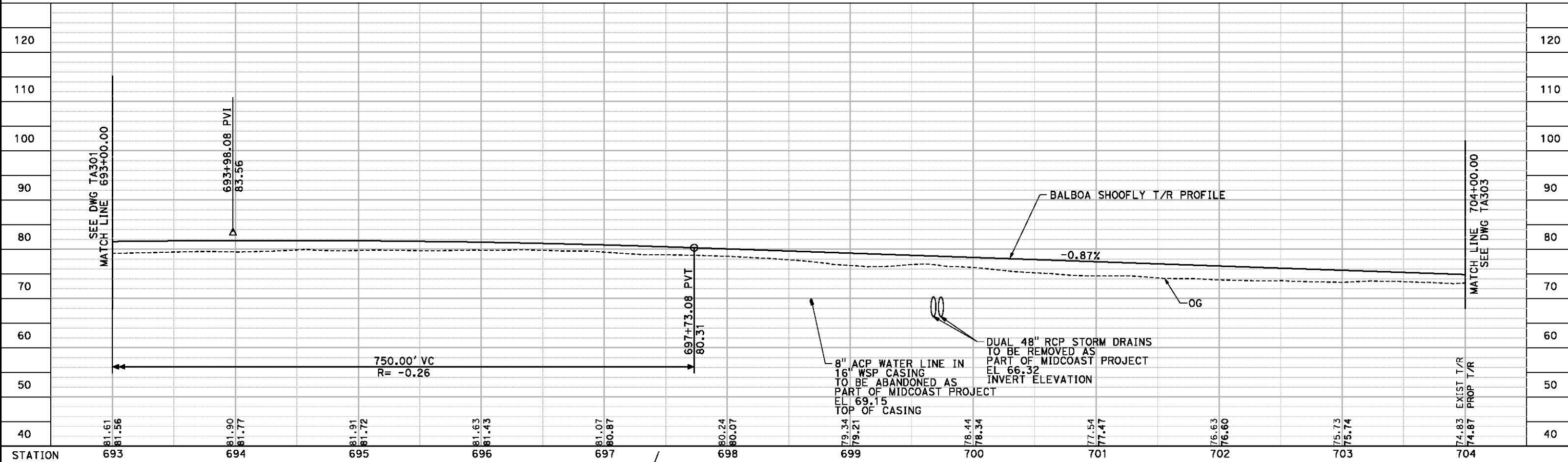


NOTE:

1. MIDCOAST WALLS RW-488R-C AND RW-500R-C TO BE CONSTRUCTED AFTER SHOOFLY IS IN PLACE

BALBOA SHOOFLY CURVE DATA								
CURVE No.	Ls IN	Ls OUT	Dc	Ea	Eu PAS	Eu FRT	V PAS	V FRT
B-02	340.00	340.00	2°10'00"	4.00	3.50	0.75	70	55

IP-SHORT-PEN-TABLE



No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	RB	SH

DESIGNED BY
K. MAGEE
DATE
7/15
DRAWN BY
H. LAI
7/15
CHECKED BY
M. MIHALOVICH
7/15
SANDAG
S. HUMPHREYS
7/15

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY
TRACK PLAN AND PROFILE
BALBOA SHOOFLY
Sta 693+00 TO Sta 704+00

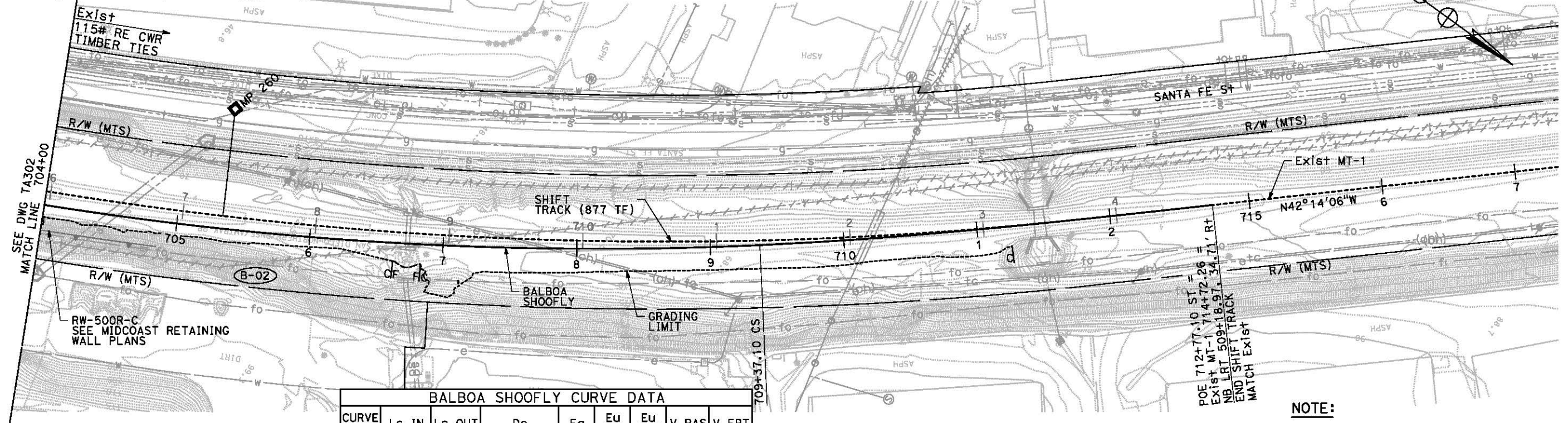
SCALE HORIZ 1"=40' VERT 1"=10'
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. TA302 12 OF 33

EMDT-SW-B07TA302.dgn

7/6/2015 5:56:00 PM user

TO CP CUDAHY
NATIONAL CITY
(TIMETABLE EAST)

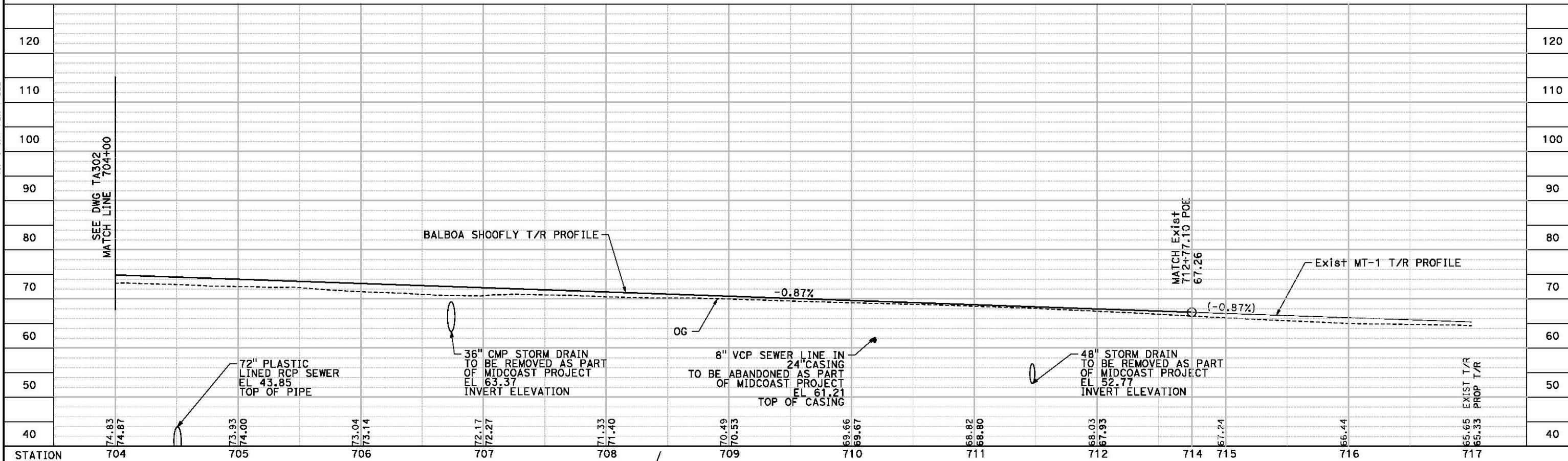
TO CP CUMBRES
FULLERTON
(TIMETABLE WEST)



BALBOA SHOOFLY CURVE DATA								
CURVE No.	Ls IN	Ls OUT	Dc	Ea	Eu PAS	Eu FRT	V PAS	V FRT
B-02	340.00	340.00	2°10'00"	4.00	3.50	0.75	70	55

NOTE:
1. MIDCOAST WALL RW-488R-C AND RW-500R-C TO BE CONSTRUCTED AFTER SHOOFLY IS IN PLACE

IP-SHORT-PEN-TABLE



No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	RB	SH

HDR
HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

REGISTERED PROFESSIONAL ENGINEER
RYAN BOLEY
No. 64880
Exp. 6/30/2017
CIVIL
STATE OF CALIFORNIA

DESIGNED BY
K. MAGEE
DATE
7/15
DRAWN BY
H. LAI
7/15
CHECKED BY
M. MIHALOVICH
7/15
SANDAG
S. HUMPHREYS
7/15

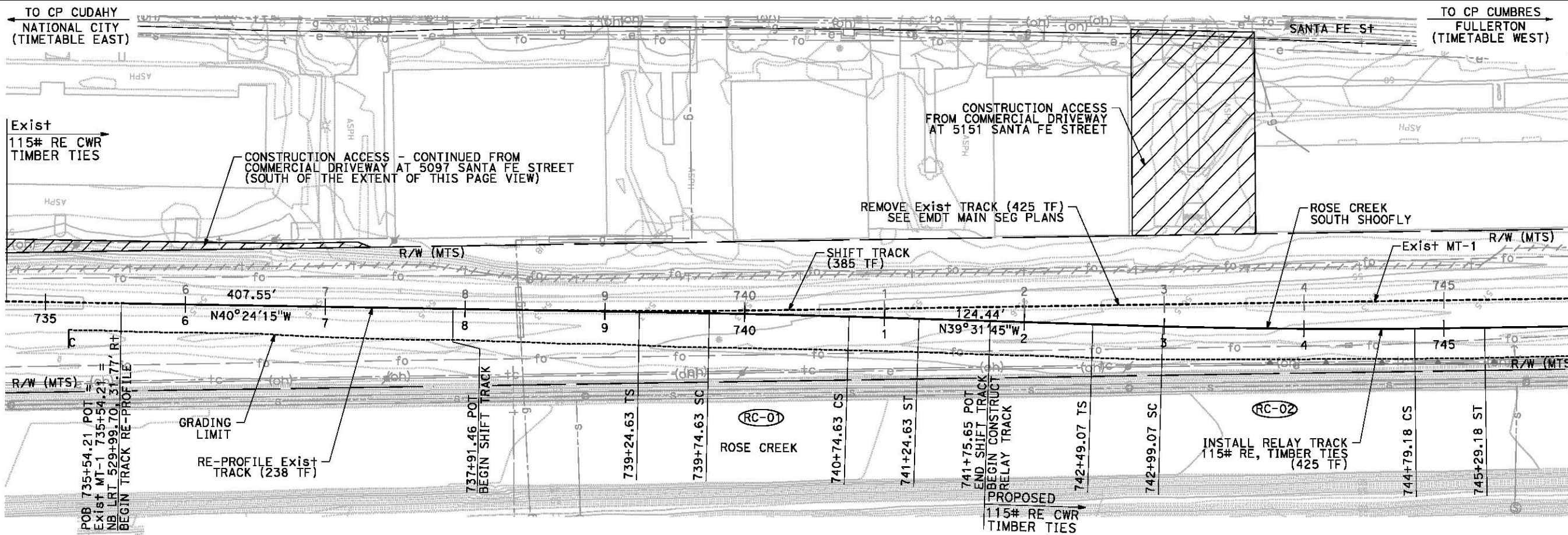
SANDAG
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY
TRACK PLAN AND PROFILE
BALBOA SHOOFLY
Sta 704+00 TO Sta 713+00

SCALE
HORIZ 1"=40'
VERT 1"=10'
SANDAG CONTRACT NO.
1239811
DRAWING NO. SHEET NO.
TA303 13 OF 33

EMDT-SW-B07TA303.dgn

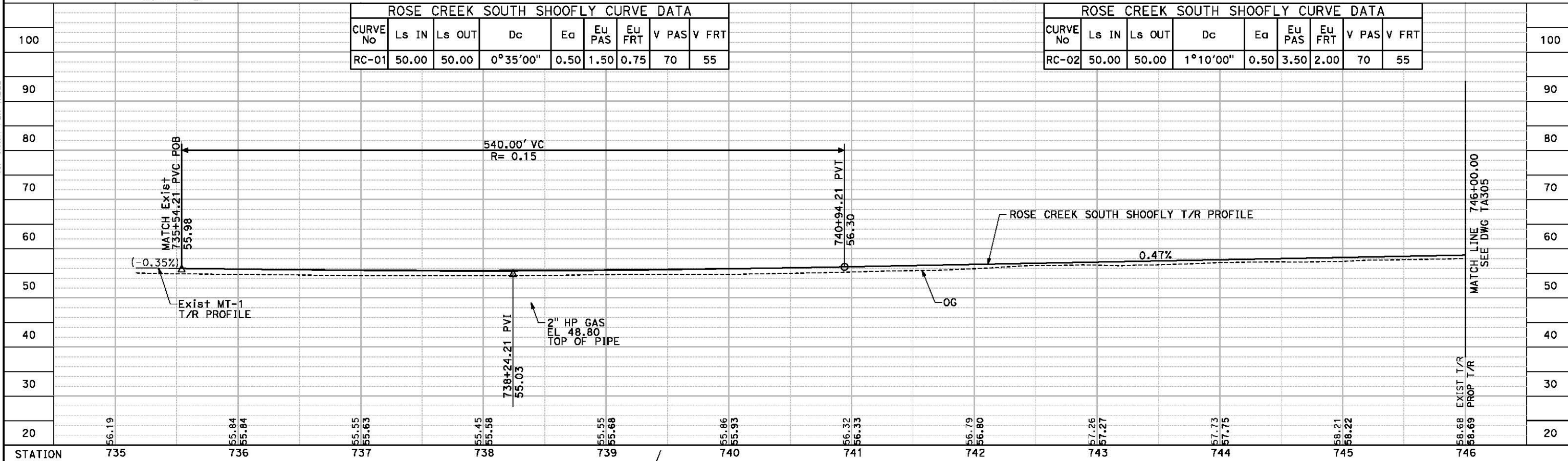
7/8/2015 2:57:08 PM user



ROSE CREEK SOUTH SHOOFLY CURVE DATA								
CURVE No	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
RC-01	50.00	50.00	0°35'00"	0.50	1.50	0.75	70	55

ROSE CREEK SOUTH SHOOFLY CURVE DATA								
CURVE No	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
RC-02	50.00	50.00	1°10'00"	0.50	3.50	2.00	70	55

IP-SHORT-PEN-TABLE



EMDT-SW-BOTTA304.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	RB	SH

HDR
 HDR ENGINEERING, INC.
 401 B STREET, SUITE 1110
 SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
 1" = 40'
 1" = 10'

RYAN BOLEY
 CIVIL ENGINEER
 No. 64880
 Exp. 6/30/2017
 STATE OF CALIFORNIA

DESIGNED BY K. MAGEE	DATE 7/15
DRAWN BY H. LAI	DATE 7/15
CHECKED BY M. MIHALOVICH	DATE 7/15
SANDAG S. HUMPHREYS	DATE 7/15

SANDAG
 San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
 BALBOA AND ROSE CREEK SHOOFLY

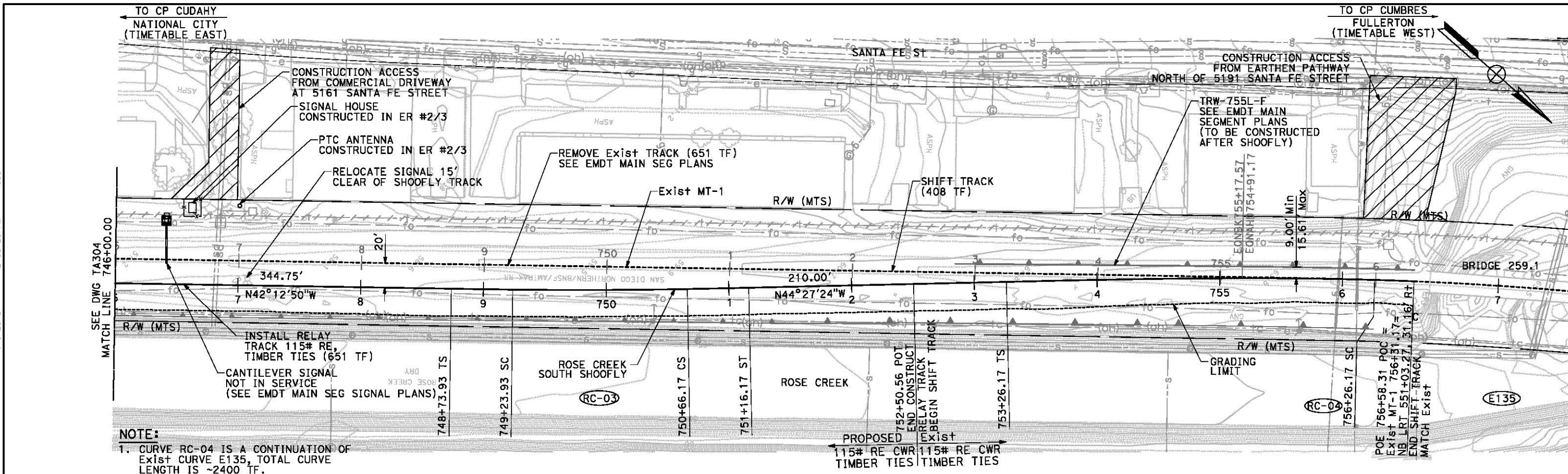
TRACK PLAN AND PROFILE
 ROSE CREEK SOUTH SHOOFLY
 Sta 735+00 TO Sta 746+00

SCALE HORIZ 1"=40' VERT 1"=10'
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. TA304 14 OF 33

7/8/2015 2:58:23 PM User

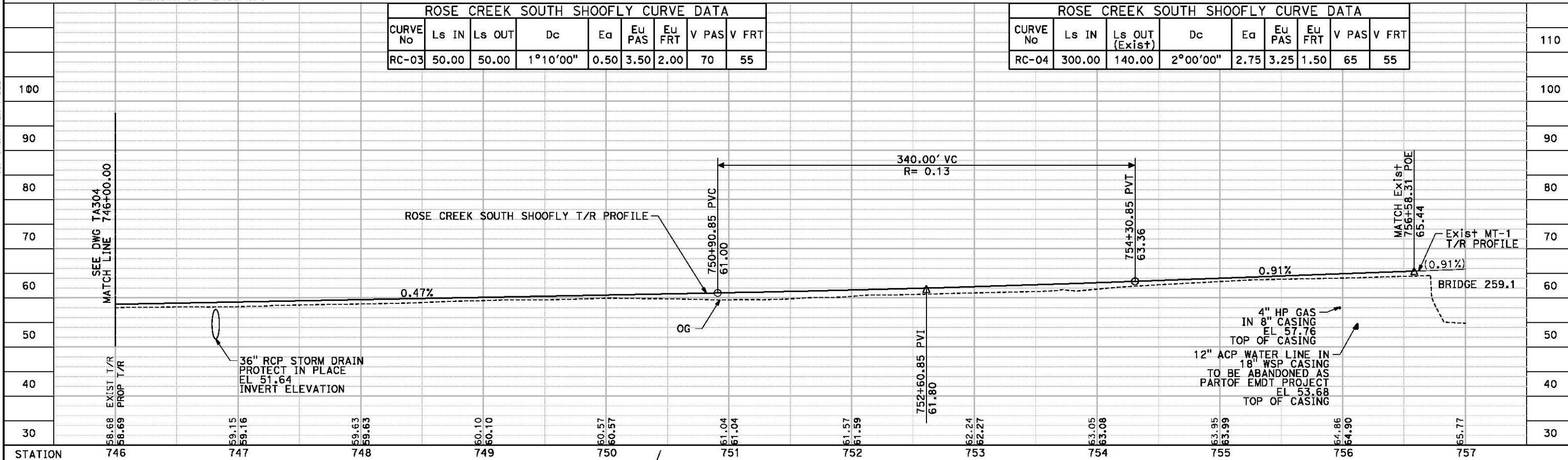
#IP-SHORT-PEN-TABLE

EMDT-SW-BOTTA305.dgn



ROSE CREEK SOUTH SHOOFLY CURVE DATA								
CURVE No	Ls IN	Ls OUT	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
RC-03	50.00	50.00	1°10'00"	0.50	3.50	2.00	70	55

ROSE CREEK SOUTH SHOOFLY CURVE DATA								
CURVE No	Ls IN	Ls OUT (Exist)	Dc	Ea	EU PAS	EU FRT	V PAS	V FRT
RC-04	300.00	140.00	2°00'00"	2.75	3.25	1.50	65	55



No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	RB	SH

HDR

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE IS IN INCHES

0 1 2

DESIGNED BY K. MAGEE DATE 7/15

DRAWN BY H. LAI 7/15

CHECKED BY M. MIHALOVICH 7/15

SANDAG S. HUMPHREYS 7/15

RYAN BOLEY
64880
Exp. 6/30/2017
CIVIL ENGINEER
STATE OF CALIFORNIA

SANDAG

San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY

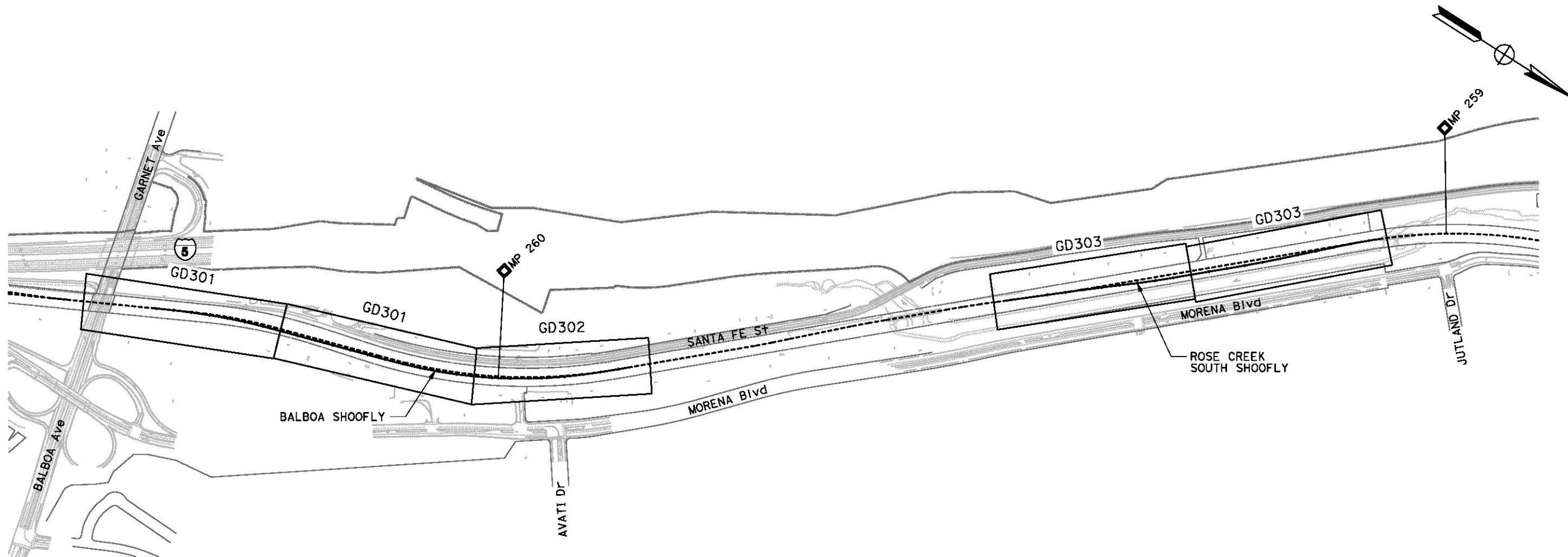
TRACK PLAN AND PROFILE
ROSE CREEK SOUTH SHOOFLY
Sta 746+00 TO Sta 757+00

SCALE
HORIZ 1"=40'
VERT 1"=10'

SANDAG CONTRACT NO.
1239811


DRAWING NO. SHEET NO.
TA305 15 OF 33

7/7/2015 4:01:45 PM User

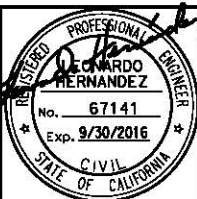


EMDT-SW-B1800300.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101



DESIGNED BY L. HERNANDEZ	DATE 7/15
DRAWN BY H. LAI	7/15
CHECKED BY B. FLORES	7/15
SANDAG S. HUMPHREYS	7/15



ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY
GRADING AND DRAINAGE
KEYMAP

SCALE 1"=300'
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. GD300 25 OF 33

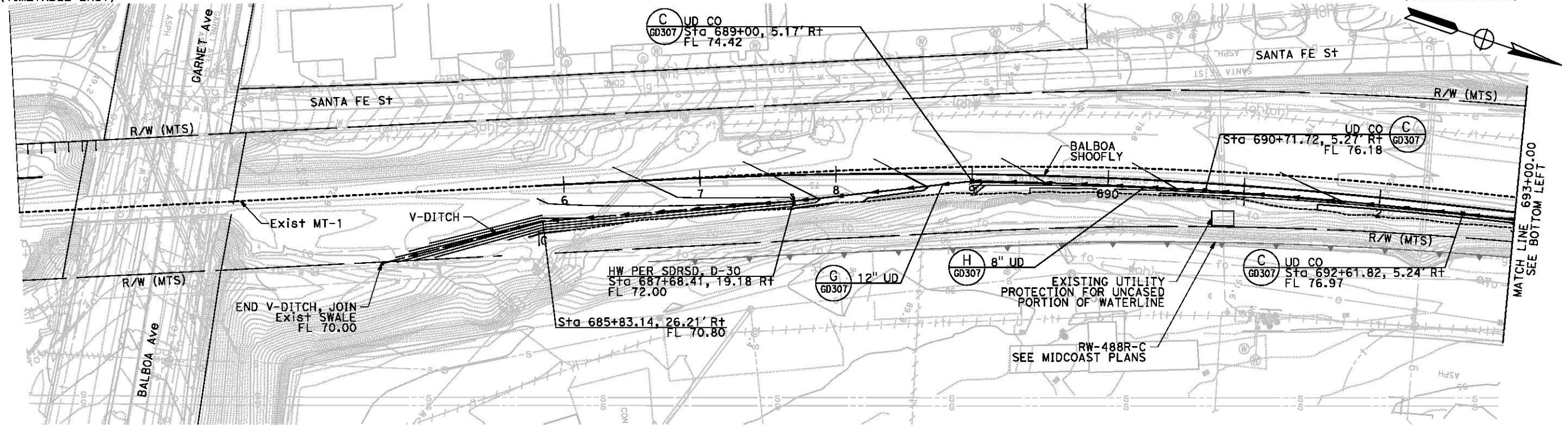
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IP-SHORT-PEN-TABLE

EMDT-SW-B180301.dgn

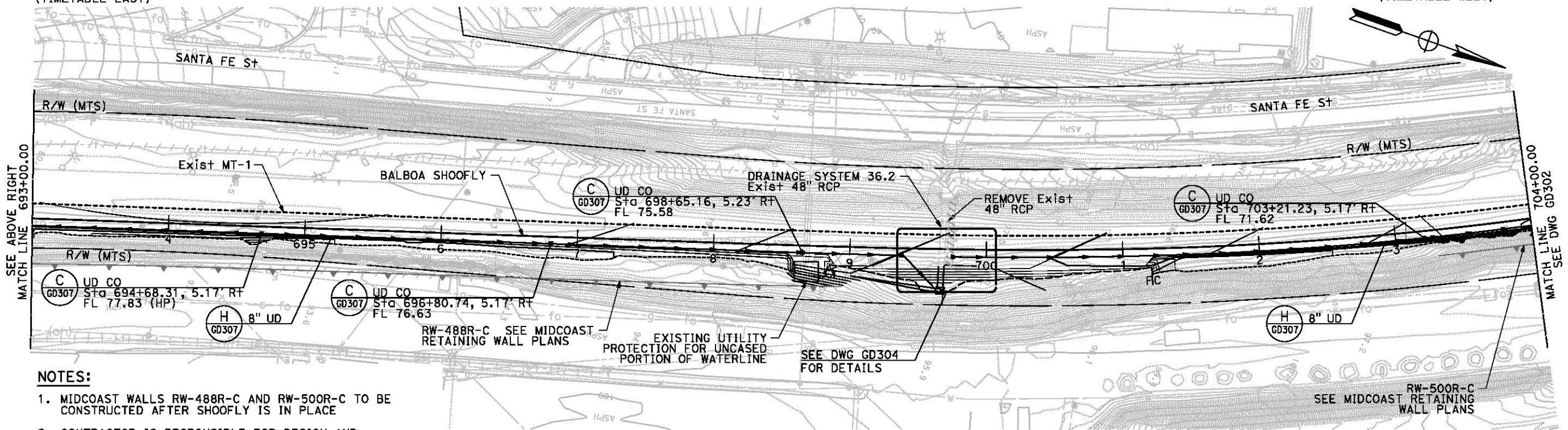
TO CP CUDAHY
NATIONAL CITY
(TIMETABLE EAST)

TO CP CUMBRES
FULLERTON
(TIMETABLE WEST)



TO CP CUDAHY
NATIONAL CITY
(TIMETABLE EAST)

TO CP CUMBRES
FULLERTON
(TIMETABLE WEST)



NOTES:

- MIDCOAST WALLS RW-488R-C AND RW-500R-C TO BE CONSTRUCTED AFTER SHOOFLY IS IN PLACE
- CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF APPROPRIATE BMP MEASURES AS REQUIRED TO CONFORM WITH THE PROJECT SPECIFIC SWPPP.

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
IS IN INCHES

0 1 2

DESIGNED BY
L. HERNANDEZ

DATE
7/15

DRAWN BY
M.R. GRANADO

7/15

CHECKED BY
B. FLORES

7/15

SANDAG
S. HUMPHREYS

7/15

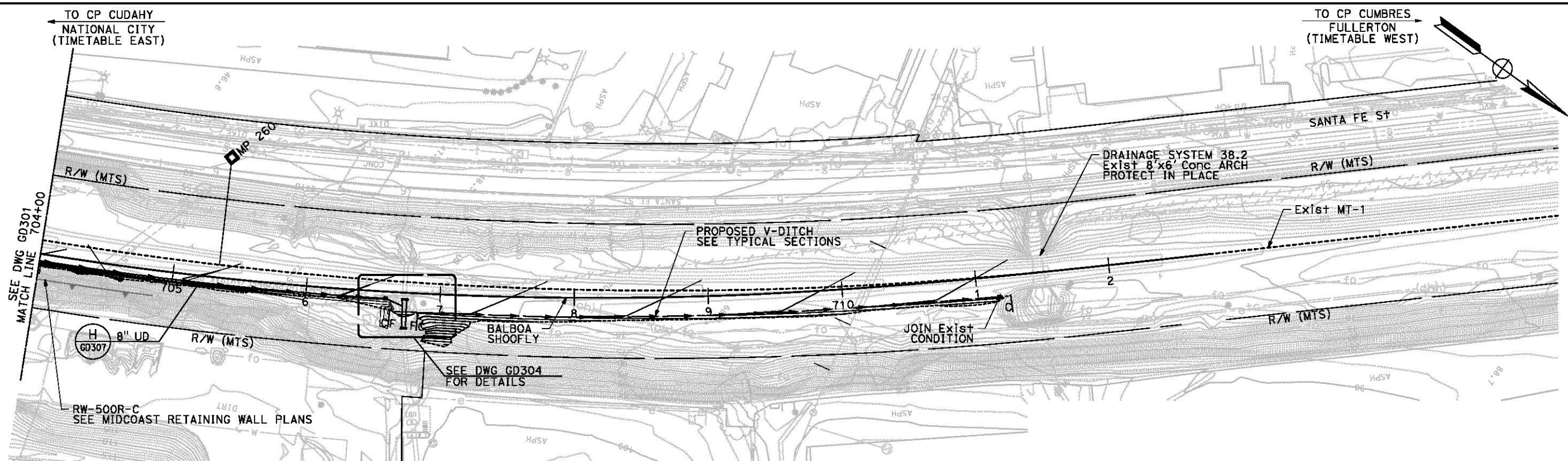
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY

GRADING AND DRAINAGE
BALBOA SHOOFLY
Sta 685+00 TO Sta 704+00

SCALE	1"=40'
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GD301
SHEET NO.	26 OF 33

7/7/2015 4:02:11 PM User



NOTES:

- CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF APPROPRIATE BMP MEASURES AS REQUIRED TO CONFORM WITH THE PROJECT SPECIFIC SWPPP.

EMDT-SW-B180302.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE IS IN INCHES

DESIGNED BY	L. HERNANDEZ	DATE	7/15
DRAWN BY	M.R. GRANADO	CHECKED BY	B. FLORES
CHECKED BY	B. FLORES	DATE	7/15
SANDAG	S. HUMPHREYS	DATE	7/15

San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY

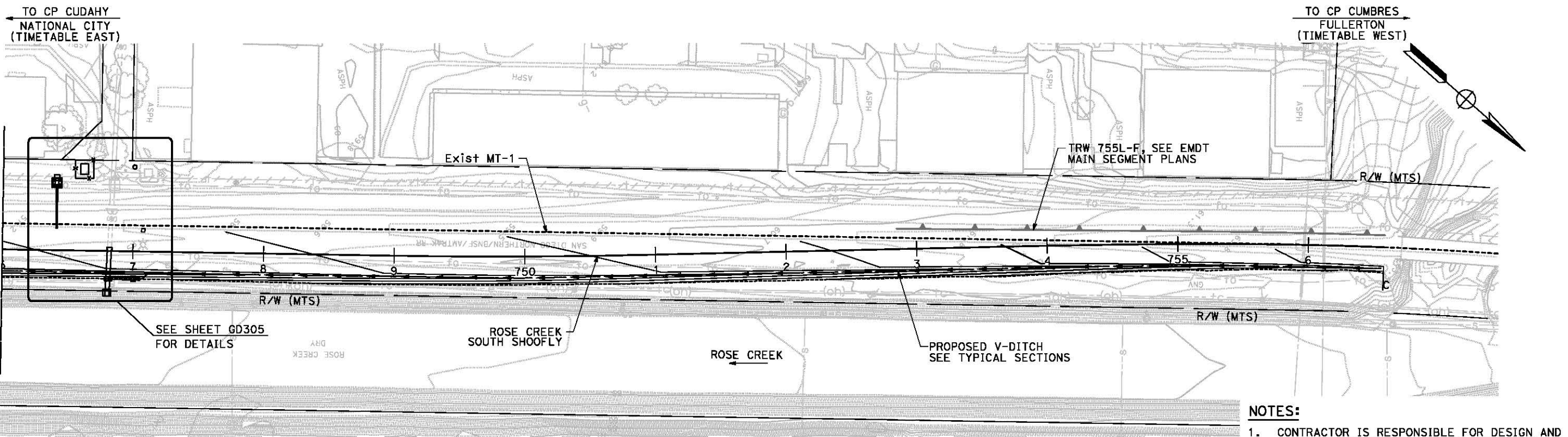
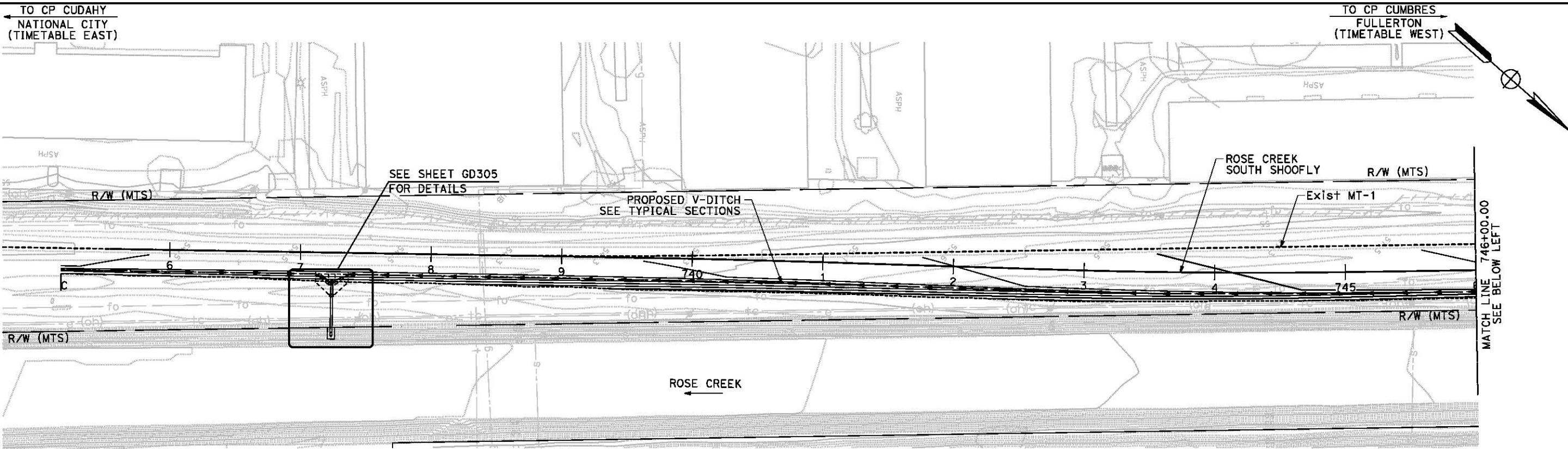
GRADING AND DRAINAGE
BALBOA SHOOFLY
Sta 704+00 TO Sta 713+00

SCALE	1"=40'
SANDAG CONTRACT NO.	1239811
DRAWING NO. SHEET NO.	GD302 27 OF 33

7/7/2015 4:02:26 PM user

IP-SHORT-PEN-TABLE

EMDT-SW-B1800303.dgn



- NOTES:**
- CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF APPROPRIATE BMP MEASURES AS REQUIRED TO CONFORM WITH THE PROJECT SPECIFIC SWPPP.

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH

HDR
HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

DESIGNED BY
L. HERNANDEZ

DRAWN BY
M.R. GRANADO

CHECKED BY
B. FLORES

SANDAG
S. HUMPHREYS

DATE
7/15

DATE
7/15

DATE
7/15

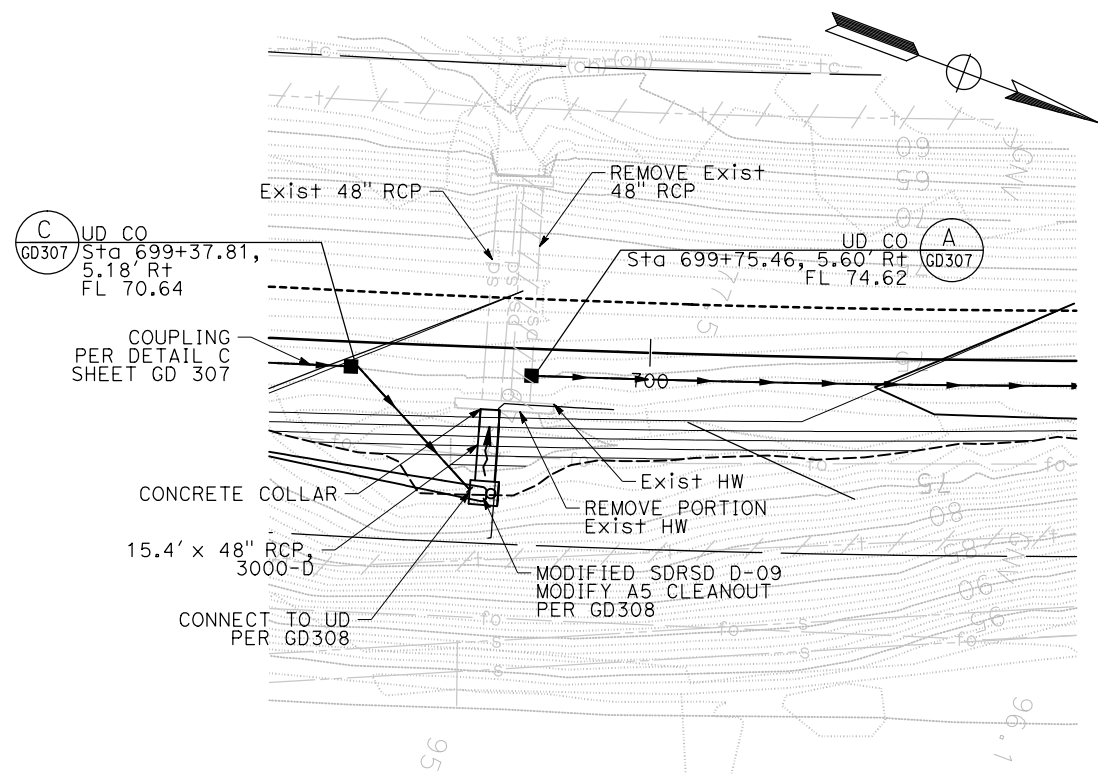
PROFESSIONAL ENGINEER
EDUARDO HERNANDEZ
No. 67141
Exp. 9/30/2016
CIVIL ENGINEER
STATE OF CALIFORNIA

SANDAG
San Diego's Regional Planning Agency

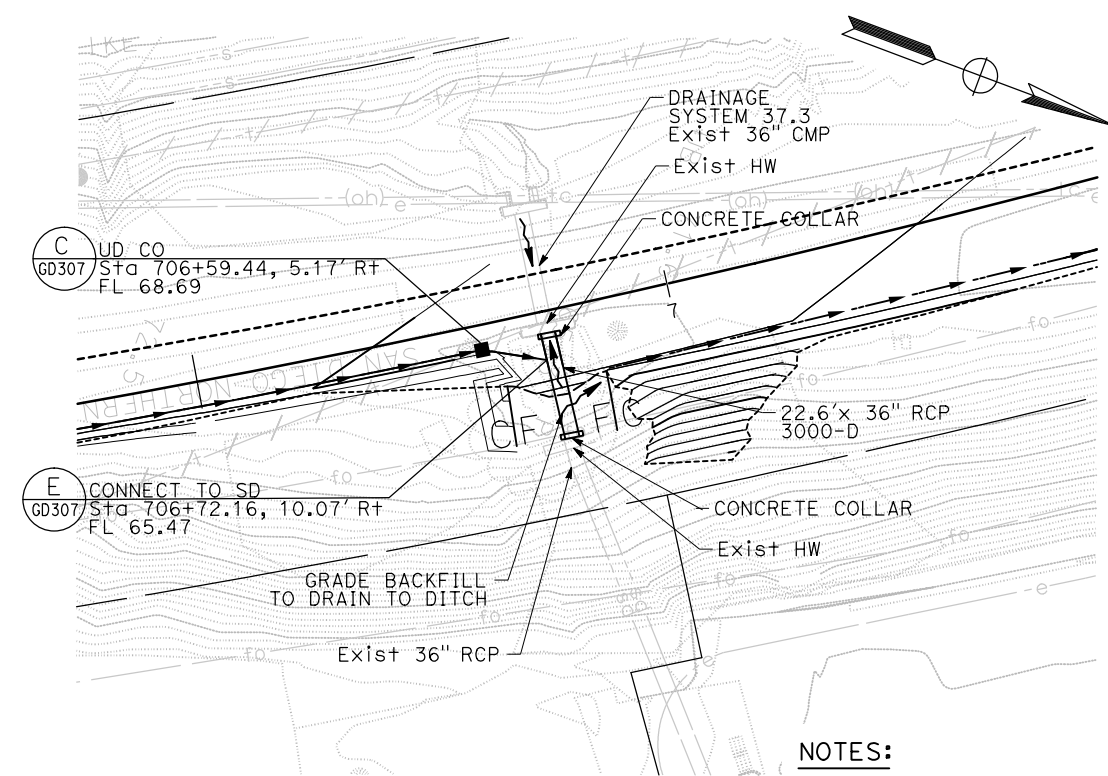
ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY
GRADING AND DRAINAGE
ROSE CREEK SOUTH SHOOFLY
Sta 735+00 TO Sta 757+00

SCALE	1"=40'
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GD303
SHEET NO.	28 OF 33

7/8/2015 3:08:47 PM user



DRAINAGE SYSTEM 36.2 PLAN

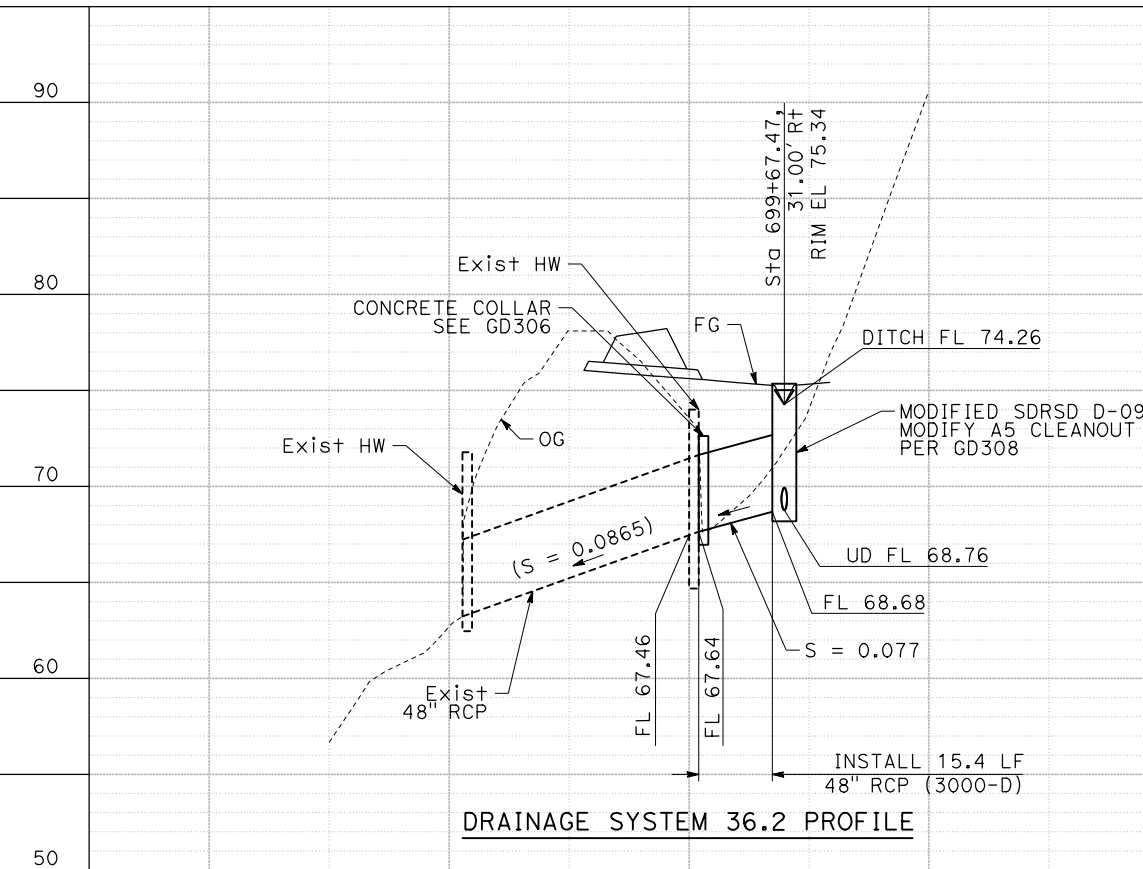


DRAINAGE SYSTEM 37.3 PLAN

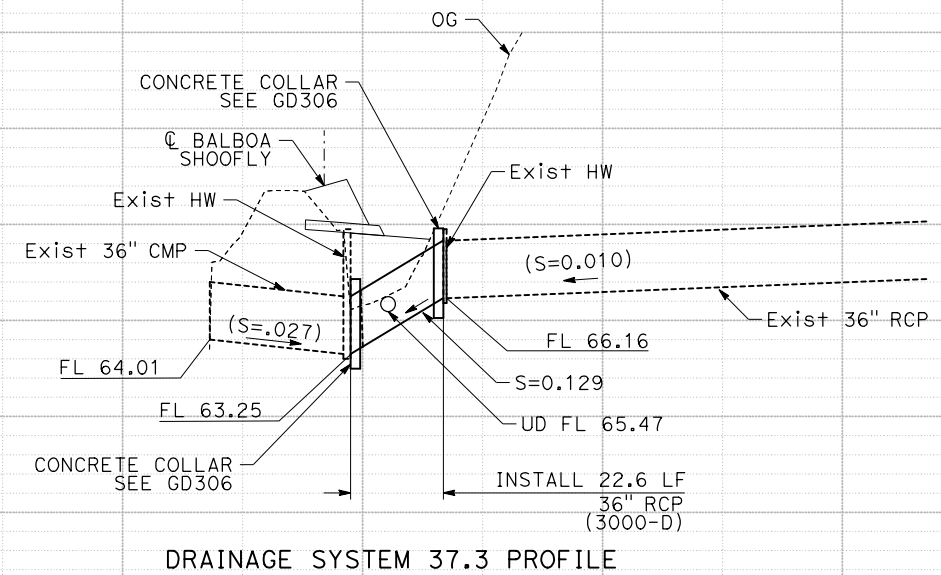
NOTES:

- CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF APPROPRIATE BMP MEASURES AS REQUIRED TO CONFORM WITH THE PROJECT SPECIFIC SWPPP.

\$IP-SHORT-PEN-TABLE



DRAINAGE SYSTEM 36.2 PROFILE



DRAINAGE SYSTEM 37.3 PROFILE

EMDT-SW-B19GD304.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
1" = 10'



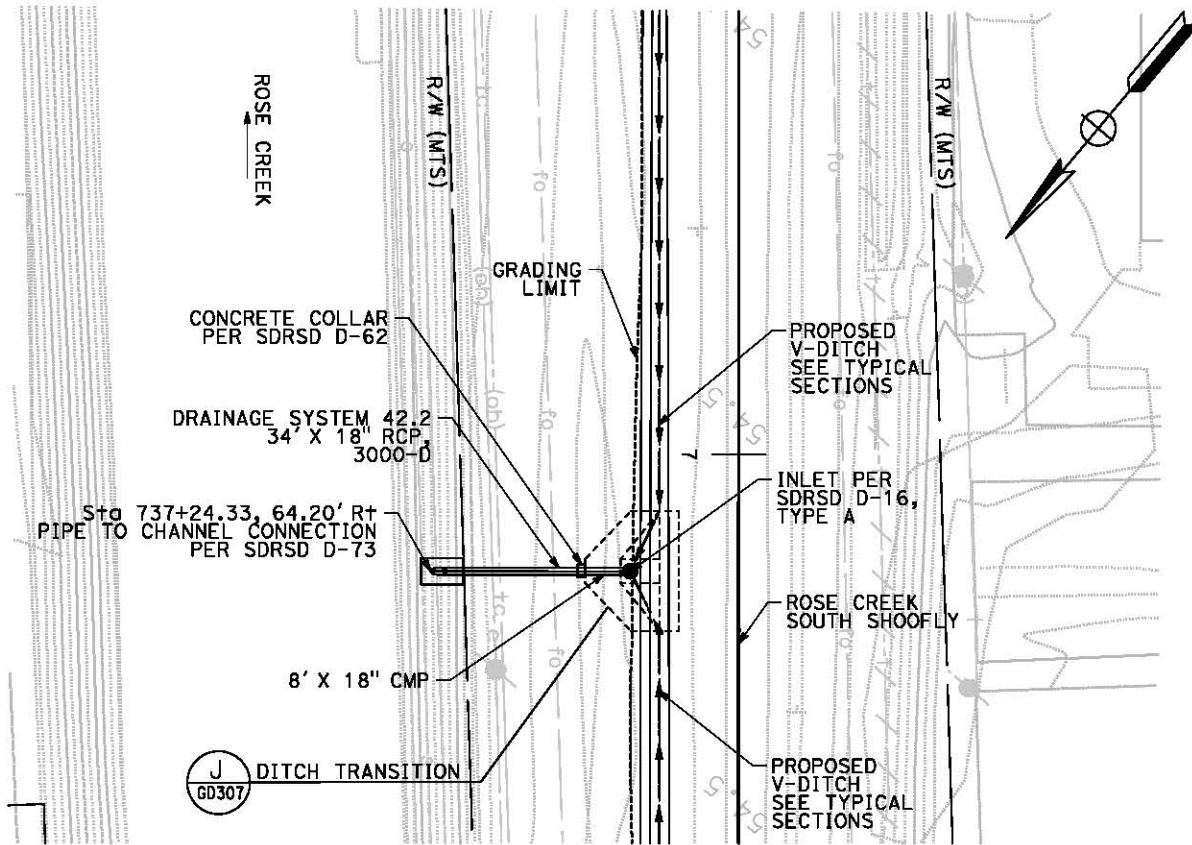
DESIGNED BY L. HERNANDEZ	DATE 7/15
DRAWN BY M.R. GRANADO	7/15
CHECKED BY B. FLORES	7/15
SANDAG S. HUMPHREYS	7/15



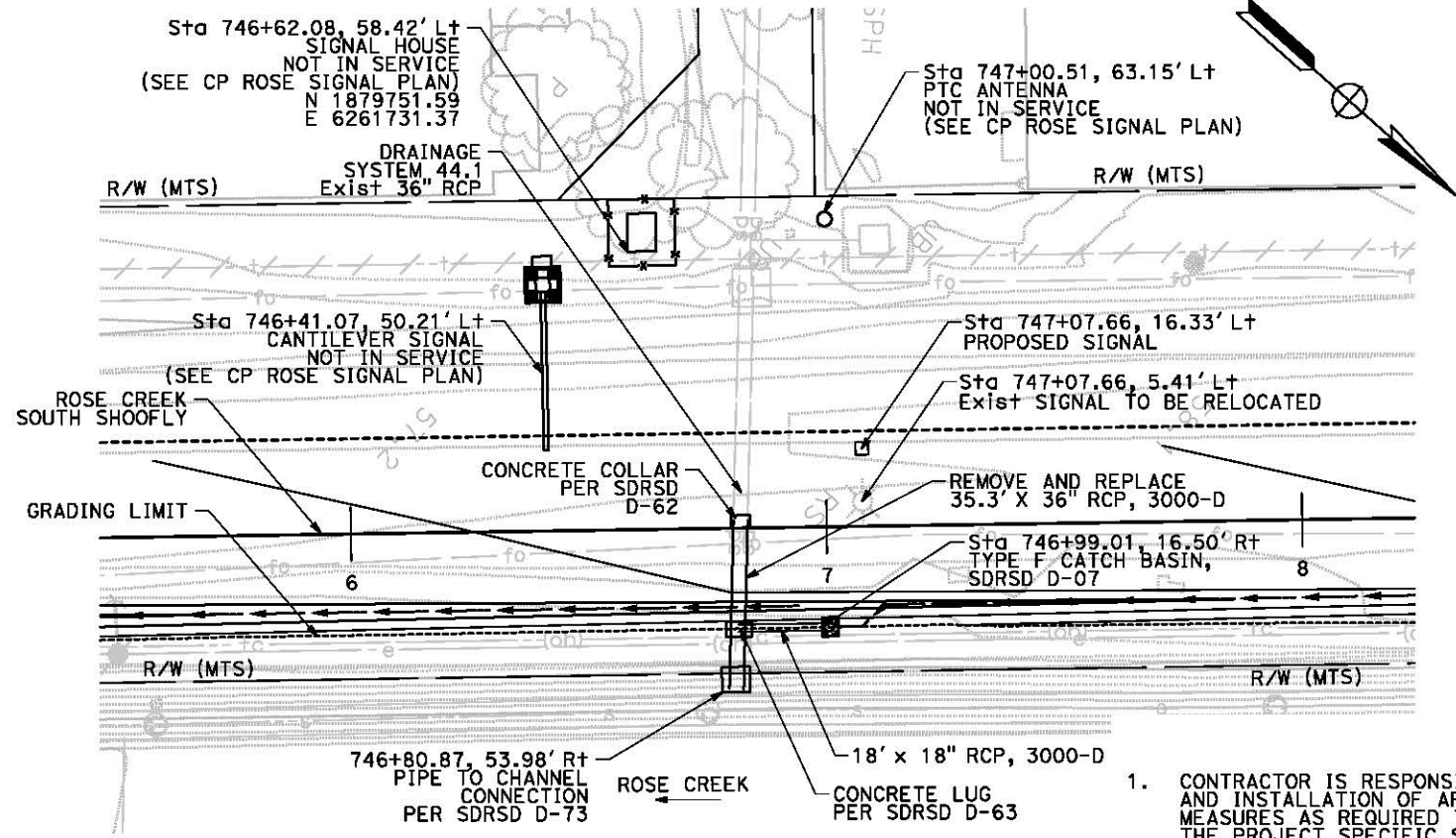
ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY
GRADING AND DRAINAGE
DRAINAGE SYSTEM 36.2 AND 37.3
PLAN AND PROFILE

SCALE 1"=20'
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. GD304 29 OF 33

7/7/2015 4:02:52 PM user



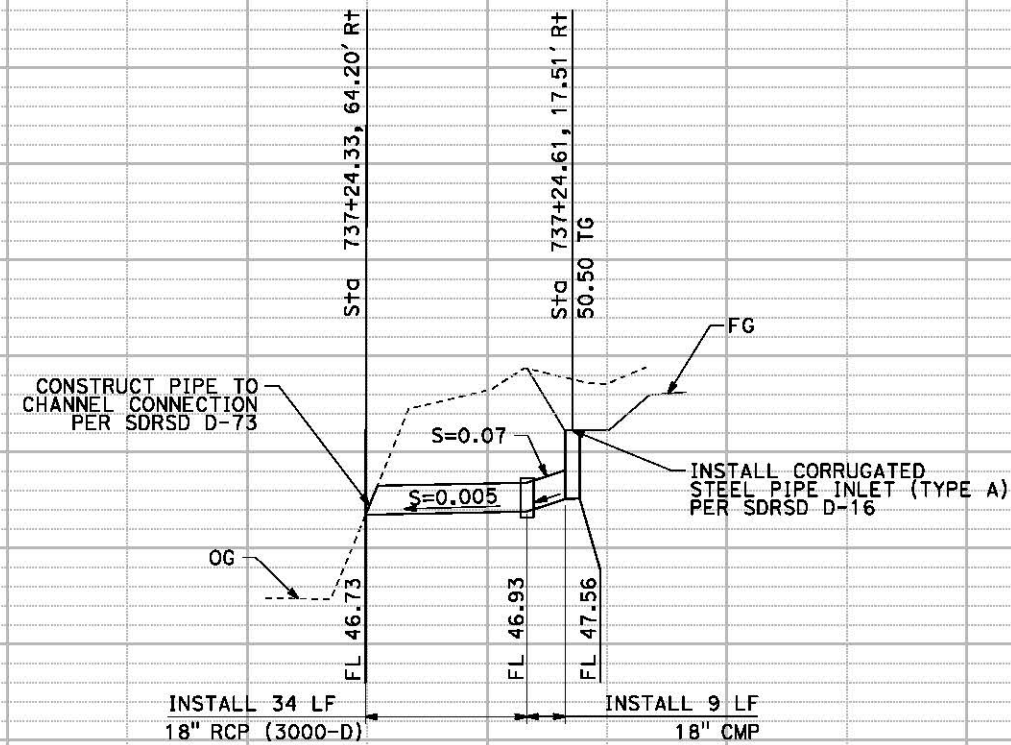
DRAINAGE SYSTEM 42.2 PLAN



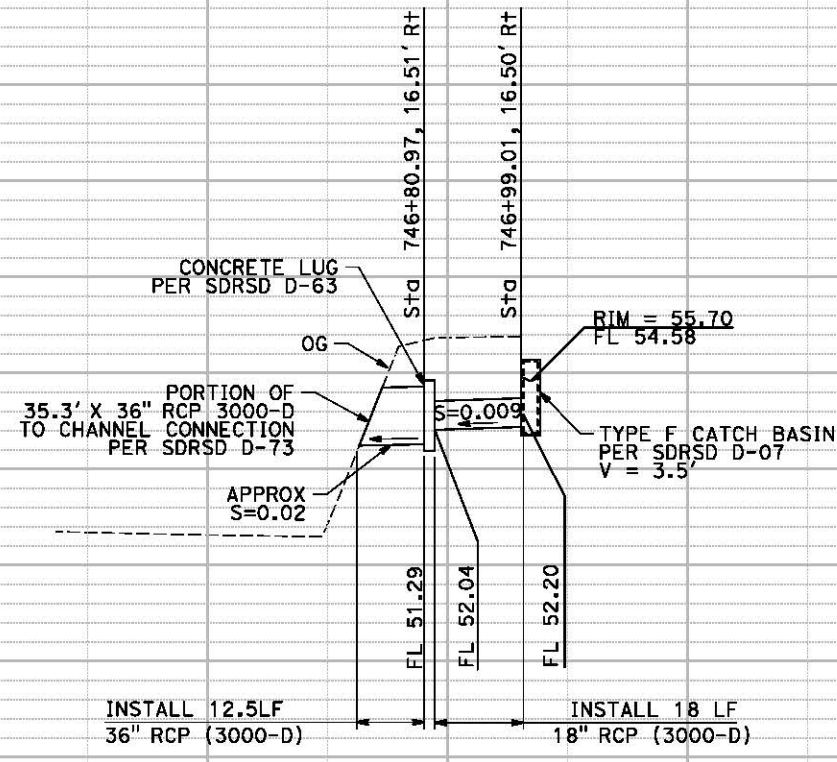
DRAINAGE SYSTEM 44.1 PLAN

1. CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF APPROPRIATE BMP MEASURES AS REQUIRED TO CONFORM WITH THE PROJECT SPECIFIC SWPPP.

IP-SHORT-PEN-TABLE



DRAINAGE SYSTEM 42.2 PROFILE



DRAINAGE SYSTEM 44.1 PROFILE

EMDT-SW-B1900305.dgn

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH

HDR
 HDR ENGINEERING, INC.
 401 B STREET, SUITE 1110
 SAN DIEGO, CALIFORNIA 92101

REGISTERED PROFESSIONAL ENGINEER
 EDUARDO HERNANDEZ
 No. 67141
 Exp. 9/30/2016
 CIVIL
 STATE OF CALIFORNIA

DESIGNED BY A. SHAH
 DRAWN BY J.K. ANDRES
 CHECKED BY B. FLORES
 SANDAG S. HUMPHREYS

DATE 7/15
 7/15
 7/15
 7/15

RELATIVE BORDER SCALE
 IS IN INCHES

0 1 2

SANDAG
 San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
 BALBOA AND ROSE CREEK SHOOFLY

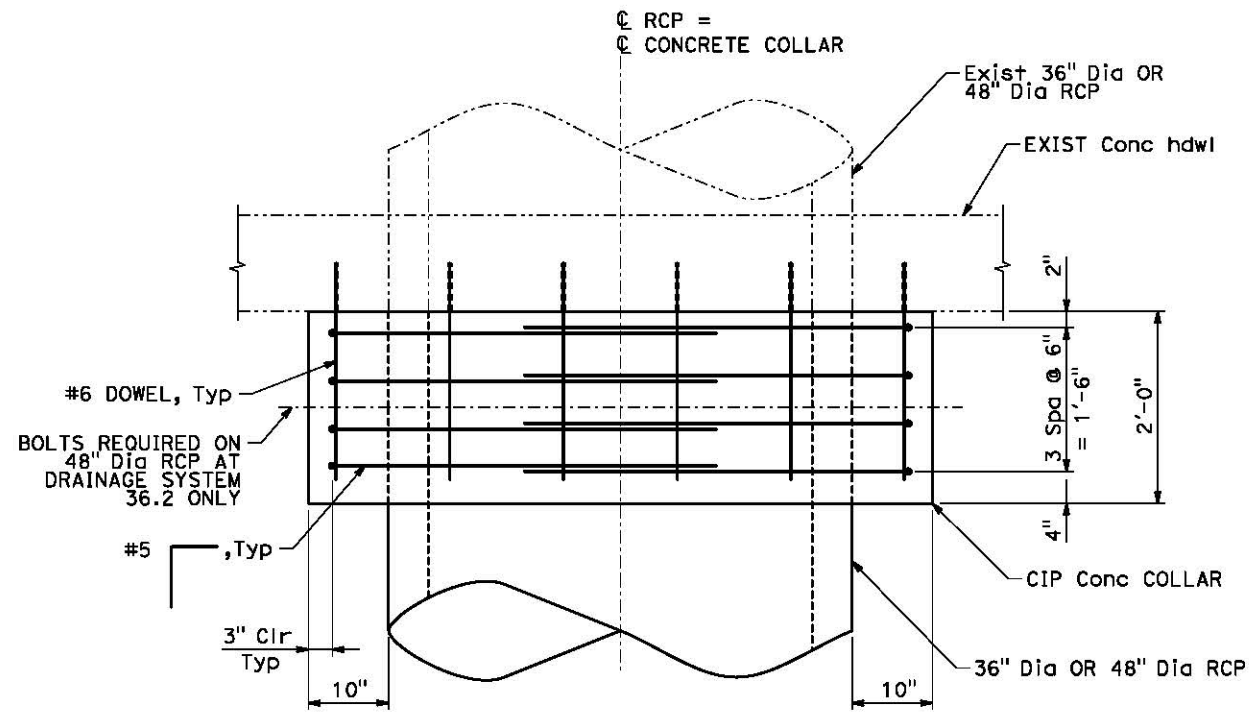
GRADING AND DRAINAGE
 DRAINAGE SYSTEM 42.2 AND 44.1
 PLAN AND PROFILE

SCALE HORIZ 1"=20' VERT 1"=5'
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. GD305 30 OF 33

7/8/2015 9:41:15 AM user

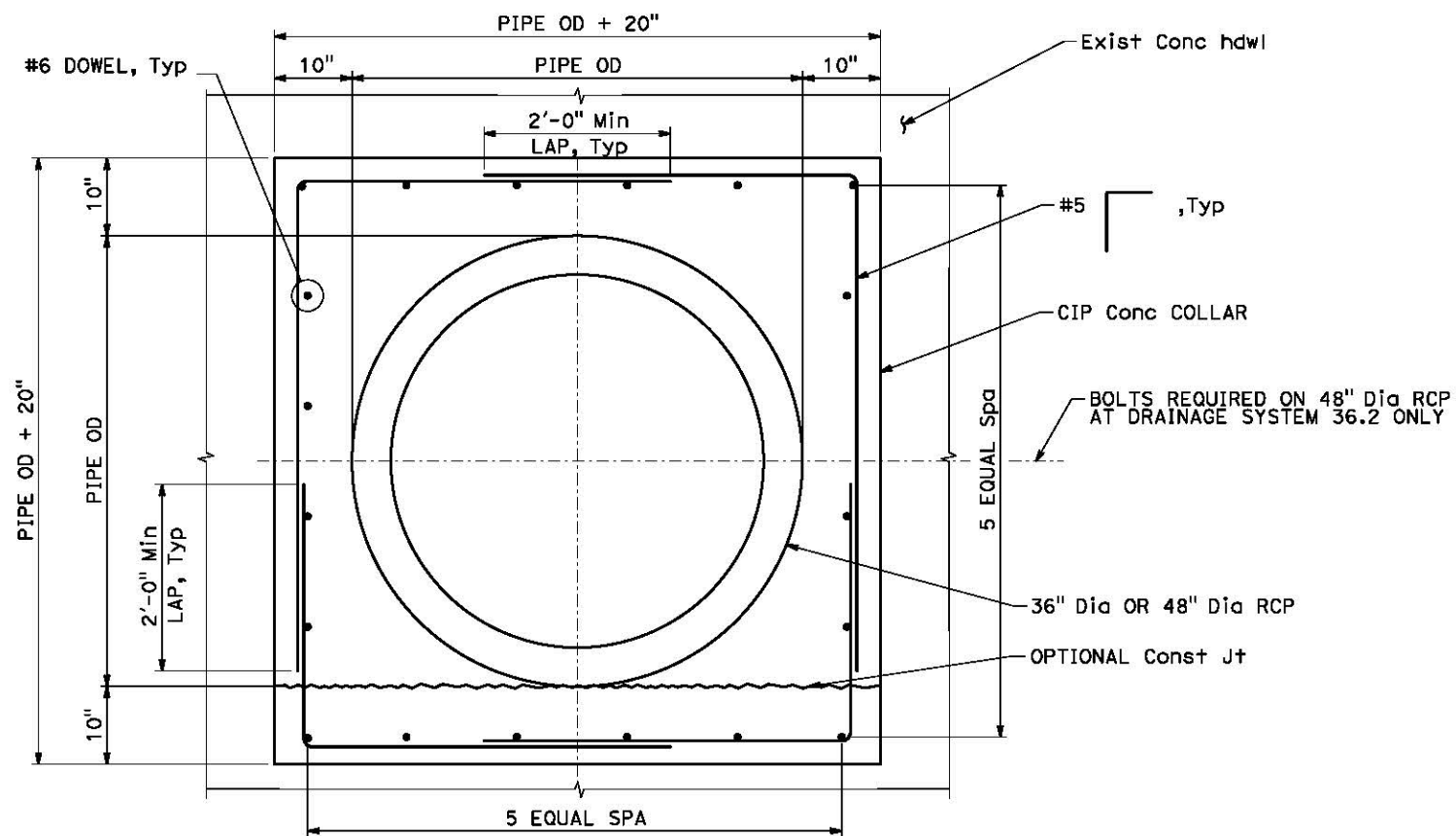
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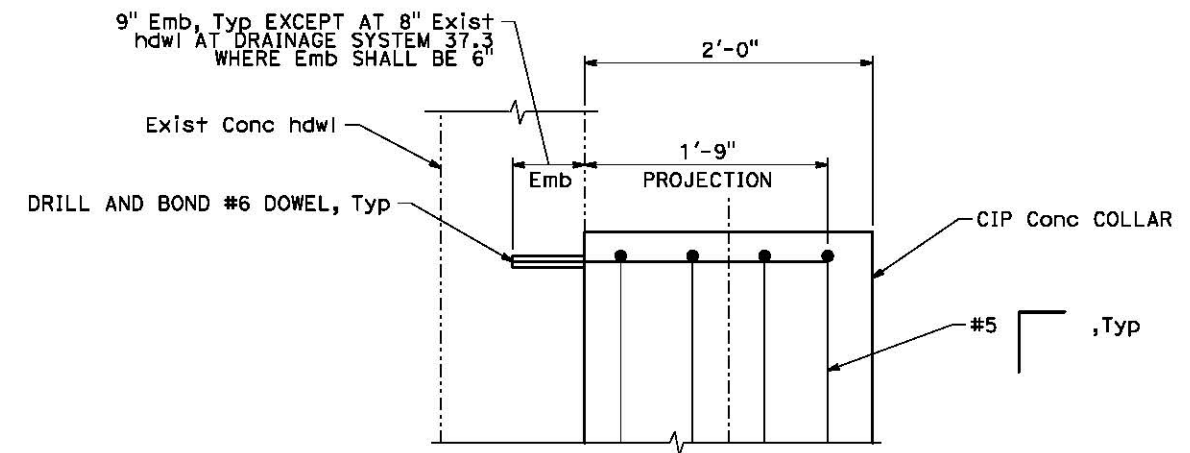
CONCRETE COLLAR PLAN

SCALE: 1" = 1'-0"



CONCRETE COLLAR ELEVATION

SCALE: 1" = 1'-0"



TYPICAL DOWEL INSTALLATION DETAIL

SCALE: 1 1/2" = 1'-0"

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH

HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101

RELATIVE BORDER SCALE
15 IN INCHES

DESIGNED BY
A. McCUNE

DATE
7/15

DRAWN BY
M. DOLL

7/15

CHECKED BY
H. Y. OOI

7/15

SANDAG
S. HUMPHREYS

7/15

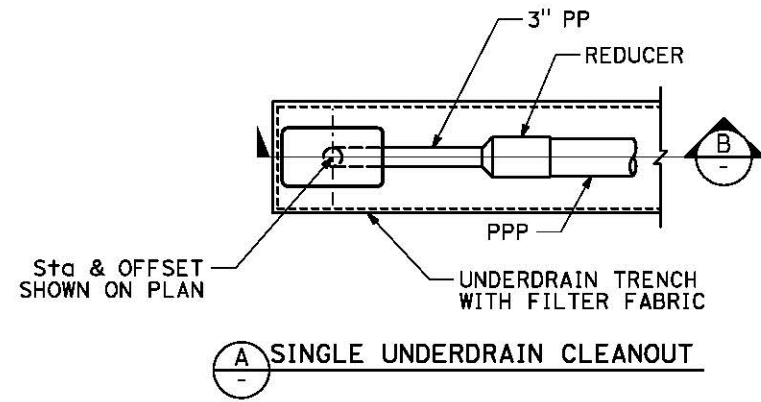
San Diego's Regional Planning Agency

ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY

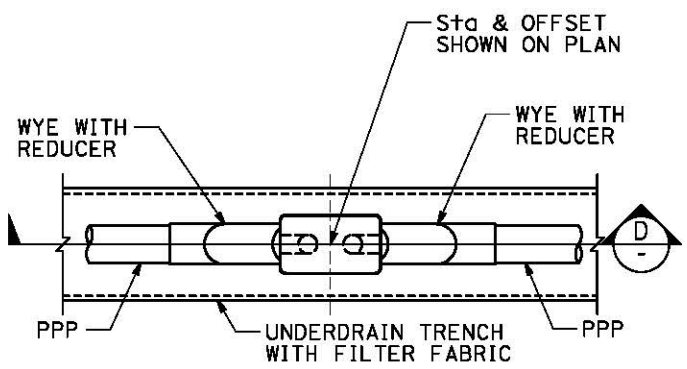
GRADING AND DRAINAGE
CONCRETE COLLAR
DETAILS

SCALE	AS NOTED
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GD306
SHEET NO.	31 OF 33

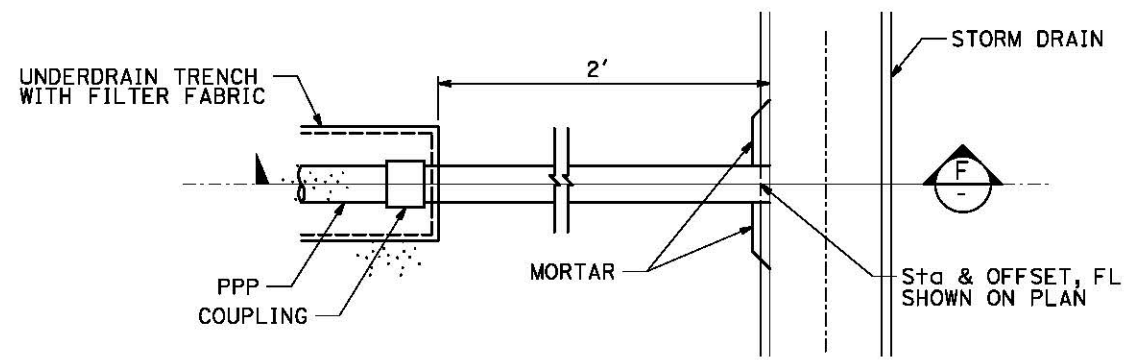
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A SINGLE UNDERDRAIN CLEANOUT

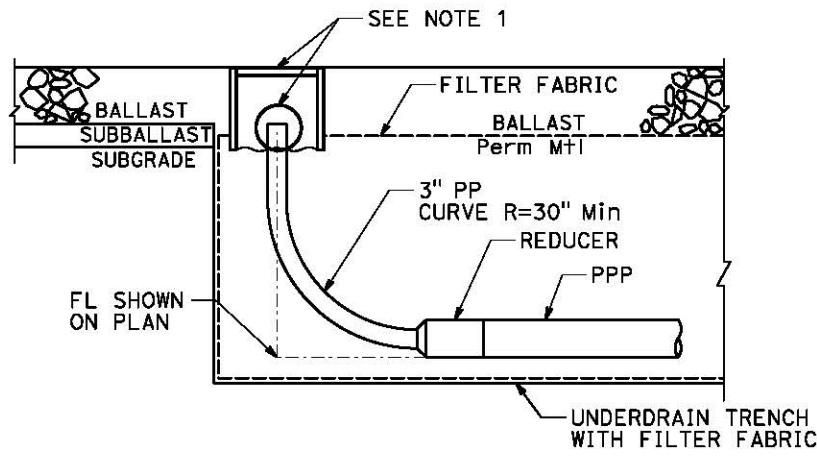


C DUAL UNDERDRAIN CLEANOUT

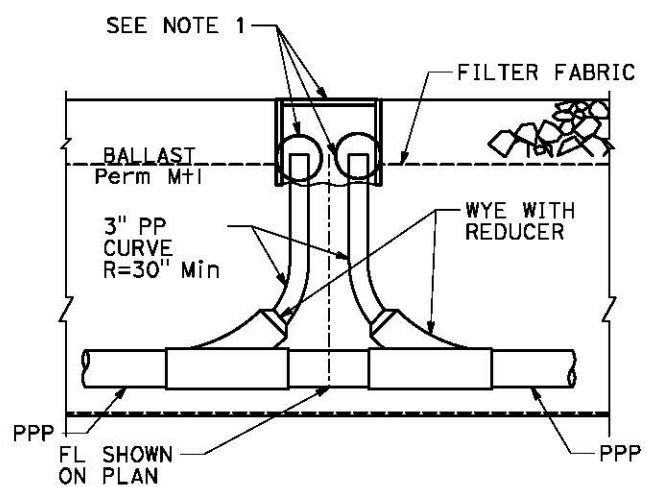


E UNDERDRAIN OUTLET TO STORM DRAIN OR DRAINAGE STR

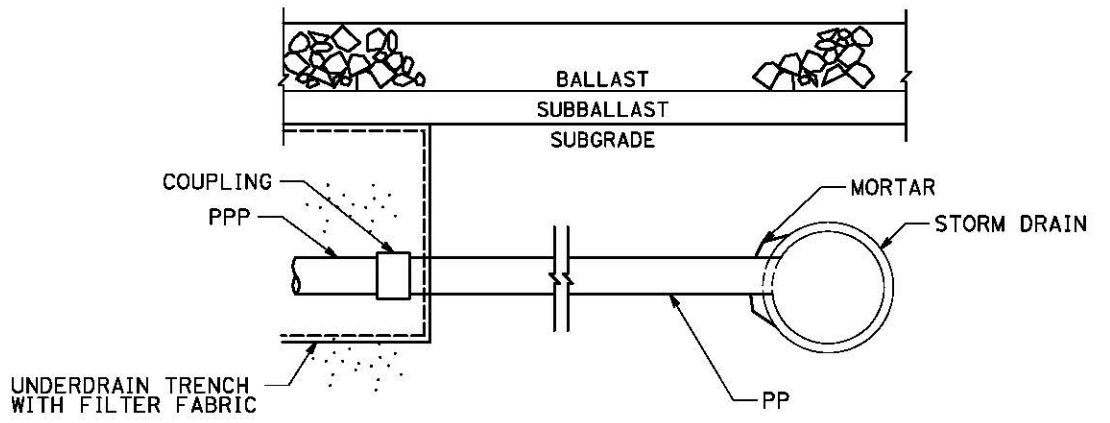
NOTE: Sta & OFFSET, FL SHOWN TO CENTERLINE OF PIPE FOR CONNECTIONS TO STORM DRAINS SMALLER THAN 48"



B SECTION

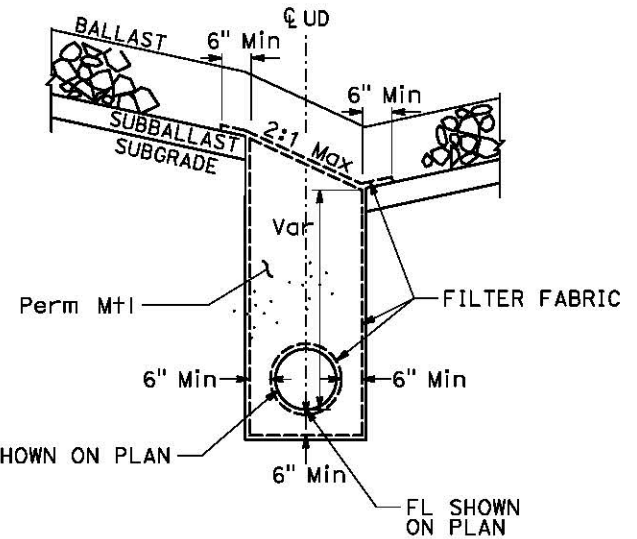


D SECTION

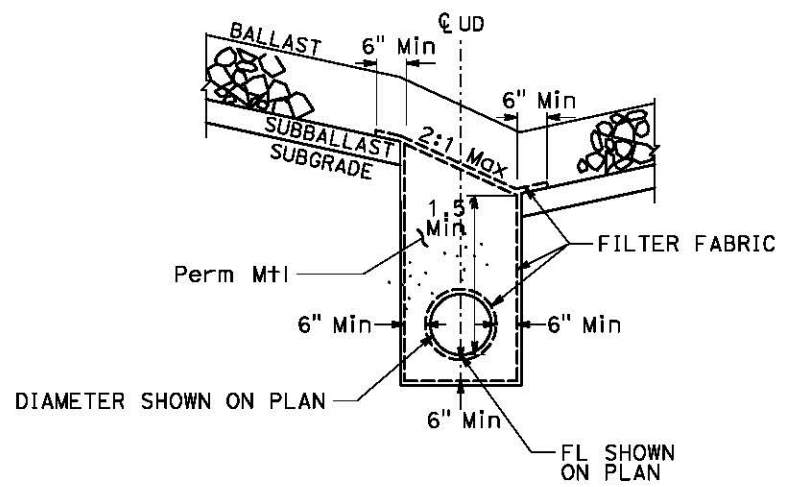


F SECTION

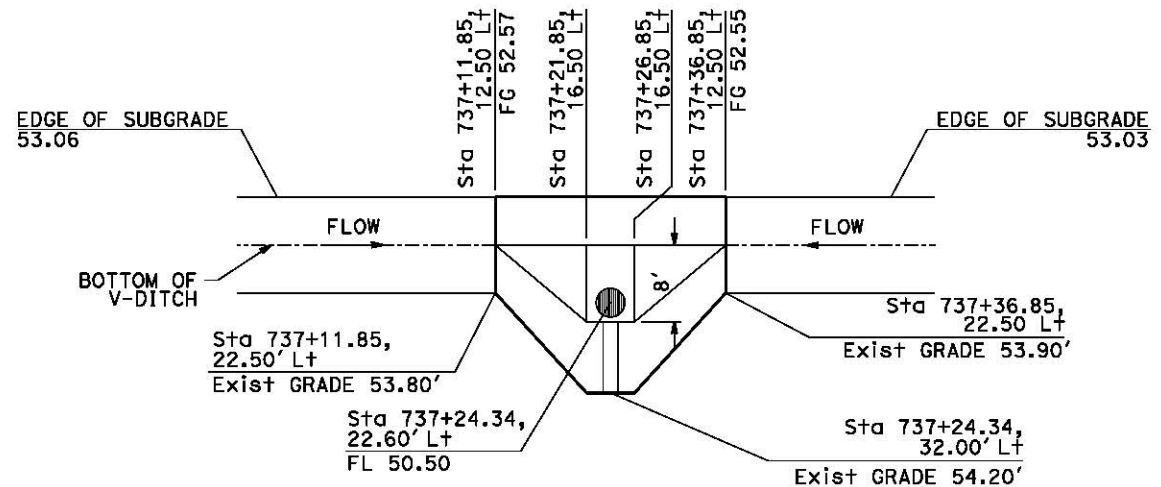
ROSE CREEK SHOOFLY



G UNDERDRAIN TRENCH



H UNDERDRAIN TRENCH

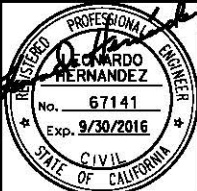


J DITCH TRANSITION

- NOTES:**
- No. 6 PULL BOX PER CALTRAN'S STD PLAN ES-8A. SCREW PLUG PER CALTRAN'S STD PLAN D99C.
 - CUT THE END OF THE PLASTIC PIPE FLUSH WITH THE INSIDE FACE OF THE STORM DRAIN.



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101



DESIGNED BY L. HERNANDEZ DATE 7/15
DRAWN BY M.R. GRANADO 7/15
CHECKED BY B. FLORES 7/15
SANDAG S. HUMPHREYS 7/15

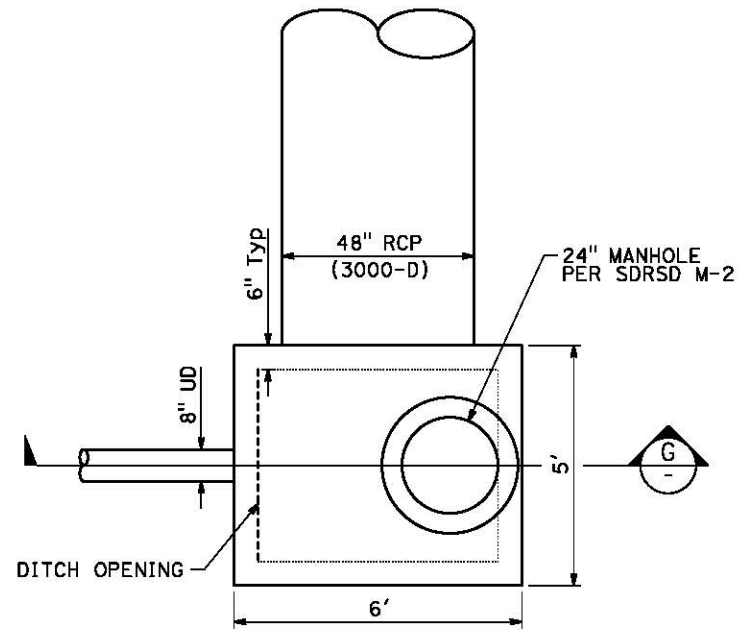


ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY
GRADING AND DRAINAGE
UNDERDRAIN DETAILS

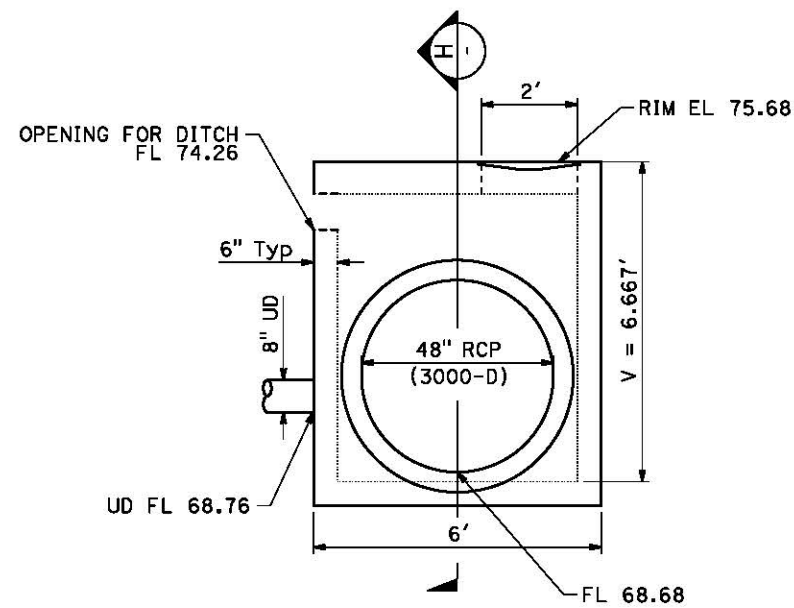
SCALE NTS
SANDAG CONTRACT NO. 1239811
DRAWING NO. SHEET NO. GD307 32 OF 33

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH

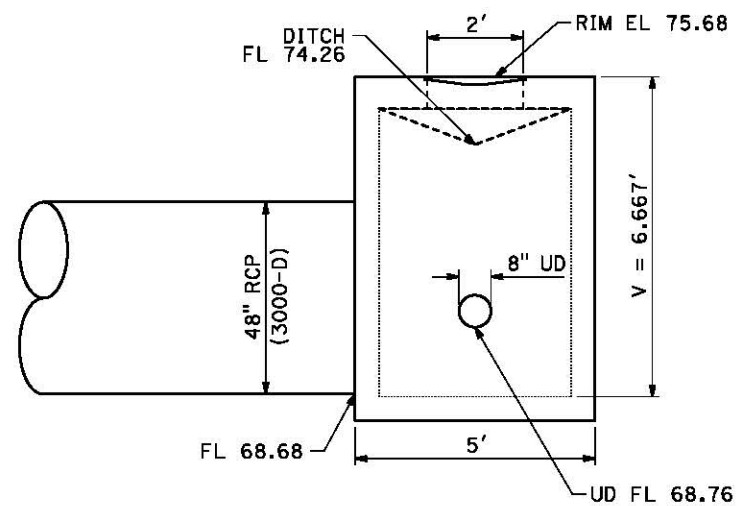




PLAN VIEW



SECTION G-G

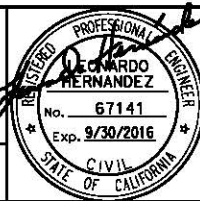


SECTION H-H

No.	DATE	REVISION	BY	CHK	APRV
	7/7/15	ISSUED FOR CONSTRUCTION	KM	LH	SH



HDR ENGINEERING, INC.
401 B STREET, SUITE 1110
SAN DIEGO, CALIFORNIA 92101



DESIGNED BY	L. HERNANDEZ	DATE	7/15
DRAWN BY	M.R. GRANADO	CHECKED BY	B. FLORES
CHECKED BY	B. FLORES	DATE	7/15
SANDAG	S. HUMPHREYS	DATE	7/15



ELVIRA TO MORENA DOUBLE TRACK PROJECT
BALBOA AND ROSE CREEK SHOOFLY
GRADING AND DRAINAGE
MODIFIED D-09 TYPE A5 CLEANOUT
DETAILS

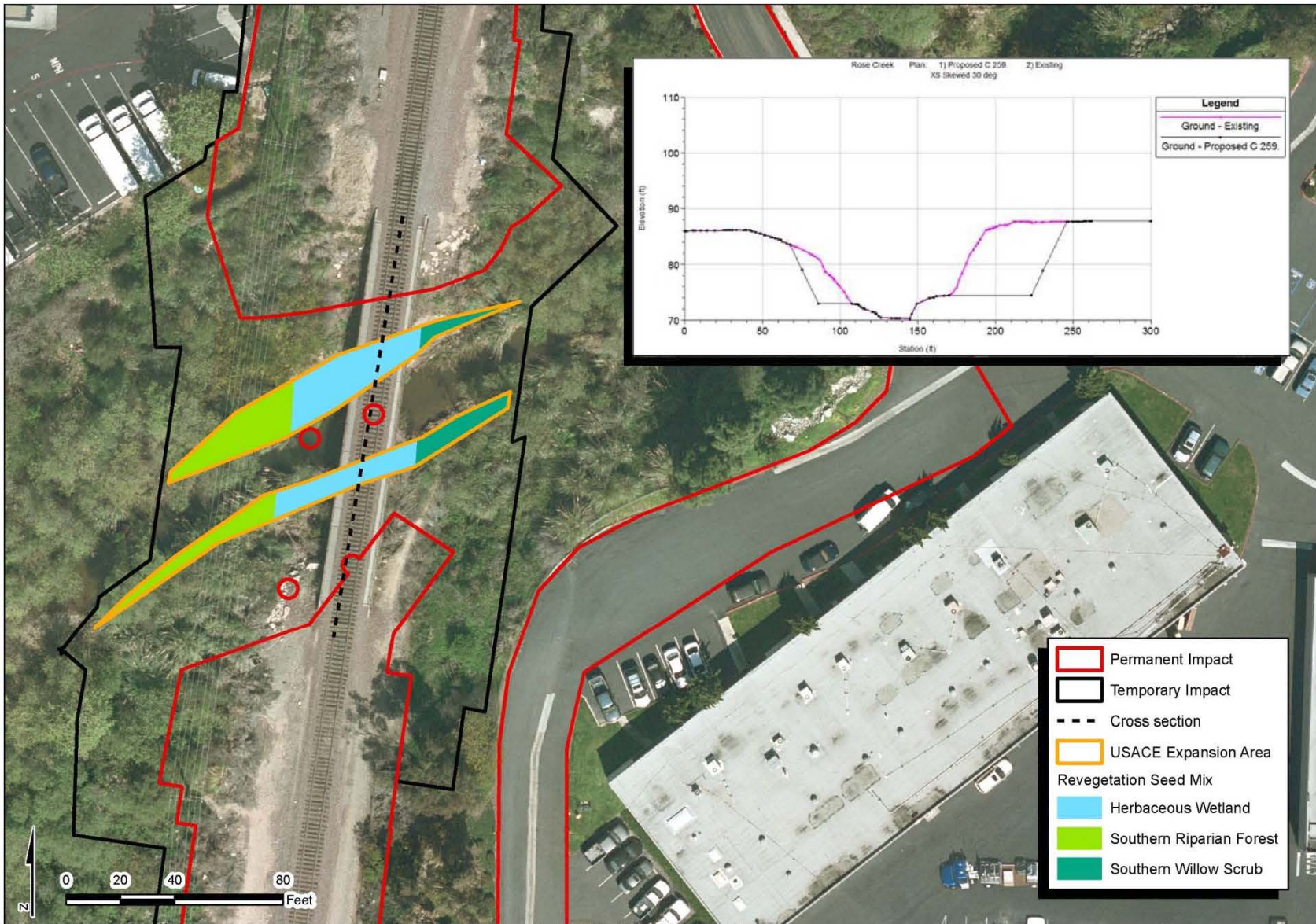
SCALE	NTS
SANDAG CONTRACT NO.	1239811
DRAWING NO.	GD308
SHEET NO.	33 OF 33

San Diego Association of Governments
Elvira to Morena Double Track
Certification No. R9-2015-0053

ATTACHMENT 4
PROJECT MITIGATION FIGURES AND MITIGATION LEDGER

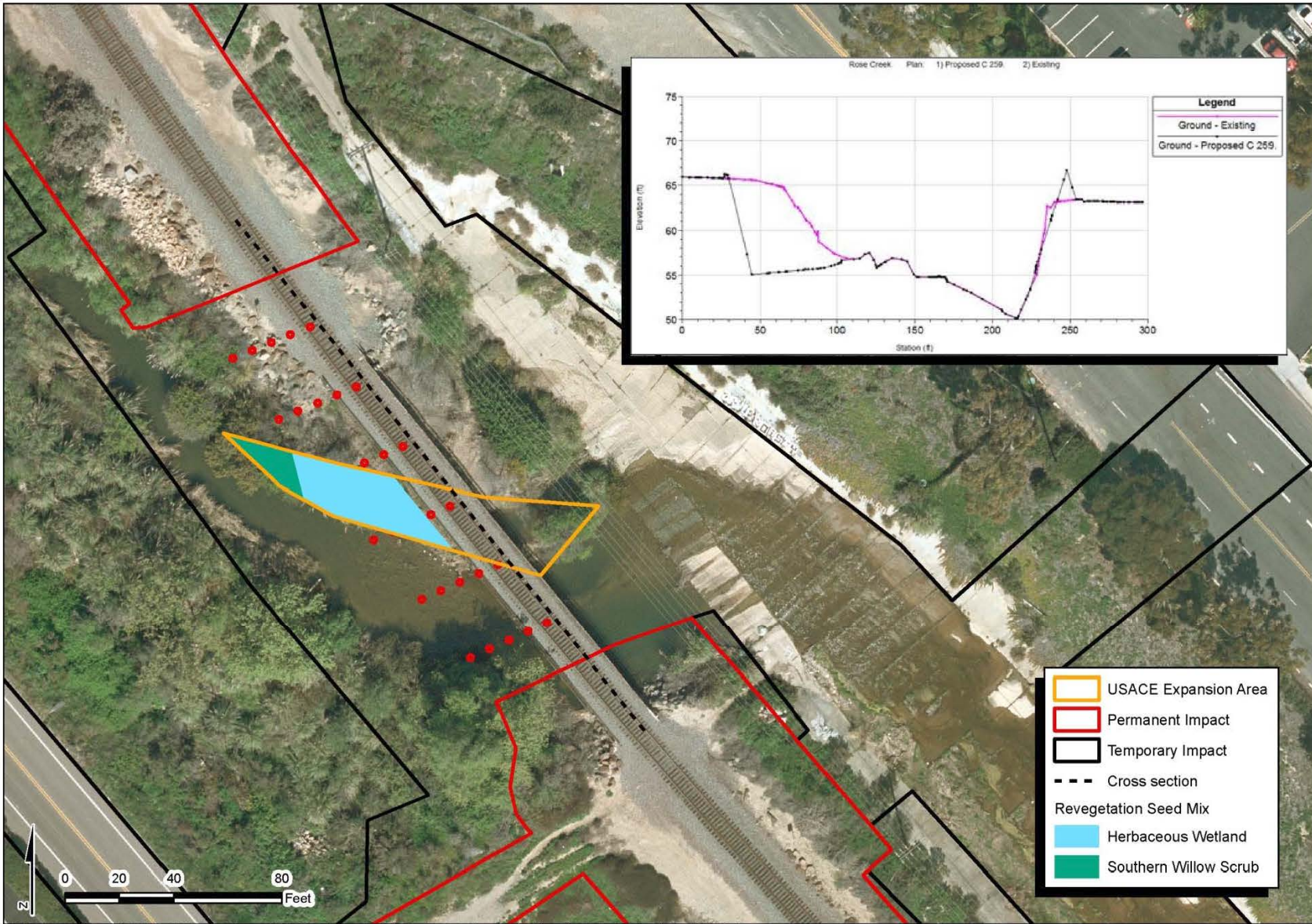
Fig. 2a – Rose Canyon Creek Expansion Areas at Bridge 258.6
Fig. 2b – Rose Canyon Creek Expansion Areas at Bridge 259.1
Fig. 3 – Deer Canyon (Mitigation Ledger)

Figure 2a. Rose Canyon Creek Expansion Areas and Cross-Section at Bridge 258.6



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Figure 2b. Rose Canyon Creek Expansion Areas and Cross-Section at Bridge 259.1



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DEER CANYON

<u>Location, Type of Resources, & Any Restrictions</u>	<u>Credits Debited acres/linear feet</u>	<u>Project</u>	<u>Credits Available</u>	<u>Linear Ft. Available</u>
Corps' jurisdictional wetlands/CDFG riparian (creation)			12.3 acres	2100
Mar-11 0.18 acres (CDFG impacts only)		Carroll Canyon	12.12 acres	2100
Aug-11 5.76 acres*/189 feet		805 North	6.36 acres	1911
May-12 3.36 acres** /1290 feet		5/Genesee	3.0 acres	621
May-12 1.73 acres/275 feet		LOSSAN	1.27 acres	346
Stream channel (preservation)			.7 acres	
Coastal sage scrub (creation)			15.46 acres	
Native grassland (creation)			2.1 acres	
Native grassland (preservation)			26.8 acres	

updated 11/29/12